SECURITY OF GAS SUPPLY AND ENERGY MARKET REGULATION: OUTLOOK AND IMPLICATIONS IN THE EU

By

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ABSTRACT

The introduction of liberalisation and concepts such as third-party access, network ownership unbundling and competition in the EU’s internal energy market following the first, second and third sets of EU legislative packages and directives had the effect of requiring Member States to significantly alter the regulatory and organisational structures of their energy markets, including traditional ways of promoting energy security. Consequently, state-owned or controlled vertically-integrated operators or centrally administered energy markets now have to meet the demands of open access and competition. There is also a shift away from traditional long-term gas supply contracts, towards more short-term spot-markets and trading hubs. Although, long-term supply arrangements could be seen as a means of achieving security of supply, it can also become an instrument which ‘locks-in’ ex ante investments in commercial arrangements with supplier(s) whose broader geopolitical and economic interests may be incompatible with the peculiar interests of the consuming state(s) or purchaser undertaking(s). Geopolitical conflicts relating to external suppliers, import dependency, declining regional gas production and the interconnectedness of gas and electricity markets, competitiveness of gas utilisation in the energy mix are some essential factors affecting the reliability and security of energy supply. This paper aims to examine some of the key regulatory and policy issues affecting the security of gas supply in the evolving EU internal energy market. It focuses on the dynamics of securing the availability and reliability of gas for electricity generation from a legal and regulatory perspective.

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1. **Introduction**

Energy security is a complex and multidimensional subject which can be considered from different perspectives to encompass factors like *force majeure* in energy supply contracts, the integrity and reliability of energy infrastructure, mid- and long-term adequacy of investments in supply infrastructure and/or demand security.\(^1\) It has been defined to include: (i) the conditions under which a country and its citizens (or at least most of them) and companies have access to sufficient energy resources at reasonable prices for the foreseeable future without a serious risk of major disruption, and\(^2\) (ii) the ability of the energy industry, primarily in electricity and gas, to provide their services throughout the EU to a high standard and at reasonable cost in a competitive, fully liberalised pan-European market.\(^3\) In this paper, ‘energy security’ is examined from a security of supply perspective and as the condition in which all or most of the undertakings, citizens and businesses in a nation or a supra-national union (like the EU) have reliable access to sufficient energy resources at reasonable prices for a foreseeable future, in which risk(s) of major disruptions are eliminated or effectively mitigated. Securing reliable supply of energy resources and energy itself is a vital component of energy policy and socio-economic security in the 21\(^{st}\) century.\(^4\)

The controlled introduction of liberalisation and concepts such as third-party access (TPA), network ownership unbundling and competition in the EU’s internal energy market (‘IEM’) following the First Energy Package,\(^5\) the Second Energy Package,\(^6\) and the Third Energy Package\(^7\) *inter alia* meant that Member States had to significantly alter the regulatory and organisational structures of their energy markets, including traditional ways of promoting energy security.\(^8\) Consequently, state-owned or controlled vertically-integrated operators

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have to meet the demands of open access and competition. There is also a gradual shift away from traditional long-term gas supply contracts with mechanisms such as take-or-pay clauses and cost-plus pricing formulas, towards more short-term spot-market supply arrangements. Although long-term supply arrangements could be seen as a means of achieving security of supply. It could also become a lock-in instrument for \textit{ex ante} investments in a commercial arrangement with supplier(s) whose broader geopolitical and economic interests may be incompatible with the peculiar interests of the consuming state or purchaser undertaking(s).

Concerns over energy security in the EU has been heightened following recent degeneration of the lingering EU-Russia-Ukraine disputes and conflicts on one hand, and developments in the international oil and gas markets as it affects the competitiveness of gas utilisation in the IEM on the other.\(^9\) It is noted that the EU gas market is closely knitted with investments and growth of its electricity market.\(^{10}\) Natural gas accounts for about 23.9\% of EU’s total primary energy supply (‘TPES’), while oil accounts for 32\% of TPES. Power generation constitutes about 30\% of total demand largely due to the increased investments in gas-fired power generation over the years and its perceived comparative advantages to other hydrocarbons.\(^{11}\) It is noted that about 66\% of gas in the EU’s energy mix is based on imports through pipelines and/or liquefied natural gas (‘LNG’) regasification plants with gas mostly supplied from Russia, Norway and North Africa as the case may be.\(^{12}\) Consequently, any significant disruption, investments delays or cancellations in the existing and projected supply arrangements, or the mothballing of operations in gas-fired power generators automatically raise concerns about the security of supply and reliability of the overall energy portfolio in the IEM. This paper aims to examine some of the key regulatory and policy issues relating to security of gas supply in the evolving IEM. It focuses on the dynamics of securing the availability and reliability of gas for electricity generation from a legal and regulatory perspective.

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\(^{10}\) According to the IEA (n9) gas consumption rates in the EU by sector are as follows- power generation 29.5\%, residential 27.6\%, industry 24.3\%, commercial and other services 13.3\%, other transformations 4.6\%, transport 0.7\%.


2. Supply and Utilisation of Gas in the EU’s Internal Energy Market

The largest producers of gas in the EU have been the Netherlands and the UK (although faced with declining production and maturing fields in the North Sea), whilst the largest consumers are Germany and the UK (consumption and demand for gas has also recently been in decline). Given that domestic production of gas covers only 30% of consumption, the gap between demand and supply is mainly met by imports.\textsuperscript{13} Gas is the second-largest fuel in the EU’s energy mix, whilst its role continues to decline over the past decade, in line with the general decline of energy demand in Europe.\textsuperscript{14} The years of steady gas demand witnessed a surge in investments in new gas-fired power plants and import infrastructure. The decline in demand since 2010 is mostly attributed to the recent economic and financial crisis, sweeping state-supported growth for renewables in power generation, and the relative non-competitiveness of gas-fired power plants compared to coal-fired generators following developments in North American unconventional hydrocarbon revolution.\textsuperscript{15}

2.1. The evolving European gas supply market

Gas markets in most EU Member States used to be essentially monopolistic or oligopolistic in nature, with state-controlled or owned transmission and supply undertakings, mostly established in the aftermath of the gas discoveries in Groningen, Netherlands and the North Sea.\textsuperscript{16} These undertakings had exclusive or preferential rights to import or export, supply and distribute electricity and gas; including exclusive rights to own, operate and use national transmission networks and pipelines. Consequently, there was direct or indirect state intervention in the energy sector aimed at ensuring the affordability and reliability of supplies.

In the Netherlands, private producers developed gas fields under a license or concession and a joint venture arrangement in which the State held about 40% or 50% of the participating interests. Thus, the producers preferentially sold gas to the national gas transmission company NV Nederlandse Gasunie (‘Gasunie’) which was owned by the State and the holders of the Groningen Concession, namely Shell and Exxon.\textsuperscript{17} By virtue of the EU Hydrocarbon Licensing Directive, the obligation for producers to exclusively sell all their gas production or give a right of first refusal to undertakings like Gasunie was abolished in 1996.\textsuperscript{18}

\textsuperscript{13} Commission (Ibid).
\textsuperscript{14} IEA (n9) at 171 - 172.
\textsuperscript{17} Roggenkamp (n16) at 283. Before the regulatory drive towards liberalisation, Gasunie had monopoly over purchase and transport of gas, gas marketing, conditions and tariffs of supply, export prices and purchasing contracts. The company controlled the wholesale and retail market to large industrial consumers and distribution companies.
In Germany, there was no state-owned utility or designated statutory corporation for gas transmission unlike other EU Member States. Instead, there was a monopoly-based contractual framework for gas and electricity market operators due to the network bound nature of the industry. The contract-based framework comprised of: (i) exclusive concession agreements between municipalities and utilities; and (ii) agreements between utilities to refrain from business activities in the service territories of other utilities. The underlying rationale was that creating competition in such network-bound industries could hinder overall regulatory and public policy objectives of affordability, efficiency and security of energy supply.

In general, as a result of the commercial and peculiar nature of gas as an energy resource, Member States traditionally relied on imports mostly from the former Soviet Union, Algeria and Norway. Furthermore, arrangements for imports and/or wholesale gas supply required large, creditworthy buyers to commit to long-term contracts with volume centred take-or-pay clauses, which were also indexed to international oil prices, including a pricing mechanism that guaranteed a reasonable rate of return, the recovery of ex ante costs and an acceptable profit margin. Special legally binding arrangements were also made for storage and transportation via pipelines to take contracted gas to designated consumers. As the gas markets developed, the cost and competitive advantages of gas utilisation for domestic heating and power generation led inter alia to more consumption of gas and eventually the significant displacement of coal and other oil products in the energy mix.

Further consideration of the evolution of the gas to electricity market will now be carried out by distinguishing the ‘monopoly-oligopolistic era’ from the ‘pro-liberalisation era’. This will be carried out by considering developments in the years preceding and following the publication of the European Commission’s Energy Sector Inquiry in 2007. The inquiry examined: (i) the effectiveness of the regulation the policy drive towards competition; and (ii) the state of the wholesale gas and electricity markets.

2.1.1. The monopoly-oligopolistic era

The gas-to-power market during this period comprised mainly of: (i) upstream gas producers and exporters; (ii) midstream gas transmission companies; (iii) downstream local gas distribution companies (‘LDCs’); and (iv) large industrial or power generation customers. The commercial arrangements included upstream

19 Gunther Kuhne (n4) at 337.
20 Ibid.
23 European Commission, Communication from the Commission Inquiry pursuant to Article 17 of Regulation (EC) No 1/2003 into the European gas and electricity sectors (‘Energy Sector Inquiry’) COM(2006)851 final. Some of the key shortcomings identified in the Energy Sector Inquiry includes: inadequate unbundling between network and supply interests leading to negative repercussions on market functioning and investment incentives; customers being tied to suppliers through long-term downstream contracts; current balancing markets and small balancing zones favour incumbents; too much market concentration in most national markets; and a lack of liquidity, preventing successful new entry, too little integration between Member States’ markets.
producers (mostly outside the EU) selling to the transmission company of a Member State, which then resells to LDCs and/or the industrial and power generation customers for electricity and/or energy production. As such any risk or disruption to the supply of gas from upstream to the downstream segments of the energy value chain would have multiplier effects since the ‘cost of gas as fuel for energy’ or the risk of shortfalls is often passed on to the final consumers. Additionally, the network-bound and monopolistic nature of gas production and transmission meant that there was little or no competition or price risk at the transmission level. Thus, Member States (apart from Germany) established national companies responsible for co-ordinating national gas supply and demand portfolios. This led to the emergence of monopolies or oligopolies and vertically integrated utilities.

The transmission companies such as British Gas (UK), Ruhrgas (Germany) and Gaz de France (France) or their respective subsidiaries purchased gas from domestic or foreign upstream producers for their national markets. Gas was sold through long-term contracts which supported the infrastructure investments and provided a significant level of supply security. These developments also encouraged several mergers and acquisitions between gas and electricity utilities seeking to extend their operations and optimise market positions. An example is the 2002/2003 merger between E.ON AG and Ruhrgas AG which was seen as a means of strengthening Ruhrgas’s dominant position in the German gas distribution market, while the integration of electricity and gas assets was aimed at further strengthening EO.N’s dominance in the electricity market.

2.1.2. The pro-liberalisation era

Following the liberalisation and privatisation drive in the UK in the late 80s and early 90s, the EU also initiated the IEM liberalisation objectives, in which earlier debates on energy market Directives were centred on introducing TPA to gas and electricity transmission networks. In this regard, the main objective was to establish an economic area without internal frontiers where the free movement of goods, persons, capital and services is guaranteed, including effective competition and open access.
a. The pro-liberalisation and integration drive through energy law and regulation

Article 4(2) of the Treaty on the Functioning of the European Union (‘TFEU’)\textsuperscript{32} provides for the shared competence rule between the EU and Member States on energy. The insertion of Title XXI, Article 194 of the TFEU on ‘Energy’ following the entry into force of the Treaty of Lisbon in 2009 was essential in formalising and enabling ‘EU-level’ energy regulation and policy developments.\textsuperscript{33} Article 194(1) provides that 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. In addition, Article 194(2) provides that the European Parliament and the Council (‘Council’) shall legislatively establish measures necessary to achieve the objectives highlighted in 194(1), which shall be adopted after consultation with the Economic and Social Committee and the Committee of the Regions. It is noted that the legislative measures taken by the Council to achieve the objectives listed in Article 194(1) should not affect a Member State’s right to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply.\textsuperscript{34} Although the rights of Member States in this regard is without prejudice to the powers of the Council as stated under Article 192(2) (c) of the TFEU.\textsuperscript{35}

b. EU-level legislative and regulatory developments

The above highlights the legal and policy background in which the EU agenda on liberalisation and energy market integration developed, alongside the sustainability and security of supply objectives.\textsuperscript{36} The First Gas Directive provided the initial steps towards the restructuring of the gas supply sector and the establishment of specific conditions for access to the networks by introducing: legal unbundling, a negotiated and regulated TPA regime etc. This was repealed by the Second Gas Directive which sought to enhance the TPA and legal unbundling framework, including provisions for establishing an independent national regulatory authority (‘NRA’).\textsuperscript{37} Recital 2 of the Second Gas Directive provides \textit{inter alia} that there was a need to create a level playing field and to reduce the risks of market dominance and predatory behaviour by incumbents, while ensuring non-discriminatory transmission and distribution tariffs, and that the rights of small and vulnerable

\textsuperscript{32} Consolidated versions of the Treaty on European Union and the Treaty on the Functioning of the European Union [2012] OJ C326/47. Note that actions and developments on energy matters at the EU level was previously based on Article. 95 of the EC Treaty (now Art. 114 of TFEU) which essentially 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. Other previous EU energy related enablers include ex Article 175 of the EC Treaty (now Art. 192 of TFEU) and ex Article 308 of the EC Treaty (now Art. 352 of TFEU) relating to environment and EU’s implied powers respectively.


\textsuperscript{34} The TFEU, Article 194(2).

\textsuperscript{35} Article 192(2) (c) essentially maintains the Council’s power to take legislative measures regarding measures significantly affecting a Member State’s choice between different energy sources and the general structure of its energy supply.

\textsuperscript{36} Oyewunmi, Huhta, Kröger and Eiamchamroolarp. (n8) at 77; Johnston & Block (n8) ibid.

\textsuperscript{37} Stern and Rogers (n8) at 54; Johnston and Block (n8) at pp. 39 – 39; See also Recitals 9, 10, 13, 16 Second Gas Directive.
customers are protected. It further provides that the competition objective required non-discriminatory, transparent and fairly priced access to the network of transmission system operators (‘TSOs’) and distribution system operators (‘DSOs’).\(^{38}\)

To enhance security of supply, the Second Gas Directive recognised the importance of: (i) effective monitoring of supply/demand balance in individual Member States; (ii) the construction and maintenance of the necessary network infrastructure and interconnection capacities; (iii) the right of Member States to impose public service obligations (‘PSOs’) on gas undertakings in the general economic interest; and (iv) compatibility of EU competition rules with long-term gas supply contracts and energy security.\(^{39}\) The expected far-reaching organisational changes and implications of the Second Gas Directive was significantly limited to the extent that it accorded special recognition to long-term contracts which were the main commercial instruments through which gas was supplied to Member States. For example, TPA for new entrants could be refused based on PSOs imposed by virtue of Article 3(2) of the Second Gas Directive\(^{40}\) or lack of capacity or on the basis of serious economic and financial difficulties relating to take-or-pay obligations in supply contracts.\(^{41}\) It is noted that Regulation 1775 of September 2005 provided further guidelines for the TPA regime, principles for capacity allocation mechanisms, congestion management procedures and transparency requirements.\(^{42}\) It provides that:

> “Non-discriminatory and transparent balancing systems for gas, operated by transmission system operators, are important mechanisms, particularly for new market entrants which may have more difficulty balancing their overall sales portfolio than companies already established within a relevant market. It is therefore necessary to lay down rules to ensure that transmission system operators operate such mechanisms in a manner compatible with non-discriminatory, transparent and effective access conditions to the network […]”\(^{43}\)

In 2007 the European Commission’s Energy Sector Inquiry (the ‘Inquiry’) confirmed that the Second Gas Directive failed to achieve a competitive and transparent internal market for gas and electricity. One main finding of the Inquiry was that the lack of transport capacities, mainly caused by the incumbents’ own bookings prevented competitors from gaining access to the pipelines necessary to reach their gas customers.\(^{44}\) The

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\(^{38}\) Second Gas Directive, Recital 7 – 8.

\(^{39}\) Second Gas Directive, Recitals 23 and 25. See also Hancher and Janssen (n\(^8\)) at 100 – 102.

\(^{40}\) Based on Article 3(2) of the Second Gas Directive, Member States may impose PSOs relating to security of supply, regularity, quality and price of supplies, environmental protection, energy efficiency and climate protection on gas undertakings in the general economic interest. Member States may also initiate long term planning, taking into account the possibility of third parties seeking access to the supply systems, where security of supply, energy efficiency/demand-side management and fulfilment of environmental goals require.

\(^{41}\) Second Gas Directive, Articles 21 and 27.


\(^{43}\) The 2005 Gas Network Regulations, Recital 14.

subsequent antitrust cases and the overall ineffectiveness of the second gas regulatory framework eventually led to the Third Gas Directive and 2009 Gas Network Regulation.

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 [...]”

Consequently, the Third Gas Directive aimed at strengthening security of supply through effective ownership unbundling of TSOs and incumbent network-owners while incentivising investments in infrastructure, efficient competition and TPA to gas markets. It also recognised the need for the independence of NRAs to ensure regulatory effectiveness. In this regard, energy regulators should be able to act and take regulatory decisions without undue interference from the state as well as avoiding regulatory capture by industry operators. The 2009 Gas Network Regulation provided for the mandatory certification of TSOs towards meeting the unbundling requirements.

Furthermore, in order to enhance competition and wholesale gas market liquidity it established entry-exit organisation of access to transmission system networks. As such, entry capacity must be booked independently from exit capacity and the practice of setting tariffs on the basis of contract paths was replaced by one based on transport through zones. The regulation further required the development of twelve binding pan-European Network Codes on cross-border rules for: (i) capacity allocation and congestion management; (ii) balancing; (iii) tariffs; (iv) interoperability; (v) network security and reliability; (vi) network connection; (vii) TPA; (viii) data exchange and settlement; (ix) operational procedures for emergencies; (x) trading; (xi) transparency; and (xii) energy efficiency for gas networks. These network codes (within overarching framework guidelines) are being developed by the EU-level agencies, namely the Agency for Co-operation of Energy Regulators (ACER) and the European Network of Transmission System Operators for Gas (ENTSO-G), in consultation with the Commission.

c. The EU IEM’s Regulatory institutions

Under the Third Energy Package, the two core duties of NRAs in Member States are setting tariffs for access to transmission and distribution networks and implementation of and compliance with legally binding

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47 2009 Gas Network Regulation, Article 3.
48 The 2009 Gas Network Regulation, Recitals 19.
49 The 2009 Gas Network Regulation, Article 6–8; Stern and Rogers (n8) at 57.
50 Stern and Rogers (ibid); Johnston & Block (n8) at 148.
decisions of the ACER and/or the Commission. In performing the tariff and methodology setting functions, the NRAs must ensure that TSOs and DSOs receive appropriate incentives to increase efficiencies, enhance market integration and security of supply, as well as carrying out appropriate market research activities.

It is noted that regulatory and policy level cooperation at the EU level is essential for the development of sound, effective and interconnected IEM. The EU-level cooperation is facilitated mostly through the ACER, the European Network of Transmission System Operators for Electricity (‘ENTSO-E’) and the ENTSO-G. There is also the Council of European Energy Regulators (‘CEER’) which supports and facilitates the creation of a single, competitive, efficient and sustainable EU IEM by complementing ACER’s role. ACER’s focus is on what is required under EU law, while the CEER does everything else regarding energy regulation. The ACER is empowered to issue binding decisions on certain issues relating to the NRAs tasks, such as matters relating to access and operational security of cross-border infrastructure where the relevant NRAs are unable to reach an agreement with relevant parties or following a joint request from the NRAs in question.

As ACER fills a vital gap as the coordinating and regulatory institution at the EU level, while also supporting the EU’s energy security efforts. In carrying out its tasks such as the development of framework guidelines and proposing amendments of network codes, ACER is required to make extensive consultations with market participants (usually through direct consultations), TSOs, consumers, end-users and, where relevant, competition authorities in an open and transparent manner. Ordinarily such consultations should include external (non-EU) suppliers (such as Russia’s Gazprom or Norway’s Statoil), since these will constitute the participants in the upstream segment of the energy value chain. Information received from market participants can enhance the responsiveness of the regulatory framework as a whole and help to close any gaps due to information asymmetry. According to the IEA, the rules for cross-border trade of gas and electricity are being harmonised and requirements for transparency of operational information, the independence and EU-level co-operation of NRAs have been made stricter under the Third Energy Package. Furthermore, the role and co-operation of the TSOs within the EU have been reinforced, to the extent that TSOs are responsible for the network rules and EU-wide network planning.

2.2. External suppliers and security of supply

The EU’s legal requirements relating to competition, TPA and unbundling will apply to incumbents and prospective suppliers operating within the IEM and/or domiciled in Member States. It is however unclear to what extent will these legal and regulatory developments effectively determine changes to long-standing

31 Johnston & Block (n8) at 134.
32 Johnston & Block (n8) at 146.
33 ACER Regulation, Recital 15.
34 ACER Regulation, Article 10(1). Note that the Network codes (NC) are designed to enhance cross-border and market integration issues, covering the twelve broad areas for action. National codes which do not affect cross-border trade could be developed by the Member states. ACER currently adopts the direct consultation method with stakeholders and the current areas of work concern capacity-allocation, interoperability, balancing and tariffs rules. See ACER, ‘Framework Guidelines & Network Codes’ <www.acer.europa.eu/Gas/Framework%20guidelines_and_network%20codes/Pages/default.aspx> accessed 12/06/2015.
35 IEA (n9) at 36.
organisational and commercial structures in non-EU supplying countries and firms upstream. In reality not all external suppliers are willing to ‘unconditionally’ accept such obligations as TPA and ownership unbundling. Hence, the interplay of geopolitics and economic or socio-political objectives goes a long way in determining the effectiveness and success of the liberalisation policy, especially when considering the utility value of traditional long-term contracts and obligations with external suppliers whose objectives and interests may not be completely in line with that of the EU or its Member States.

2.3. Competition and competitiveness in the IEM

Competition and market access is crucial in the establishment of an effectively integrated IEM in which security of supply is enhanced. However it is important to point out the implications of legislative and regulatory measures for EU’s central energy policies of security of supply, competitiveness and sustainability vis-à-vis EU competition law and regulations. By virtue of Article 101(1) of the TFEU, all agreements or decisions between undertakings or by associations of undertakings which may affect trade between Member States and which aims to or can prevent, restrict or distort competition within the internal market, and in particular those which: (i) directly or indirectly fix purchase or selling prices or any other trading conditions; (ii) limit or control production, markets, technical development, or investment; share markets or sources of supply; and (iii) apply dissimilar conditions to equivalent transactions with other trading parties, thereby placing them at a competitive disadvantage, shall be considered as incompatible with the overall objectives of the EU internal market. Nonetheless, Article 101(3) of the TFEU makes the stated provisions inapplicable to certain agreements, decisions or concerted practises, especially those that contribute to improving the production or distribution of goods or to promoting technical or economic progress, while allowing consumers a fair share of the resulting benefit.

The traditional reliance on ‘long-term gas supply contracts’ as supply-side instruments for guaranteeing energy security raises questions about the efficacy or scope of EU laws and regulations seeking to promote internal market competition. It can be argued that such supply-side instruments help to ensure long-term supplies of gas for energy. Thus, it becomes a ‘non-economic and non-quantifiable gain’ in view of Article 101(3) and/or 102 of the TFEU and therefore a defence against the application of competition rules.56

2.4. Regulating security of gas supply

Regulation (EU) No 994/2010 (‘Gas Supply Regulation’) is a major step in consolidating the constantly evolving legal and regulatory framework for enhancing EU’s energy security.57 The Gas Supply Regulation

56 Kim Talus, (n 22) at 258 – 268.
provides that measures taken to safeguard the security of gas supply should not unduly distort competition or the effective functioning of the internal gas market.\textsuperscript{58} Furthermore, the regulations points out that:

“[...] the diversification of gas routes and of sources of supply for the Union is essential for improving the security of supply of the Union as a whole and its Member States individually. Security of supply will depend in the future on the evolution of the fuel mix, the development of production in the Union and in third countries supplying the Union, investments in storage facilities and in the diversification of gas routes and of sources of supply within and outside the Union including Liquefied Natural Gas (LNG) facilities. In this context particular attention should be given to priority infrastructure actions as identified in the Commission communication of 13 November 2008 entitled ‘Second Strategic Energy Review — An EU energy security and solidarity action plan’, e.g. the southern gas corridor (Nabucco and Interconnector Turkey Greece Italy), a diversified and adequate LNG supply for Europe, effective interconnection of the Baltic region, the Mediterranean Energy Ring and adequate north-south gas interconnections within central and south-east Europe [...]”\textsuperscript{59}

Building gas infrastructure to connect isolated systems and establishing common minimum criteria on security of gas supply to guarantee a level playing field is also noted as essential factors in tackling gas supply interruptions.\textsuperscript{60} Among other things, the Gas Supply Regulation provides for market-based and non-market based security of supply measures to be taken in exceptional circumstances.\textsuperscript{61} It defines the responsibilities among natural gas undertakings, the Member States and the EU regarding both preventive action and the reaction to disruptions of supply. The obligations imposed by the Gas Supply Regulations require gas undertakings to ensure supplies to protected customers, whilst it is up to the national competent authorities to decide what proof they accept from undertakings to demonstrate their ability to satisfy demand.

3. Securing Gas Supply to the EU internal energy market

Pipelines, LNG infrastructure and transmission networks (as the case may be) are an integral part of gas supply value chain. Furthermore, considerations for security of gas supply borders on issues relating to guaranteeing timely investments, the integrity and capacity of supply infrastructure, contractual arrangements for adequate and reliable supplies, cost and pricing of production and supply etc. Gas supply security issues for a power producer may include issues like availability and cost of alternative fuels \textit{vis-à-vis} the gas suppliers’ ability to continue deliveries, and perhaps answering questions such as- what is the most efficient balance between competitiveness, affordability and sustainability?\textsuperscript{62} These issues may be less obvious and easier to internalise

\textsuperscript{58} Gas Supply Regulations, Recital 12.
\textsuperscript{59} Gas Supply Regulations, Recital 7 (emphasis added).
\textsuperscript{60} Gas Supply Regulations, Recital 14.
\textsuperscript{61} Gas Supply Regulations, Annex II and III.
where the energy market is controlled by vertically-integrated undertakings with interests in both upstream and midstream segments of the energy value chain. However, there is also a major risk of inadequate investments in essential infrastructure and market power challenges when energy markets are managed by state-controlled monopolies or vertically-integrated oligopolies. Market development and the evolution in gas supply industries often gets to a point when the monopoly-based market organisational style gives way and becomes less efficient or unsustainable (economically and politically) compared to a competitive and liberalised market organisational structure.  

3.1. Securing External Sources

Natural gas production in the EU continues to face a steep decline after reaching its peak in 1997, while recurring crises between Russia (a major external supplier) and Ukraine (a key transit state for pipeline gas to the EU) have considerably increased the risks to the EU’s energy security. In highlighting the risks in excessive import dependency and vulnerability of the EU to gas supply shocks, the recent ‘Energy Union’ strategy identifies five core interrelated energy issues, the first of which is ‘energy security, solidarity and trust’. The Energy Union strategy explicitly emphasises the need for addressing the risk(s) of import dependency and supply shocks by taking the following steps towards effective diversification of gas supply sources:

- The Commission will propose a resilience and diversification package for gas in 2015 - 2016 by revising the existing security of gas supply regulation;
- The Commission will prepare a comprehensive strategy for LNG and its storage; and
- The Commission will work with Member States to develop access to alternative suppliers, in order to decrease existing dependencies on individual suppliers.

Diversification of supply sources is possible through building new pipelines connected to other sources or more LNG regasification facilities. If pipeline investments do not proceed as expected, there is more pressure on LNG markets and suppliers many of which may be tied to long-term supply contracts or have reached the limits of their supply capabilities. Improving the interconnectivity and interoperability of the networks in other to allow for more reverse flows between Member States is also an important means of reducing EU susceptibility to external supply disruptions. The increasing global demand for LNG implies that there is more competition for excess uncontracted shipments. More international competition for gas due to growing demand for energy in Asia and the threat of Russia increasing its supplies to China, Turkey and India, following

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63 Konoplyanik (n21) at 55.
64 IEA (n9) 171 – 172.
67 Ibid.
perennial geopolitical tension with EU/Ukraine are some the main issues relating to securing external gas supplies.\(^{68}\)

3.1.1. **Infrastructure development and interconnectedness**

The Trans-European Networks (‘TENs’) framework was created to promote the development of the Trans-European energy networks based on Articles 170 – 172 of the TFEU. It provides for the functioning and linking of EU markets and regions, including the connection of Europe with other parts of the world. In essence the TENs framework aims to interconnect national infrastructure networks and ensure their interoperability (i.e. setting standards which remove technical barriers).\(^{69}\)

Article 170(2) of the TFEU provides that:

> “Within the framework of a system of open and competitive markets, action by the Union shall aim at promoting the interconnection and interoperability of national networks as well as access to such networks. It shall take account in particular of the need to Link Island, landlocked and peripheral regions with the central regions of the Union”

It also requires the identification of projects of common interest (‘PCI’) by the EU and Member States.\(^{70}\)

3.1.2. **Deciding on PCIs and gas pipeline projects**

The Nord Stream project which transports Russian gas to Germany has remained a major project for supplying gas to the IEM.\(^{71}\) On the other hand, the South Stream Project (‘SSP’) was originally thought to be another major gas supply venture.\(^{72}\) The SSP was conceived in 2006 with Gazprom (Russia) and ENI (Italy) announcing the establishment a joint venture for the project. In addition, the SSP also involved intergovernmental agreements amongst seven European States, but was eventually cancelled by Russia in December 2014.\(^{73}\) The EU was also reported to have deemed the SSP not to be qualified as a PCI, because it

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\(^{68}\) Kim Talus (n10) at 140 – 141; Stern, Yafimava, Rogers et al, (n9) at 57 - 60.


did not provide access to any new gas sources neither does it increase the competitiveness of the IEM.\textsuperscript{74} Other projects aimed at diversifying gas supply sources to the EU includes the Nabucco Pipeline Project (“Nabucco Project”) and the Trans Adriatic Pipeline (“TAP Project”). The Nabucco Project was originally planned to cover 3,900 km and later reduced to 1,300 km. The eastern section was to run from Azerbaijan across Georgia and Turkey to the Bulgarian border was abandoned for the Trans Anatolian Pipeline (TANAP) funded by Azerbaijan and Turkey. Nabucco-West, which was to have carried gas from Turkey to Austria, through Bulgaria, Romania and Hungary, was the only remaining part of the original project and was also cancelled by Azerbaijan despite the Commission’s formal endorsement of the project.\textsuperscript{75} Likewise, the TAP was expected to export gas from the Caspian Sea to Europe, but was however abandoned as a result of US pressure and the EU ban on the import of Iranian gas.\textsuperscript{76}

The cancellation of the South Stream, Nabucco Project exemplifies the following points: (i) arrangements with external suppliers will only succeed if a win-win situation is created for both suppliers and purchasers depending on the interests of both parties which may be sharply divergent; (ii) the successful diversification of supply sources must be approached largely on a case-by-case basis, with a comprehensive assessment of the geopolitical and external economic interests impacting potential projects; and (iii) capital intensive infrastructure projects designed to serve competitive and private-sector led markets will not succeed if they are primarily based on ‘political will’; by contrast, they will be successful only if they are based primarily on commercial feasibilities and choices of core stakeholders. It is also essential to facilitate and foster trust and communications between stakeholders and parties to future projects and their sponsors.

3.1.3. Resolving disputes with external suppliers

There are several bilateral and multilateral treaties which affects the capacities of the EU, its Member States and external suppliers in resolving energy supply related disputes such as the Energy Charter Treaty (‘ECT’).\textsuperscript{77} The ECT deals with issues such as transit, investments and dispute resolution, based on the recognition that all countries stand to benefit from a balanced agreement for co-operation in the energy sector. Countries with natural resources are able to (i) attract investment to protect their interests downstream, and (ii) ensure reliable transportation for their energy exports to consumers. Energy-importing countries, on the other hand, gain protection for their outward energy investments and mechanisms to promote security of supply.

Russia signed the ECT in 1994 and accepted a provisional application of the ECT pending ratification and to the extent that they are consistent with Russia's constitution, laws and regulations. On 20 August 2009 the Russian Federation officially informed the ECT depository that it did not intend to become a contracting party

\textsuperscript{74} Natural GAS Europe, ‘Oettinger Says South Stream Not a Project of Common Interest’ 2\textsuperscript{nd} September 2013 <www.naturalgaseurope.com/south-stream-eu-priority-project> accessed 02/02/2015.
\textsuperscript{76} Stern, Yafimava, Rogers \textit{et al.}, (n9) at 24.
\textsuperscript{77} Stern, Yafimava, Rogers \textit{et al.}, (n9) at 27.
to the ECT and the Protocol on Energy Efficiency and Related Environmental Aspects (‘PEEREA’). Furthermore, on 30 July 2009 Russia issued a decree declaring it’s rejection of the ECT. Based on Art. 45(3(a)) of the ECT, such notification results in Russia’s termination of its provisional application to join the ECT and the PEEREA upon expiration of 60 calendar days from the date on which the notification is received by the depository. It has been argued that Russia’s obligations regarding investments made, whilst they did provisionally apply the ECT, will remain in effect for twenty years after their notification of withdrawal.

In a bid to internationalise the ECT agenda, an International Energy Charter Treaty (‘IECT’) was adopted and signed on 21 May 2015 by more than 65 countries and organisations including the EU, all EU Member States, the Economic Community of West African States (‘ECOWAS’), Tanzania, Japan etc. The IECT inter alia deals with issues such as the development and liberalisation of international trade in energy, the development of efficient energy markets, the promotion and protection of energy investments and access to and development of energy sources. The aim is to strengthen energy cooperation between the signatory States and does not create any legally binding obligations or financial commitment. In general, it is noted that singing and adopting treaties by independent States usually requires some formal constitutional adoption and incorporation into national law before it becomes fully binding on the country.

3.2. Internal market arrangements and Security of gas supply

The reliability of internal gas infrastructure and effectiveness of the regulatory framework to facilitate timely investments is essential for safeguarding the EU IEM security. Furthermore, long-term predictability of cash flows and returns is also a key requirement in obtaining finance for energy infrastructure projects, which in turn has significant implications in the development of particular gas utilisation projects. Project financing and commercial arrangements for capital intensive gas supply networks or infrastructure usually entails long-term contractual commitments with take-or-pay clauses and/or pre-emptive rights or quasi-monopoly entitlements and preferences for sponsors. Such long-term potential hindrances to TPA for gas supply infrastructure may be practically inconsistent with the EU law and policy on competition and developing competitive internal markets as discussed earlier.

The international gas industry has been gradually shifting away from the long-term contractual arrangements paradigm usually indexed to oil prices towards more short-term contractual and spot-market arrangements. Furthermore, the drive towards liberalisation has led to the emergence of gas trading hubs within the EU, such as: (i) the Zeebrugge Hub in Belgium where the UK and Norwegian interconnector meets; and (ii) National

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79 Ibid.
81 Ibid.
Balancing Point based in the UK; Gaspool in Germany; and (iii) the Central European Gas Hub in Austria.\textsuperscript{84} It has been argued that the shift towards short-term arrangements increases the risks of financing large scale gas utilisation investments and generally shifts the burden of risk mitigation and costs on the producer.\textsuperscript{85} Furthermore, recent technological advancements in LNG shipping and higher gas prices in the downstream markets have made LNG competitive over long distances, thus, EU gas markets must compete for supplies in both long and short term with other gas markets, which also rely on different price mechanisms i.e. the hub-based pricing (North America) or Japanese Crude Cocktail pricing (Asian market).\textsuperscript{86}

By virtue of the EU regulatory framework (especially the TPA regime) EU Member States must in principle ensure non-discriminatory TPA to liquefaction and regasification terminals as well as to transmission and distribution systems. The TPA rules applicable to regasification facilities include granting access to ancillary facilities and temporary storage facilities necessary for the regasification process and subsequent delivery to the transmission system.\textsuperscript{87} It is noted that some legal and regulatory measures has been adopted by the EU to contain the risk of insecurity arising from the contractual and internal market structures such as the TENs framework and the exemptions to TPA requirements which aim to strike a balance between promotion of the IEM objectives and the objective of free competition \textit{vis-à-vis} TPA to necessary infrastructure. Although capacity reservations and pre-emption rights created by most contractual arrangements are necessary from the producer and financiers perspectives, they can only be relied upon as permitted under relevant EU law and regulations.

In a liberalised energy market, energy security can be considered as a trade-off between profit maximisation and the socio-economic significance of the energy sector. The trade-off and the distrust for pure-market based mechanisms is evident in the provisions relating to the EU concept of energy security and PSOs.\textsuperscript{88} PSO is an integral policy of the EU IEM legal and regulatory framework. Article 3(2) of the Third Gas Directive provides that in the general economic interest, Member States may impose PSOs on gas undertakings. Such PSOs may relate to security, including security of supply, regularity, quality and price of supplies, environmental protection, energy efficiency, energy from renewable sources and climate protection. It further provides that such PSOs must be imposed in an explicit, transparent, non-discriminatory, verifiable manner, to ensure equality of access for natural gas undertakings to consumers. Member States may also introduce the implementation of long-term planning in relation to security of supply, energy efficiency/demand-side management, taking into account the possibility of third parties seeking access to the supply system. In essence,

\textsuperscript{85} Konoplyanik (n 21) at 55.
\textsuperscript{87} Erin Dyer et al (ibid).
\textsuperscript{88} Kim Talus (n9) at 132 – 134.
the regulatory framework calls for a balance between the need to promote open access and competition on one hand and maintaining reliable or secured energy supply on the other.

4. Assessing the insecurities and risks to gas supply

Baldwin, Cave & Lodge (2012) discussed cases of regulatory failure to include one or more of the following elements: (i) over-regulation i.e. over-stringent and overly prescriptive regimes that may reduce the possibilities of innovation; (ii) over-formalism and punitive enforcement styles which may reduce the possibilities of cooperative relationships and healthy regulatory communications which may in addition produce self-defeating outcomes; and (iii) wrong choice of regulatory instruments and enforcement failings leading to creative compliance and box-ticking by regulated undertakings through the side-stepping of applicable rules or negating regulations without formally breaking them. Adopting these concepts in the light of the above discussions, it could be argued that there are elements of over-regulation and/or over-formalism, including some instances in which the choice of policy and corresponding regulatory approaches directly or indirectly lead to counter-productive outcomes in the IEM. This may be seen in the timing and effects of State support for renewable energy by Member States whilst the IEM is supposedly under-going a transition from centrally administered national energy industries to a liberalised and integrated regional energy market. Such State interventions in market development may have directly or indirectly led to loss of operating times and profits, including mothballing of investment decisions by incumbents and operators in gas-powered generation.

Another issue is the extent to which competition and liberalisation objectives can be maintained without jeopardising real-time security of supply objectives, considering unique internal and external market arrangements. Additionally, over-politicised regulatory and policy communications, without creating sustainable avenues for trust and cooperation seem to be affecting relationships with external suppliers such as Russia as discussed above. On another note, it can be argued that EU energy law, policy and regulatory framework is still in transition. Thus, the IEM itself is still transiting between monopoly-oligopolistic era towards private-sector driven, fully competitive and integrated regional market(s). Therefore, regulators have the herculean task of managing vested interests, co-ordinating market structures and firms towards very complex interrelated objectives.

The IEA points out that the EU gas market has benefited from infrastructure investment, the creation of gas hubs and a more integrated cross-border trade in Western Europe. Indeed, the gas network in Central Europe
has become more flexible to transport gas from the West to the East.\textsuperscript{92} However, there are still some bottlenecks limiting the European gas market’s capacity to effectively respond to a supply crisis, notably in Central East and South East Europe, the Iberian Peninsula and the Baltic region. In the aftermath of the 2009 gas crisis, EU support to investment in new gas infrastructure was prioritised and supported by EU funds from the European Energy Programme for Recovery and the TEN-E as well as its successor policy framework for PCIs.\textsuperscript{93} The EU Energy Security Strategy of May 2014 identified 27 gas projects which are essential to Europe’s security of supply.\textsuperscript{94} These projects include new LNG terminals in Poland and Lithuania, Croatia and Greece as well as in the Baltic region, reverse flows and a number of gas interconnectors, including projects in the Southern Gas Corridor. Additionally, the measures identified in the Gas Supply Regulation appear to be comprehensive enough to enhance the resilience of the EU gas and electricity market.

In accordance with the Gas Supply Regulation the readiness and resilience of Member States in case of a disruption of supply is reflected in the respective Preventive Action Plans (‘PAPs’) and the Emergency Plans based on risks assessments. The preliminary results from the Commission’s detailed assessment of the respective plans reveal that (i) most of the preventive actions taken by Member States are market-based supply-side measures; while (ii) non-market-based initiatives make up just over 10\% of the total, whereas demand-side measures constitute 14\%.\textsuperscript{95} In general, increased storage capacity is noted to be the most commonly adopted risk-reducing measure, followed by the 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. These includes regulatory measures such as ensuring proper monitoring and accurate forecasting of demand or implementing bilateral agreements to guarantee stand-by capacity/flows in contingency situations.

5. CONCLUSION

A secure and reliable energy supply value chain is essential to the continued economic and social advancements of the EU and its Member States. An efficient, interconnected and effectively regulated gas and electricity EU market where investments are adequately supported remains critical to the core IEM policy objectives. Furthermore, the development of gas supply infrastructure (interconnectors, reverse flows and storage) are -in general terms- improving resilience, even though short-term supply disruptions (due to weather or geopolitics) or potential diversion of supplies, international competition and energy market arrangements may call the reliability and security of supplies into question.

\textsuperscript{92} Ibid.
\textsuperscript{93} Ibid.
\textsuperscript{95} Ibid at 155. Generally, increased storage capacity is the most commonly adopted risk-reducing measure, followed by the 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.
The increasing import dependency by the EU also poses a great challenge and increases the risks to security of energy supply. Thus, trust and efficient communication lines with external suppliers should be established to forestall any misalignment of objectives and interests. It is essential to maintain the drive towards ensuring that operators in the EU IEM can reliably and sustainably provide their services at high standards and with reasonable cost in a competitive, fully liberalised energy market.