

RETHINKING THE SECURITY OF THE EUROPEAN UNION'S GAS SUPPLY

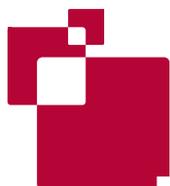
SIMONE TAGLIAPIETRA AND GEORG ZACHMANN

Highlights

- The security of the European Union's gas supplies is crucial to ensuring that supplies to households are not disrupted in freezing winters, that industry can flourish and that the EU cannot be blackmailed in vital foreign policy questions.
- Gas supply security should be addressed at EU level because a joint solution would be cheaper, national approaches could undermine the internal energy market and have adverse effects on other countries, and the EU Treaty explicitly calls for energy solidarity.
- The current focus on supply diversification and reduction of dependence on imported gas is expensive and does not constitute a systemic response.
- Instead of doing everything to reduce gas supplies from key suppliers, gas supply security could more effectively be safeguarded by ensuring that unused alternatives are maintained so that they can be tapped into for an indefinite period in case of supply disruption from a key supplier. This Policy Contribution outlines a market approach that could safeguard gas supply security at very low cost.

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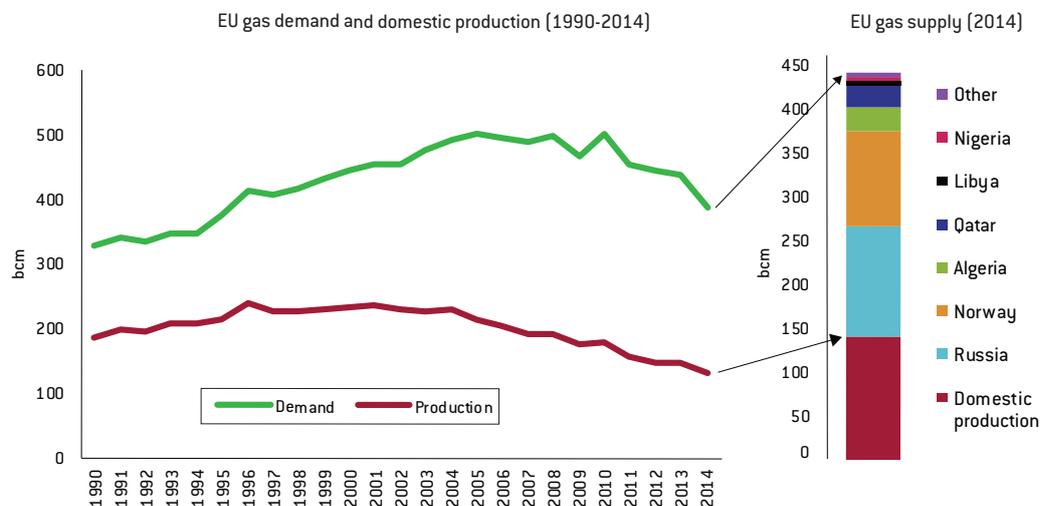
The European Union would benefit from a new approach to ensure the security of its gas supply, not least because gas imports are likely to increase. The EU's existing gas infrastructure is sufficient to buffer a major supply shock. Therefore, instead of focusing on expensive policies to stimulate supply diversification and to reduce dependence on imports, the aim should be to find a way to maintain an adequate level of flexibility and make it available when needed. This could be done by creating an EU market for a gas security margin, which could be an asset for the EU in the context of the unpredictable nature of gas supplies, with countries today perceived as secure being potentially affected by supply interruptions in the future, and the need to overcome the current EU patchwork of fragmented national and technology-specific supply-security measures. The market for a gas security margin would be designed to have the lowest possible cost by relying on the cheapest flexibility options available, and by shielding the internal gas market from *ad-hoc* intervention. The distributive effects

and the political feasibility of such approach would have to be taken into account.

THE EU GAS MARKET: CURRENT TRENDS AND FUTURE SCENARIOS

In the midst of the 2014 Ukraine crisis, concerns about a potential politically motivated disruption of all EU gas supplies from Russia, and especially those that pass through Ukraine, triggered a discussion on creating an Energy Union to counter this threat (Zachmann, 2014). These discussions lifted energy issues to the top of the agenda of the European Commission under its president Jean-Claude Juncker (European Commission, 2014). The high priority given to gas supplies arose because: (1) gas represents about one quarter of the EU energy mix; (2) about one third of this gas is imported from Russia; and (3) in contrast to oil or coal, it is not possible to bring large amounts of gas to where it is needed if the corresponding infrastructure is not in place (Figure 1).

Figure 1: The EU gas market: current trends



Source: Bruegel on the basis of BP (2015).

Note: Demand/supply difference is a result of re-exports of LNG, stock changes (eg medium-term storage, regasification terminals) and transportation losses.

This implies the EU is vulnerable to a few external suppliers that might, at any moment, cut their supplies for technical or geopolitical reasons. On this point a caveat is necessary: while the EU security of gas supply debate is often exclusively concentrated on Russia and on the related fears about its geopolitical use of gas, the issue is in reality much wider because it potentially encompasses gas supplies from all suppliers, which might be interrupted for either technical or geopolitical reasons. For instance, a traditionally secure supplier as Norway might need to reduce its gas exports in the future simply because of depleting resources, or Algeria, another traditionally secure supplier, might cut its supplies in case of unpredictable regional political turbulence. Security of gas supply is therefore an issue that concerns all EU member states.

The EU's vulnerability to gas import disruptions is set to remain because, even assuming a stagnant outlook for EU gas demand, import requirements will likely grow because of rapidly declining domestic production. In the Netherlands, gas production dropped from 70 billion cubic metres (bcm) in 2010 to 56 bcm in 2014. This declining trend is set to accelerate after the production cap imposed in 2015 on Europe's largest gas field – Groningen – because of more powerful and more frequent earthquakes resulting from the extraction activities. The United Kingdom's gas production volume declined from 57 bcm in 2010 to 37 bcm in 2014, mainly because of the rapid depletion of resources in the North Sea.

According to the International Energy Agency (IEA, 2015), the EU's import requirements will increase

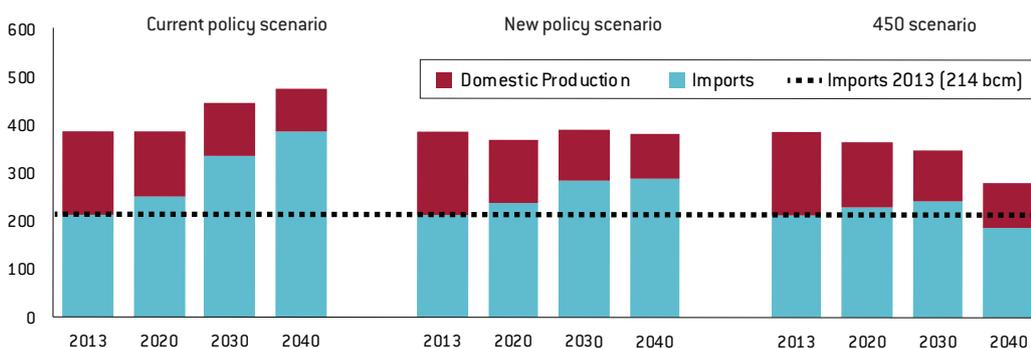
in all scenarios. In the current policies scenario, which assumes no changes in policies, EU import requirements will reach 338 bcm in 2020 and 386 bcm in 2040. In the new policies scenario, which assumes that national pledges to reduce greenhouse-gas emissions will be translated into national policies, import requirements will increase by 36 percent in the period to 2040. In the 450 scenario, which sets out an energy pathway consistent with the goal of limiting the global increase in temperature to two degrees Celsius, EU import requirements will peak at 242 bcm in 2030 (Figure 2).

That gas imports and thus gas supply security will remain crucial issues for the EU is implicitly acknowledged by the engagement of European gas companies and member states in the development of new gas supply routes such as Nord Stream II, South Stream and Turk Stream.

EU GAS INFRASTRUCTURE: AN OVERVIEW

Based on past expectations– which proved to be wrong – of strongly growing EU gas demand, suppliers developed substantial import and storage infrastructure over the last few decades (Table 1). The capacity of the import pipelines from Russia, Norway, Algeria and Libya alone (422 bcm) would be sufficient to more than satisfy current EU gas import requirements (255 bcm) (BP, 2015). In addition, several member states have installed a total of 183 bcm of liquefied natural gas (LNG) import infrastructure (GIIGNL, 2014). The excess size of these infrastructures relative to actual EU gas demand explains their low rates of utilisation: 58 percent for import pipelines and 32

Figure 2: EU gas demand, production and import requirements (bcm): future scenarios



Source: Bruegel based on IEA (2015).

percent for LNG terminals. By contrast, only 18 percent of the 92 bcm of EU gas storage capacity (GIE, 2015) is currently not used.

ESTIMATING THE MARGIN OF FLEXIBILITY OF THE EU GAS SYSTEM

Security of gas supply should not be defined in terms of import share or share of the largest

supplier, but in terms of availability of alternative supplies in case of crisis. In other words, the EU should not be concerned by the presence of a few key suppliers in its import portfolio if it has at its disposal alternative supplies that can be tapped into in case one of the key suppliers cuts its supply for any reason.

This also means that even significant reductions

Table 1: EU gas infrastructure: import pipelines, LNG and storage

Pipelines (bcm/y)			
From	Capacity	Imports in 2014	Utilisation rate
Russia	230*	119	51%
Norway	127	101.1	79%
Algeria	54	19.5	36%
Libya	11	6	54%
TOTAL	422	245.6	58%
LNG (bcm/y)			
Country	Capacity	Imports in 2014 (Net of re-exports)	Utilisation rate
Spain	60.2	17.6	29%
United Kingdom	50.7	18.5	36%
France	25.3	10.1	39%
Italy	15.3	7.2	47%
Netherlands	12	0.9	7%
Belgium	9	2.1	23%
Portugal	5.5	2.1	38%
Greece	5.2	0.8	15%
Lithuania	4	n.a.	n.a.
Sweden	0.3	n.a.	n.a.
TOTAL	183.5	59.3	32%
Storage (bcm)			
Country	Capacity	Level at October 2015	Utilisation rate at October 2015
Germany	22.3	17	76%
Italy	16.6	15.8	94%
France	12	10.3	86%
The Netherlands	8.8	8.7	98%
Hungary	6.2	3	48%
Austria	4.7	3.2	68%
United Kingdom	4.1	3.7	89%
Czech Republic	3.3	3.1	95%
Slovakia	3	2.2	71%
Poland	2.8	2.7	95%
Spain	2.6	1.9	74%
Latvia	2.3	2	86%
Denmark	1	0.8	82%
Belgium	0.8	0.4	54%
Croatia	0.6	0.5	90%
Bulgaria	0.6	0.4	73%
Portugal	0.3	0.1	44%
TOTAL	91.9	75.8	82%

Source: Bruegel based on BP (2015), GIE (2015), GIIGNL (2015), IEA (2015).

in imports from individual suppliers might not mitigate the EU's dependency. Even halving the share of gas imports from the largest single supplier, from more than 30 percent to 15 percent, could cause people to freeze in winter and industry to suffer, if the 15 percent cannot be made up from other sources. At the same time, even if all the gas came from one supplier, the EU need not be concerned, as long as it has credible alternatives to replace these supplies. So, security of gas supply means that the volume of the unused options should be greater than the greatest possible shortfall. It is not about the volume of the used options. In the following, we show that the EU has plenty of unused options in its gas infrastructure system.

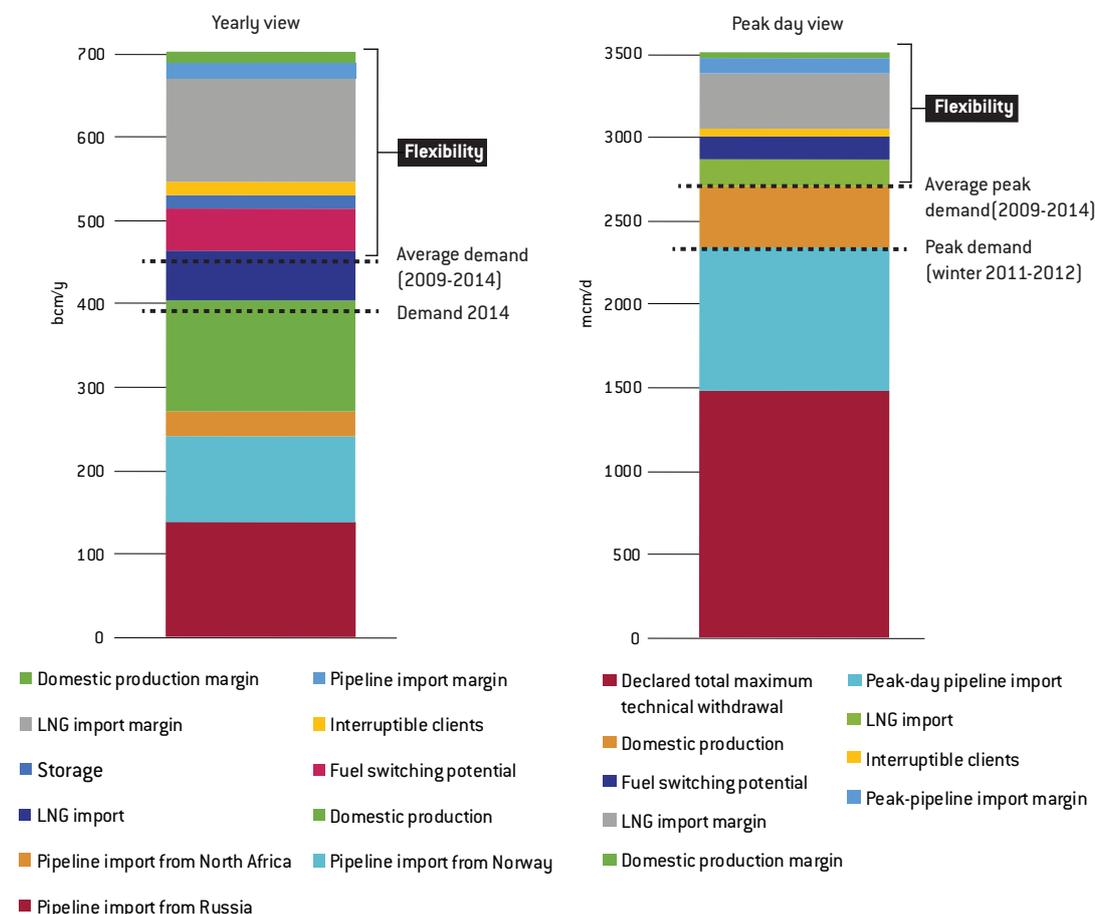
The low utilisation rates of import pipelines and LNG are the first indicators that the EU gas system has a substantial margin of flexibility or, in other words, a substantial set of unused alternatives

that could be tapped into for an indefinite period of time in case of supply disruption from a key supplier.

To illustrate this flexibility we estimate the margin of flexibility for a whole year (Figure 3, left panel), which in addition to flexibility in the import infrastructure, also means that supplies to some interruptible customers might be cut and some gas-fired power plants might be replaced by power from other plants. Furthermore, domestic production might be slightly ramped up and storage units might be fully emptied. The full year estimation¹ shows that at aggregate level the EU has a solid margin of flexibility, which could theoretically even accommodate the loss of the two largest suppliers, Russia and Norway.

In the short-term (Figure 3, right panel), the critical issue is using all available flows to meet demand on the day with the highest demand (peak day).

Figure 3: The EU margin of flexibility: full year and peak day



Source: Bruegel based on BP (2015), Eurogas (2014), GIE (2015), GIIGNL (2015), IEA (2015).

1. Calculated as follows: pipeline imports: 2014 data, IEA (2015); pipeline imports margin: 2013 peak – 2014 data, IEA (2015); LNG imports: 2014 data, GIIGNL (2015); LNG imports margin: total capacity – imports 2014, GIIGNL (2015); domestic production: 2014 data, BP (2015); domestic production margin: Netherlands 2010 peak – Netherlands 2014 data, BP (2015); storage: minimum level, April 2013, GIE (2015); fuel switching potential: 50 percent of 2013 gas consumption in power generation, Eurogas (2014); interruptible clients: 10 percent of 2013 gas consumption in industry, Eurogas (2014); demand: 2014 and average 2009-14, BP (2015).

2. Calculated as follows:
 pipeline imports: January 2014/31, IEA (2015);
 pipeline imports margin: (December 2010 – January 2014)/31, IEA (2015); LNG imports: 2014 data/365, GIIIGNL (2015); LNG imports margin: (Total capacity – imports 2014)/365, GIIIGNL (2015); domestic production: 2014 data/365, BP (2015); domestic production margin: (Netherlands 2010 peak – Netherlands 2014 data)/365, BP (2015); storage: DTMTW, average 2014, GIE (2015); fuel-switching potential: 50 percent of 2013 gas consumption in power generation/365, Eurogas (2014); interruptible clients: 10 percent of 2013 gas consumption in industry/365, Eurogas (2014); peak demand: winter 2011-12; average winters 2009-14, ENTSOG (2015).

3. "Union policy on energy shall aim, in a spirit of solidarity between Member States, to ... ensure security of energy supply in the Union".

4. This is due for revision in early 2016. See http://ec.europa.eu/smart-regulation/roadmaps/docs/2015_ener_017_revision_of_security_of_gas_supply_en.pdf.

5. See <http://www.bmwi.de/BMWi/Redaktion/PDF/Publikationen/Studien/moeglichkeiten-zur-verbesserung-der-gasversorgungssicherheit-und-der-krisenvorsorge-durch-regelungen-der-speicher,property=pdf,bereich=bmwi2012,sprache=de,rwb=true.pdf>.

6. See <https://ec.europa.eu/digital-agenda/en/connecting-europe-facility>.

In this respect, daily delivery capacities are key. When peak-day demand is much greater than average demand (EUROGAS, 2014), gas from storage units can meet much of the peak-day demand. Although reduced, the margin of flexibility shown in our peak-day estimation² underlines that there is considerable room for manoeuvre in an extreme situation.

On aggregate, the EU could even weather a complete stop of supply from its largest supplier, Russia, both on the peak day and over the course of a year. The picture however changes at member-state level. Some member states import most of their gas from a single source and have only limited domestic flexibility options. Because of limited interconnection between EU sub-regions, not all gas that can be made available in other regions can be sent to where it might be needed. Certain regions – the Baltic states, Poland and the Balkans – are far more exposed than others to the risk of disruption of gas supplies from Russia. These cases show that a well-interconnected EU gas market is a necessary prerequisite for robust security of gas supply. The development of proper interconnections between EU member states (ie interconnectors and reverse flows on current pipelines) thus represents the foundation of any security of gas supply strategy.

THE CURRENT APPROACHES TO EU GAS SUPPLY SECURITY

According to the EU Treaty (Art. 194), supply security is a competence shared between the EU and its member states³. The energy article is one of the twelve places where the Treaty explicitly mentions 'solidarity' between member states.

The current European Security of Supply Strategy (European Commission, 2014), adopted in May 2014, explores a wide range of policy options from short-term emergency measures to long-term investment in new technologies. However, the strategy fails to develop a consistent framework to manage priorities and trade-offs between the different measures.

In terms of concrete EU policies, the main legal act on gas supply security is Regulation (EU) No 994/2010 concerning measures to safeguard

security of gas supply⁴. In its current form, the regulation sets out harmonised standards for infrastructure, supply obligations (under which consumers must be supplied first in times of supply crisis) and risk assessment. It also establishes joint security of supply planning. Finally, it establishes rules for information exchange and coordination. The rationale was that "if all Member States were to comply with minimum standards, this would enhance solidarity between them in case of crisis" (European Commission, 2015a). A report by the European Commission (2015a) argues that the enforcement of this regulation is still insufficient and more complete implementation would strengthen gas supply security. We would argue that the regulation has so far proved insufficient to encourage better coordination between member states in ensuring security of supply. In fact, looming discussions on national gas supply security measures (such as a German gas storage obligation⁵) illustrate the trend towards national, technology-specific, non-market interventions.

A second dedicated EU policy to enhance supply security is the range of EU programmes to promote infrastructure investment. In particular, the projects of common interest, which might receive financial support from Brussels (under the Connecting Europe Facility, CEF⁶), were seen as pathways to improve supply security. However, the limited amount of EU support (the CEF has €4.7 billion for all energy projects from 2014-20) and the rather political choice of where to allocate funds has prevented outright success.

Beyond what is strictly required by EU legislation, member states have national policies to improve gas security of supply. Several member states have introduced national storage obligations (Table 2) and have supported national infrastructure projects such as LNG terminals or pipeline projects. Because of their direct powers over the regulatory framework and over state-owned gas companies, member states are quite effective in producing the desired infrastructure.

WHY IS AN EU SECURITY OF GAS SUPPLY POLICY NEEDED?

There is a long-standing debate about whether completing the EU internal gas market will by itself deliver supply security. A functioning internal market offers the most efficient rationing mechanism in times of crisis, and market-based long-term prices in the EU ensure that suppliers have the right incentives to develop new sources. However, the market – which typically opts for the cheapest available source – might fail to sufficiently diversify. For example, the current market design will not provide infrastructure to connect normally uncompetitive sources that can serve as insurance in case the cheapest supplies become unavailable.

But nationally-administered approaches, such as providing security through state-driven investment in certain infrastructure, run the risk of creating an unfavourable investment environment for private investors if not properly shielded from the market. Furthermore, nationally-administered approaches regularly fail to select the most efficient portfolio of options (such as demand

curtailment, storage, liquefied natural gas plants, pipelines, domestic production or domestic fuels). Neither the current market design nor *ad-hoc* national approaches appear well suited to efficiently ensure security of supply.

Without an EU framework to safeguard gas supply security, member states will have to act. But nationally-decided supply security measures and infrastructure projects have often detrimental repercussions beyond their borders. If Lithuania builds an LNG terminal, Latvia or Estonia might find it more difficult to finance one, and if Germany builds an additional pipeline from Russia, south-east Europe might be more susceptible to Ukraine-Russian conflict because Russia could then cut transit through Ukraine without hurting its best customers in central Europe.

Negative spillovers from national supply-security policies are not the only reason why security of gas supply is better pursued at EU level. Gas supply security should also be addressed at EU level because: (1) a joint solution is cheaper; risk-pooling reduces the need for expensive redundancies and enables a more cost-effective

Table 2: EU member state storage obligations

Country	Storage obligations	Security of supply responsibility
Bulgaria	Criteria are not disclosed; Current capacity equals 250 mcm	Bulgargaz
Czech Republic	At least the 20% of supply standards; Current capacity equals 225 mcm	Market parties
Denmark	Criteria are not disclosed; Storage capacity equals 215 mcm	Energinet.dk, with market based tools
France	Starting from 80% of the estimated seasonal storage requirements at the start of the heating season	Market parties
Hungary	Strategic storage and storage obligations by suppliers, totaling 24% of annual consumption	Market parties
Italy	Strategic storage of 4.6 bcm	Ministry sets the volume, storage companies dedicate to strategic storage reserves
Poland	Compulsory stocks of companies equivalent to at least 30 days of average daily imports of the gas brought in	Minister of the Economy and gas suppliers
Spain	Mandatory storage obligations for gas shippers, strategic stocks equivalent to 20 days of their firm sales in the previous natural year (4.78 bcm)	Spanish Government and gas suppliers

Source: Bruegel. Note: mcm = million cubic metres.

portfolio of flexibility options; (2) national solutions undermine the internal energy market; many unilateral security of supply policies either exclude foreign providers (eg storage obligations) or unduly favour domestic suppliers; and (3) the EU Treaty explicitly calls for solidarity in this area. Considering these factors, and with the aim of minimising the cost of ensuring supply security and preserving the internal gas market, we propose to combine the enhanced planning of European infrastructure with a new EU market for a gas security margin (EU-MGSM).

THE EU MARKET FOR A GAS SECURITY MARGIN

To maintain a sufficient level of flexibility in the EU gas system, to make it available when needed and to disincentivise excessive dependence on individual suppliers, we propose the creation of an EU-MGSM. This would operationalise the supply standard (Art. 8 in Regulation (EU) No 994/2010), which so far has not been implemented. An EU-MGSM would clearly define and credibly transpose the supply standard, prevent double counting and reduce the cost of the standard itself and shield the internal market.

Simply put, the EU-MGSM would extend the existing gas storage obligations adopted by some member states for security of supply reasons (Table 2) to the EU level, and would include all of the gas system's flexibility options.

Who would be obliged to hold a security margin?

Under the EU-MGSM, each importer and each domestic producer would be legally required to have available a certain amount of alternative supplies⁷. This would be relatively straightforward because only a limited number of importers and domestic producers are active on the EU market. Domestic producers would be included to avoid any discrimination, and because the failure of a large domestic producer could constitute a supply-security event.

Alternatively, the obligation could also be applied to domestic suppliers. This, however, would be difficult because it is difficult to identify a clear basis for the supply margin as it is difficult to distinguish final sales (which are relevant for the EU-

MGSM) and intermediate sales (which are not).

A last option would be to impose the obligation on consumers. But given the large number of consumers, it would be hard to justify the administrative effort.

How large would the security margin be?

The size of the security margin should be determined at EU level, on the basis of an agreed definition of what constitutes an emergency situation. A very basic approach would be to oblige importers/producers to maintain a fixed share, such as 20 percent of contracted gas demand for 1 year. A more sophisticated approach would be to link the security margin to the importer's or producer's sources of gas. Similar to capital requirements for banks, there could be different risk-ratings for different types of supplies, which would also incentivise diversification.

What would count towards the security margin?

It would be up to each importer or domestic producer to choose how to structure its portfolio to meet the required security margin.

This might be done from a wide range of options, more or less costly:

- i. Interruptible contracts with industrial clients;
- ii. Storage;
- iii. Option contracts with LNG suppliers, including the reservation of the import capacity;
- iv. Option contracts with pipeline suppliers;
- v. Swap contracts with other countries' suppliers (eg switching Algerian pipeline supplies from Spain to Italy in case of emergency);
- vi. Domestic production margin (particularly in the Netherlands);
- vii. Fuel switching⁸.

Importers and domestic producers would define their portfolios of flexibility options accordingly, seeking to find the optimal solution in order to be more competitive than their counterparts. For obvious reasons, optional additional volumes from already pivotal suppliers (such as Russia) should not be allowed to become part of the security margin.

7. This would require legal definitions of importers and domestic producers, possibly with some thresholds on source and size to keep administrative costs in check.

8. This is essentially an interruptible gas supply contract with a gas power plant.

The cost of drawing on the flexibility options in case of emergency should be notified by the importers/domestic producers to the national regulators each year. Possibly there might be a price cap to prevent importers/producers from posting excessive prices.

How is the security margin activated?

Being an emergency mechanism, the EU-MGSM would require uncomplicated governance. This might involve three players: the Council of the EU, the European Network of Transmission System Operators for Gas (ENTSO-G)⁹ and national competent authorities.

In a situation of sudden gas supply disruption, the EU Council would declare the emergency situation and give two mandates (Figure 4):

- i) To a dedicated security of supply taskforce to be created within ENTSO-G; this taskforce would coordinate the infrastructure aspects of the operation;
- ii) To the national competent authorities¹⁰, which would ask suppliers to put the required security margin into the market.

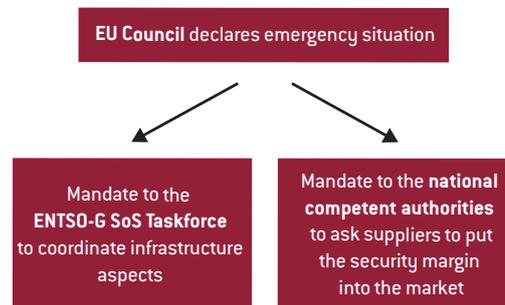
Under the oversight of the ENTSO-G taskforce, gas flows from country A to country B should smoothly proceed, on the basis of the required capacity booked on the infrastructure for the security margin. The dynamics would follow a sort of concentric-circles pattern, with the closest country with available supply helping the neighbour in need of supply.

Only in cases of security crises would suppliers be allowed to draw on the EU-MGSM. Otherwise there might be a risk that governments would take political decisions to use the system in periods of high prices to artificially reduce prices – which would undermine the market and thus reduce private investment incentives and ultimately compromise supply security.

What will it cost?

The cost of the security margin will be driven by two main components: the cost of maintaining the

Figure 4: The governance of the EU EU-MGSM



Source: Bruegel.

flexibility options and the cost of reserving the corresponding transport capacity, plus some small amount of administrative cost. The cost will initially be borne by the importers/producers but will be partially passed through to the final consumers.

The EU-MGSM would reflect regional diversity. Because of different infrastructure endowment, producers/importers in less-interconnected regions will find it more costly to ensure security of supply than those in well-interconnected regions. Consequently there would be an appropriate disincentive to invest in inflexible gas-consuming assets (eg must-run chemical plants) in regions where gas security is more costly.

How can it be ensured that the margin would be available where needed?

In order to guarantee the deliverability of the required security margin, the importers or the domestic producers will have to book the necessary transport capacity to bring the security margin at any point in time to the delivery point [at which the importer/domestic producer delivers its commercial volumes]. Booking of firm capacity to enable delivery of the security margin will provide the right incentive to extend capacities to transmission system operators (TSOs), storage operators or LNG terminals that are already close to their capacity limits.

But this market-based approach will not be enough to ensure that the required gas can be made available in any member state. Additional measures for the development of an appropriate European infrastructure will need to be put in

9. The association of Europe's transmission system operators (TSOs).
 10. According to Art.2 (2) of Regulation (EU) No 994/2010, each member state has to designate a competent authority to deal with gas security of supply. https://ec.europa.eu/energy/sites/ener/files/documents/list_ms_competent_authorities.pdf

place. In this respect, the Ten Year Network Development Plan (TYNDP) (ENTSO-G, 2015) developed by ENTSO-G should play a greater role in identifying the true bottlenecks and encouraging cost-efficient solutions. To promote proper coordination of gas infrastructure development at EU level, the role of the Agency for the Cooperation of Energy Regulators (ACER) should be enhanced. It should be provided with sufficient tools (modelling capabilities, staff) to evaluate the cost-effectiveness of proposed EU gas infrastructure developments. Proposals from other parties (outside of ENTSO-G) should also be considered. For projects that are not part of the TYNDP, the relevant national regulator should need to demonstrate that they are not detrimental to EU energy policy objectives, before they give their approval.

THE POLITICAL ACCEPTABILITY OF THE EU-MGSM

Economic considerations will not be sufficient to secure approval for an EU-MGSM. Political acceptability will also be a fundamental prerequisite to enable the creation of such an EU-wide mechanism.

There are significant differences between member

states in terms of energy mix and security of gas supply structure. This variety represents a substantial obstacle to the development of an EU-MGSM, because member states currently endowed with more security of gas supply options might not be in favour of their citizens paying for an insurance mechanism that they might not perceive as necessary because gas supply security risks are generally portrayed as issues only for central and eastern EU countries that rely heavily on Russian gas.

However, as we have discussed, as EU gas imports increase, the security of supply issue will become more pressing and structural. Furthermore, Russia should not be considered the only potential threat to the security of EU gas supplies. The geopolitical situation of the EU neighbourhood is extremely complex and volatile and other key suppliers might unexpectedly and unpredictably become a threat. In addition, market conditions might change over time in an unfavourable manner. For instance, the currently loose LNG market might well tighten¹¹. In this context, an EU member state that today might not perceive security of gas supply as a direct threat, could become vulnerable in the future.

REFERENCES

BP (2015) *BP Statistical Review of World Energy 2015*, June

ENTSO-G (2015) *Ten-Year Network Development Plan 2015*

EUROGAS (2014) *Statistical Report 2014*

European Commission (2014) 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, European Energy Security Strategy', COM/2014/330 final.

European Commission (2015) 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy', COM/2015/080 final

European Commission (2015a) 'Commission Staff Working Document, Report on the implementation of Regulation (EU) 994/2010 and its contribution to solidarity and preparedness for gas disruptions in the EU Accompanying the document Communication from the Commission to the European Parliament and the Council on the short term resilience of the European gas system. Preparedness for a possible disruption of supplies from the East during the fall and winter of 2014/2015', SWD(2014) 325 final

11. Because of increasing demand in Asia, and also in response to stronger decarbonisation policies.

European Commission (2015b) 'Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank, A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy', COM/2015/080 final

European Parliament and Council of the European Union (2009) 'Regulation (EC) No 715/2009 of the European Parliament and of the Council of the European Union of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005', *Official Journal of the European Union*, Vol 52, L211, pp 36-54

Eurostat (2014) 'Energy, Transport and Environment Indicators, 2014 Edition', *Eurostat Pocketbooks*

GIE (2015) 'Liquefied natural gas and storage are elements of strategic importance for the European energy system', press release 15GIE100, 1 October

GIIGNL (2014) *The LNG Industry in 2014*

IEA (2015) *World Energy Outlook 2015*

Zachmann, G. (2014) 'Elements of Europe's Energy Union', *Policy Brief* 2014/08, Bruegel