

Learning from the Crisis: A Market Approach to Securing European Natural Gas Supplies

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1. Introduction

The gas dispute between Ukraine and Russia in January 2009 has shifted concerns about Europe's gas security of supply back into the centre of the public debate. Some 18 EU member states were at least partly affected by the disruption of Russian gas deliveries via Ukraine, which account for around 80% of Russian gas exports to the EU. Especially some of the new member states were severely affected, given their low degree of diversification in gas imports. The EU, so it seemed, had not learnt much from a similar crisis in early 2006 and was not much better prepared to deal with such short-term disruptions of deliveries of such a critical energy source. Indeed, investments in additional storage have been insufficient in many member states and some of the most crucial interconnectors for a pan-European pipeline network are still missing. However, to say that the EU has been inactive since January 2006 would not reflect reality. There are numerous initiatives aimed at decreasing supply risks. The energy and climate change package adopted by the EU in December 2008 will help in diversifying energy supplies and in reducing import dependence – also in terms of natural gas. At the same time, the EU is engaged in strategic discussions about future energy security, based on

the Second Strategic Energy Review tabled by the European Commission in November 2008. Finally, the EU is struggling to complete its internal gas and electricity markets in the conviction that a large internal market, served by a wide inter-connected network, and receiving supplies from many different exporters, will be more secure and stable than the current market structure of largely disintegrated national and regional markets. However, with liberalised European energy markets, supply security ceases to be a purely public domain and will – at least to some extent – need to be achieved by market-compatible approaches. This Policy Brief looks at a concrete proposal on how to use markets to secure against risks in European gas supplies. Its aim is to come up with a crisis response mechanism to gas disruptions, which is still missing in the current Directive 2004/67/EC concerning measures to safeguard security of natural gas supply.

2. EU energy supply risks

Increasing the security of supply is essentially a strategy to reduce or hedge against risks associated with energy production, transport and use. Aimed at guaranteeing the functioning of an economy, the concept of 'security of supply' commonly includes concerns regarding the (uninterrupted) availability



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of adequate supplies at an affordable price level, while taking environmental sustainability criteria into account. A more narrow definition of energy security focuses solely on the availability of energy to those who are willing to pay the market price. If markets are allowed to function properly, high prices may be considered an indispensable tool for energy to remain available in tight markets. Similarly, they have been shown to accelerate decreases of energy intensity in industrial countries. The economic impacts of rising energy prices, however, may be negative on three fronts: increasing energy bills leading to reduced revenues, the rise of inflation and interest rates and an increase in the import bill. In terms of natural gas, rising prices have also had a negative effect on investments in new gas-fired plants, adding to long-run security of supply risks.

The EU faces political, economic, technical and environmental energy supply risks. *Political risks* concern potential government decisions to curb or suspend deliveries because of deliberate policies, war or civil strife, or as a result of failed regulation. Examples include political instability and regional conflicts in major supplier countries and politically motivated output reductions or import embargos by export or transit countries (e.g. a gas cut-off). *Economic risks* mainly cover imbalances between demand and supply, stemming from delays in investments in strategic projects or insufficient contracting. *Technical risks* include systems failure owing to weather, lack of capital investment or generally poor conditions of the pipeline system, and *environmental risks* describe the potential damage from accidents such as pipeline bursts. They also include other forms of pollution, the effects of which are less tangible or predictable (e.g. greenhouse gas emissions).

A distinction is also made between short-term and long-term risks. Short-term risks are generally associated with supply shortages because of accidents, strikes, sabotage, extreme weather conditions or technical failures. Long-term security concerns the adequacy of supply, the infrastructure for delivering this supply to markets and a framework to provide strategic security against major risks (such as non-delivery for political, economic, force majeure or other reasons).

There are many different risks to Europe's security of supply, of which import dependence on politically unstable or unpredictable countries is but one. The European Commission recently noted that the risk of supply failure associated with increasing dependency on imported hydrocarbons is growing. However, independence from imports is no option and would be no guarantee for security as most energy supply disruptions experienced in the EU in

recent decades have had domestic causes. The 2009 Russia-Ukraine gas standoff, on the other hand, showed that Europe's increasing import dependence on producer and transit countries is an issue to be taken seriously.

3. The case of natural gas

Independent of the expected increase in the market for liquefied natural gas (LNG), the European Union will become increasingly dependent on gas pipe supplies coming from very few countries. Although over 80% of the world's natural gas reserves of 181.5 trillion m³ are located at a distance from Europe that allows for pipeline transport, Europe lacks the infrastructure to tap resources in the Middle East, the region with the largest proved reserves (over 40% of global reserves). Almost 90% of Europe's natural gas imports come from just three countries, whose governments tightly control the gas market. Fears of potential 'gas cartels' or of energy being used as a political weapon thus do not seem completely unfounded. Similarly, there is a risk of a lack of investment in exploration, production and transportation, despite reserves being abundantly available in areas surrounding Europe. If gas is unable to take a larger share in power generation, it will not be able to live up to expectations that it can act as a 'bridge' to a low-carbon economy and may even become a sunset industry. In addition, the future carbon price will have an impact on the future of the gas markets.

A competitive, integrated EU gas market is advocated by the European Commission as being intrinsically more secure than the individual member states' markets. Such reasoning is based primarily on scale: a larger, well-interconnected market receiving supplies from a variety of exporters is expected to be the best insurance against the risks indicated above. However, numerous conditions need to be fulfilled for this conjecture to hold true. Among the most important are functioning markets, established interconnections, diversification and redundancy of import capacity (especially towards Africa and the Middle East – also in terms of LNG), and more generally the necessary regulatory or contractual arrangements. A critical factor is transportation capacity to Europe, as it seems likely that projected infrastructure will not be able to meet expected demand. This requires access to gas reserves, opening production to international investments and focusing on the stability of transit countries.

4. How much security of supply?¹

While free markets will ensure efficient allocation of gas in situations of emergency through higher prices, there is a case for securing a minimum level of guaranteed supplies, especially when energy needs to be supplied at ‘reasonable’ prices. Not all gas consumers have the same need for secure and uninterrupted supply. Gas in households and small commercial establishments is primarily used for heating and cooking. In situations of emergency, such uses can be curbed to some degree. It is therefore rational to set the guaranteed level of supplies at an appropriate percentage of ‘standard’ consumption. In liberal markets, customers have a choice of whether to assume responsibility for security of supply themselves or to allow the supply company to bear the responsibility and subsequently to pay a risk premium through higher energy prices. The former is typically done by large industrial users, for which (short-term) security might not be an issue, given they can switch fuels.

A distinction should thus be made between priority (i.e. non-interruptible) and interruptible customers. Suppliers should be required to protect their priority customers. As long as their exposure to the possible negative event (percentage shortfall in supplies) is lower than the share of priority over total customers, they need not worry about security of supplies. This idea suggests that the security of supply standard could be defined as the guarantee that all the gas volumes demanded by non-interruptible (firm or protected) customers are available at a ‘reasonable’ price. Such a standard is best established at the EU level. Interruptible customers need to be offered lower prices since they do not require protection in the event of a crisis (they may opt to withdraw from the market or maintain their own alternative fuel capacity).

In an interconnected, competitive market, well-diversified companies enjoying a small protected-customer base could be permitted to sell emergency supply rights to other companies that possess less diversified supplies or customer bases (or both), or that are more oriented towards priority customers.

An agency should be in charge of general oversight of the security of the system, including the surveillance of interconnection capacity and ensuring a supplier of last resort. The agency could be organised either as an EU or member state body, such as an EU agency or a system of national agencies, possibly placed within the national regulators. The agency could be funded partly by

¹ See also CEPS/ECN/FEEM (2004), *Market-based Options for Security of Energy Supply*, INDES Working Paper No. 1, Brussels.

taxpayers and partly by a levy on emergency supply rights for importers to meet their minimum-security obligations. A company’s gas procurement portfolio and the composition of its customer base should determine storage obligations.

Costs could be socialised to some extent because diversification of sources, redundancy of import infrastructure or a provider of last resort will benefit all market participants. Who will be called upon to finance this activity is an open question that will need to be resolved politically. The cost implications for the power sector should be included in estimations.

5. Liquefied Natural Gas (LNG)

A second element of security of gas supplies is LNG. Supply flexibility, which is a function of diversification, the mode of transmission – pipeline versus LNG – and redundancy in import infrastructure, is very important for both security of supply and competition. However, it is also very expensive. The development of LNG markets is expected to ease some concerns about security of supply, especially in terms of pipeline diplomacy, because of its advantages of flexibility and diversification. Currently, about 10% of Europe’s gas imports are in the form of LNG. However, some drawbacks remain. Besides the fact that LNG technology is vulnerable to physical threats, exporters have not kept up with increasing facilities in importing countries, leading to some regasification terminals standing idle. In addition, the EU is expected to face fierce competition from other importing countries, such as the US.

Sustained uncertainty about future gas prices may have an adverse impact on raising appropriate financing. The good news is that technological progress is expected to reduce both capital investment and unit transport costs, thereby opening up new supply opportunities for pipelines and LNG.

This calls for a well-calibrated policy regarding the regulations applied to the construction and access to infrastructure facilities (LNG tankers, terminals and pipelines), to avoid hampering their development. A systematic and formalised market-surveillance mechanism will be crucial in this respect.

6. Beyond the market

The above focus on market-oriented policy options does not imply that markets will be able to secure future energy supplies all by themselves. Especially for long-term policy objectives government action will be required. Examples include R&D or the development of new breakthrough technologies to cope with climate change. On the demand side, the

promotion of a strong and ambitious energy-saving and energy-efficiency policy in the EU and ideally across the OECD or even globally could reduce dependence on politically unstable or unreliable countries. This includes the upgrade of networks and the installation of smart metering systems to give customers an awareness of their consumption through a real time measure. A particular objective should be to reflect on how to make the best use of natural gas. On the supply side, focus should be laid on supporting near-zero carbon technologies such as renewables and carbon capture and storage (CCS).

For natural gas, the objective should be to improve the functioning of the internal gas market, notably by increasing liquidity both for piped gas and LNG. Liquidity of the market presupposes that it remains attractive for producers to deliver sufficient volumes to the EU and that the right incentives for infrastructure investment are in place. In addition, better co-ordination or harmonisation of national regulations on gas supply and on gas stocks should be considered to cope with possible supply disruptions.

Equally important is the coherence between EU and member state actions. Given the limited EU competencies on energy policies, member states enjoy considerable discretion in this area. However, national responses to security of supply are partly incompatible with the security of supply interests of other member states or the EU as a whole. The EU should thus develop a 'European concept for security of supply', including tools (e.g. energy policy indicators) to ensure policy coherence at the EU and member state level.²

There is also a need to better integrate energy policy and foreign policy. This is best done by institutionalising dialogues with producer countries by using existing tools available, such as the European Neighbourhood Policy or trade and development policies. By using all available instruments and fora, the EU can effectively support companies in gaining access to reserves.

These measures constitute the existing 'EU consensus' of no-regret options to address EU energy policy objectives. Too often, however, such no-regret options fail due to policy inertia, expediency or simply a lack of interest. To avoid such failure in the future, the European Commission could be given special responsibility for tracking member states' and EU progress towards the implementation of these measures.

² See also Arno Behrens (2008), *Energy Policy for Europe: Identifying the European Added-Value*, Report of a CEPS Task Force, CEPS, Brussels.