Bruegel Policy Contribution

Rethinking the Security of the European Union’s Gas Supply

Simone Tagliapietra  
Research Fellow

Georg Zachmann  
Senior Fellow

Bruegel - Rue de la Charité 33, Brussels
The relevance of the security of the EU’s gas supply issue

- Concerns about gas SoS underpinned inception/evolution of the **Energy Union**
- **High priority** given to gas as:
- It covers $\frac{1}{4}$ of EU mix - $\frac{1}{3}$ imported from Russia - It is infrastructure-dependent (vs. oil/coal)

![Graph showing EU gas demand and domestic production (1990-2014) and EU gas supply (2014)]
The security of the EU’s gas supply: just all about Russia?

- Russia key driver for EU policy in the area (2006, 2009 gas crises and 2014 Ukraine crisis)
- Gas SoS: traditionally an high priority for Central and Eastern EU Member States
- But gas **SoS much wider issue** (potentially involving all supplies from all suppliers):
  - Geopolitically volatile neighborhood (not just Russia but also Algeria, Libya…)
  - Commercial uncertainties (Norway production outlook, LNG market development…)
- **SoS: a structural issue** that will last for decades to come:
A look at the utilization rate of the EU gas import infrastructure

### Pipelines (bcm/y)

<table>
<thead>
<tr>
<th>From</th>
<th>Capacity</th>
<th>Imports in 2014</th>
<th>Utilisation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Russia</td>
<td>230*</td>
<td>119</td>
<td>51%</td>
</tr>
<tr>
<td>Norway</td>
<td>127</td>
<td>101.1</td>
<td>79%</td>
</tr>
<tr>
<td>Algeria</td>
<td>54</td>
<td>19.5</td>
<td>36%</td>
</tr>
<tr>
<td>Libya</td>
<td>11</td>
<td>6</td>
<td>54%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>422</td>
<td>245.6</td>
<td>58%</td>
</tr>
</tbody>
</table>

### LNG (bcm/y)

<table>
<thead>
<tr>
<th>Country</th>
<th>Capacity</th>
<th>Imports in 2014 (Net of re-exports)</th>
<th>Utilisation rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>60.2</td>
<td>17.6</td>
<td>29%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>50.7</td>
<td>18.5</td>
<td>36%</td>
</tr>
<tr>
<td>France</td>
<td>25.3</td>
<td>10.1</td>
<td>39%</td>
</tr>
<tr>
<td>Italy</td>
<td>15.3</td>
<td>7.2</td>
<td>47%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>12</td>
<td>0.9</td>
<td>7%</td>
</tr>
<tr>
<td>Belgium</td>
<td>9</td>
<td>2.1</td>
<td>23%</td>
</tr>
<tr>
<td>Portugal</td>
<td>5.5</td>
<td>2.1</td>
<td>38%</td>
</tr>
<tr>
<td>Greece</td>
<td>5.2</td>
<td>0.8</td>
<td>15%</td>
</tr>
<tr>
<td>Lithuania</td>
<td>4</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>Sweden</td>
<td>0.3</td>
<td>n.a.</td>
<td>n.a.</td>
</tr>
<tr>
<td>TOTAL</td>
<td>183.5</td>
<td>59.3</td>
<td>32%</td>
</tr>
</tbody>
</table>
Estimating the margin of flexibility of the EU gas system

At aggregate level the EU does have a considerable margin of flexibility.

This margin could even accommodate the loss of the largest supplier.

Due to limited interconnections between EU sub-regions this margin is still theoretical. A well interconnected EU market is a key prerequisite for robust SoS strategy.
How to translate the (theoretical) margin of flexibility into reality

• **Current approaches not sufficient:**

  1. *Market approach*

     Market tends to go for the cheapest supply without considering SoS issues

  2. *National administrative approach*

     Risk of building infrastructure **without coordination** with others member states

     Risk of creating **unstable investment environment** for private investors

     Governments find difficult to consider systems and **complex trade offs**

• **Need for a new EU-wide approach:**

  - **EU role key** to: risk-pooling, economies of scale, stronger internal market, solidarity

  - Enhanced planning of **EU infrastructure + new EU Market for Gas Security Margin**
Introducing the EU Market for Gas Security Margin

i) To maintain a sufficient **level of flexibility** in the EU gas system;

ii) To make it **available when needed**;

iii) To **disincentivise excessive dependence** on individual supplier;

*we propose the creation of an*

**EU Market for Gas Security Margin**
The concept in a nutshell

- Simply put, the new system would **extend the existing gas storage obligations** adopted by **some member states** for **SoS** reasons:
  > **to the EU level**
  > **to all gas system’s flexibility options**

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

Each importer & each domestic producer would be legally required to have a certain amount of alternative supplies.
How large would the security margin be?

Size of the margin **to be determined at EU level** on the basis of an agreed **definition of emergency situation**

Example: 20% of contracted gas demand for 1 year
What would count towards the security margin?

Up to each importer/domestic supplier to choose how to structure its portfolio to meet required margin

Wide range of options (more or less costly):

i) Interruptible contracts with industrial costumers
ii) Option contracts with LNG suppliers
iii) Option contracts with pipeline suppliers
iv) Swap contracts with other countries’ suppliers
v) Domestic production margin
vi) Fuel switching

Pivotal suppliers not allowed to be part of security margin
How is the security margin activated?

**EU Council** declares emergency situation

- Mandate to the **ENTSO-G SoS Taskforce** to coordinate infrastructure aspects
- Mandate to the **national competent authorities** to ask suppliers to put the security margin into the market
What will it cost?

- Cost of security margin to have **two components**:
  i) Cost of **maintaining the flexibility options**;
  ii) Cost of **reserving the corresponding transport capacity**

- Cost initially borne by **importers/producers** and then **passed through to final consumers**

- EU-MGSM would **reflect regional diversity**: due to different infrastructure endowment, less-interconnected regions will find more costly to ensure SoS
How can it be ensured that the margin would be available where needed?

- Importers/producers will have to book necessary transport capacity to bring security margin to the delivery point.
  - Incentive to TSOs to extend capacities and interconnections.
  - This approach not sufficient: additional measures for development of an appropriate EU infrastructure needed: ENTSO-G Ten Year Network Development Plan.
The political acceptability of the EU-MGSM

- Economic considerations not sufficient to secure approval for EU-MGSM

- **Diversity** among member states (energy mix, SoS structure) a clear *obstacle*

- SoS: perceived as an Central and Eastern European issue

- But with *increasing import requirements, volatile neighborhood and unpredictable market conditions* a member state perceived today as secure might well become vulnerable in the future
For all the details...
Thank you!