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IMPACT ASSESSMENT

Accompanying the document

Proposal for a
REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

concerning measures to safeguard security of gas supply and repealing Council Regulation 994/2010

{COM(2016) 52 final}
{SWD(2016) 26 final}

Table of Contents

1. INTRODUCTION

Secure, sustainable, competitive and affordable energy to EU consumers is the main goal of the Energy Union Strategy[1] adopted on 25 February 2015. Achieving this goal will require a fundamental transformation of Europe's energy system, based on a vision of an Energy Union *"where Member States see that they depend on each other to deliver secure energy to their citizens, based on true solidarity and trust, and of an Energy Union that speaks with one voice in global affairs".*

The Energy Union Strategy, built on five mutually-reinforcing and closely interrelated dimensions, has identified fifteen action points to achieve the goal pursued by the Energy Union. The revision of the Regulation on Gas Security of Supply (EU) No. 994/2010 (hereafter, 'the Regulation') is one of the actions identified and framed in the dimension of "energy security, solidarity and trust". With the revision, the Energy Union pursues to make the EU more resilient to supply disruptions.

The Ukraine Crisis has been yet another reminder of Europe's increasing import dependence on foreign supplies of natural gas. On 16 October 2014, the Commission published its Stress Test Communication analysing the effects of a possible partial or complete disruption of gas supplies from Russia[2]. One of the key conclusions of the stress test exercise was that increased cooperation and coordination can substantially mitigate the impacts of a disruption.

The stress test exercise also demonstrated that security of supply risks are not the same in all parts of Europe. Europe's most vulnerable areas are often those that often first and foremost suffer from a lack of infrastructure needed to enjoy diversification of supply and to develop a functioning market. The extent to which the market can be relied upon to ensure security of supply determines to a very large degree the need for and the nature of security of supply measures. In order to secure gas supply in the most effective and efficient way, Member States and regions need to take account of the different level of exposure to a supply crisis and need to define appropriate measures both in advance and during a crisis. The current text of the Regulation leaves room for such description. Moreover, it acknowledges the central importance of a functioning market as most reliable instrument in ensuring secure supplies in a cost-efficient manner, and consequently seeks to limit interventions to the energy market to what is absolutely necessary.

As part of the stress test publication a report on the implementation of the Gas Security of Supply Regulation (EU) No. 994/2010 was adopted[3]. The report demonstrated that the Regulation has already produced important beneficial effects on Europe's gas security of supply situation, both in terms of preparation and mitigation. For instance, Member States are now better prepared to face a supply crisis thanks to the need to prepare plans and they are better protected thanks to the need to meet a determined supply and infrastructure standard. At the same time, the Report also highlighted areas in which improvements to the Regulation could further bolster Europe's supply security, whereby it was made evident that a potential

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1 http://ec.europa.eu/priorities/energy-union/index_en.htm

2 http://ec.europa.eu/energy/stress_tests_en.htm

3 See report on the implementation of Regulation (EU) 994/2010 for a more detailed assessment. https://ec.europa.eu/energy/sites/ener/files/documents/SWD%202014%20325%20Implementation%20of%20the%20Gas%20SoS%20Regulation%20en.pdf

revision of the Regulation would not mean that implementation of the existing Regulation can be suspended: the Commission will continue to push for better implementation of the provisions by assessing notified plans as well as the effects of implemented measures.

The Report pointed at several sections to be improved in the Regulation with a view to ensuring a more effective management of supply crises. The Report concludes that *"there is scope to strengthen the EU's preparedness and capacity to respond effectively to gas supply crises further. The Commission services are of the view that the lessons of recent risks to security of supply in the EU, i.e. risks caused by extreme weather conditions such as the prolonged cold spell in 2012 or geopolitical risks having an impact on EU energy security such as the 2014 crisis in Ukraine, should be pulled together in a review of possible improvements to Regulation 994/2010."*[4]

The revision of the Regulation should be seen in the context of the Commission's overall efforts to ensure open, competitive and well-connected gas markets. Regulation (EU) No 994/2010 is about preventing gas supply disruptions and mitigating their effects, but contributing at the same time to a well-functioning and well-connected market. In fact, the Regulation is complementary to other initiatives designed to improve the gas infrastructure in Europe and to secure a fair regulatory framework that fosters trade rather than hinders it.[5] In terms of infrastructure a Union-wide network development plan, as well as the TEN-E Regulation (EU) No. 347/2013, are now in place, indicating those pipelines, storages and LNG terminals that need to be built most urgently. And there is EU funding available within various financial instruments, most notably the Connecting Europe Facility. In terms of regulatory developments, the implementation of the Third Energy Package has been an important step towards the completion of the internal market. In this context, the Commission has adopted a number of network codes[6] that significantly facilitate cross-border trade of gas with impressive results in the North-West part of the continent, where liquid hubs have started to appear that contribute considerably to secure supplies at a cost-effective price. In particular the Balancing Network Code, where implemented, enables and incentivizes market players to ensure security of supply on the basis of market functioning as long as possible.

Moreover, with diminishing indigenous conventional gas production, the EU's import dependency is expected to remain at least stable or increase over the next two decades.[7] Improving energy efficiency and the share of renewable energy and stimulating demand response, in line with the vision of the Energy Union as a sustainable, low-carbon and climate-friendly economy, could help to counterbalance further increases. In any case, the EU's objective is to enhance energy efficiency and diversify supplies of gas imports in order to reduce the dominance of suppliers in gas markets and hence the EU's overall vulnerability.

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4 See report on the implementation of Regulation (EU) 994/2010, page 25.

5 Substantial benefits are already being realized from increased market integration. See: IEM Communication, October 2014, http://ec.europa.eu/energy/en/topics/markets-and-consumers/single-market-progress-report

6 https://ec.europa.eu/energy/en/topics/markets-and-consumers/wholesale-market/gas-network-codes

7 In 2013, indigenous EU production represented about 35% (157 bcm) of total EU gas consumption of ca. 450 bcm. About 290 bcm were imported through pipelines from Russia (27%), Norway (21%), and Algeria (8%) and Qatar (5%). Consequently, with total EU production expected to decrease by 2030 to about 110 bcm per year (while conventional gas production is projected to diminish from currently ca. 140 bcm to about 80 bcm in 2030, any increases in non-conventional and biogas production will not be able to make up for that decline with expected contributions of respectively about 15 bcm and 13 bcm in 2030) and overall EU demand in 2030 expected to lie in a range between 380 and 450 bcm (in line with the different PRIMES scenarios), EU import needs are likely to be within a range between 270 and 340 bcm in 2030. See also intermediate scenarios in 2015 ENTSOG's 10 year network development plan, http://user-30078157.cld.bz/ENTSOG-TYNDP-2015

A complete overhaul of the Regulation appears disproportionate and that is why this Impact Assessment is based on an assessment of the measures that are currently in place. Where the current rules are not sufficient or no longer fit for purpose, various alternative and additional policy options are proposed and assessed. As explained below, the assessment of the current measures draws heavily upon the research carried out in 2014 in the context of the review of Regulation (EU) No 994/2010, on the stress test exercise of mid-2014 and on the public consultation held in 2015.

It should be noted, finally, that the revision of Regulation (EU) No 994/2010 will go at pair with other, complementary measures to enhance security of supply. The on-going revision of the Commission's Decision on Intergovernmental Agreements (IGAs) will ensure full compliance of agreements related to the buying of energy from third countries with EU law. While the LNG and storage strategy notably sets out what needs to be done to improve access to LNG and storage, with the aim of diversifying gas sources across Europe. The cross-sector interaction between gas and electricity will be also taken into account, both in the revision of Regulation (EU) No 994/2010 and in the framework of the electricity market design reform currently under preparation.

2. PROCEDURE

2.1. Identification

(1) Lead DG: DG ENER

(2) Associated DGs: SG, LS, DG CLIMA, DG COMP, DG GROW, DG ECFIN, DG ENV, DG HOME, DG NEAR, DG TRADE, EEAS, JRC, JUST, FISMA

(3) Agenda planning/WP references: 2015/ENER/006

2.2. Organization and timing

2.2.1. Drafting process

This Impact Assessment analyses the effects of the new measures considered to be proposed in the Amendment of the Regulation on Gas Security of Supply.

Building on the outcome of the Report on the implementation of the Regulation (EU) No 994/2010, the Public Consultation, the results of the Stress Test conducted in 2014, the directions set by the European Energy Security Strategy (EESS) as well as the key initiatives identified in the Energy Union package of February 2015, the work on this Impact Assessment started in April 2015. Key dates in the process were:

- May 2014 European Energy Security Strategy
- 16 October 2014 Stress Test communication
- 16 October 2014 Report on the implementation of Regulation 994/2010
- 2014 - 2015 Gas Coordination Group meetings
- 2014 - 2015 Madrid Forum

- 2015 — CEER[8] report on storage related measures
- 15 January – 8 April 2015 — Public consultation
- 27 Apr 2015 — 1st meeting of the Inter-service Steering Group (ISG)
- 4 May 2015 — Stakeholders meetings – Gas Coordination Group
- 22 May 2015 — 2nd meeting of the ISG
- 18 June 2015 — 3rd meeting of the ISG
- 7 July 2015 — 4th meeting of the ISG
- 31 July 2015 — Submission of the Impact Assessment to the RSB[9]
- 16 September 2015 — RSB meeting date
- 9 November 2015 — 5th meeting of the ISG
- 13 November 2015 — Resubmission of the Impact Assessment to the RSB

2.3. Consultation and expertise

As described in section 2.2.1, DG ENER repeatedly solicited input to the review of the Regulation from all segments of the gas sector from the outset, including on problem definition and specific technical elements.

A public consultation was organized between January 15th and April 8th 2015 and produced 106 responses from stakeholders. The non-confidential responses and a summary document have been published on the Commission website.[10] (See Annex 1 for further information).

In addition to the public consultation, dedicated workshops and meetings, including as part of the Gas Coordination Group, were organized to consult stakeholders.

An inter-service steering group has also been established early in the process and has been consulted regularly.

2.4. External expertise

External consultants were used for different topics during the preparation of this proposal. A study was conducted on potential measures in the area of underground gas storages and their impact[11], as well as input from JRC in order to support with analyses contained in this Impact Assessment. A further study comparing approaches to increase the EU's bargaining power in natural gas markets[12] has also served as input for specific policy options related to how to meet the supply standard (common purchasing schemes). This Impact Assessment makes use of and points to the conclusions drawn from these reports.

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8 Council of European Energy Regulators (CEER)

9 Regulatory Scrutiny Board (RSB)

10 https://ec.europa.eu/energy/en/consultations/consultation-revision-regulation-eu-no-9942010-concerning-measures-safeguard-security

11 *Study on the role of gas storage in internal market and in ensuring security of supply*, prepared by REF4E, Mercados, E-Bridge for DG Energy. https://ec.europa.eu/energy/sites/ener/files/documents/REPORT-Gas%20Storage-20150728.pdf

12 "Economic analysis of costs and benefits of different approaches to enhancing the bargaining power of EU buyers in the wholesale markets of natural gas"

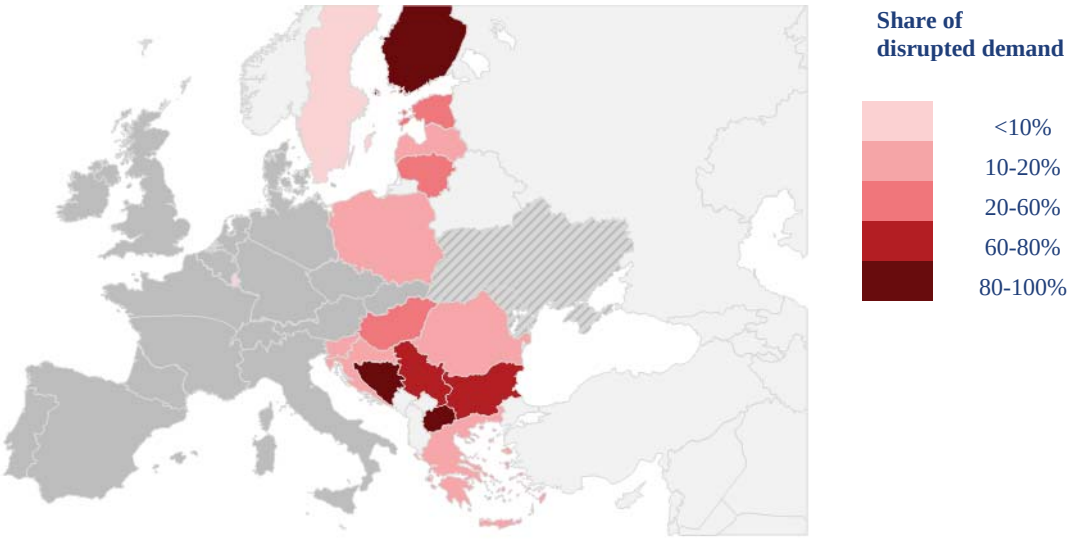
3. PROBLEM DESCRIPTION

3.1. Nature and extent of the problem

In the current geo-political context, such as the situation in Ukraine, the EU gas system remains vulnerable to external shocks. In December 2009 gas supplies through Ukraine were disrupted for 15 days.[13] As a result of, among others, the adoption and implementation of Regulation (EU) No 994/2010, the level of preparation of the EU has been improved, but there are still serious reasons for concern.

The stress test exercise showed that a severe disruption of gas supplies from the east (i.e. Russia) would still have large impacts across the whole EU. Some areas, notably in the East of Europe, would still suffer now severe economic and social impacts as a result of missing volumes of gas. Already in 2009 the estimated loss in GDP of Bulgaria reached 9%[14] as a result of the gas crisis and the stress tests exercise showed that missing gas volumes could put at stake more than 80% of the gas consumption of some Member States.

Map 1: Most likely supply disruption in February after a 6-month Russian gas disruption scenario.



Source: ENTSOG.

Western Member States would also feel the impact of such disruptions in the form of increased gas prices as a result of gas scarcity in the East. For example, during the gas disruption in 2009, wholesale gas prices in the UK were affected. The UK authorities estimate that if the supply cut-off had been prolonged, further price increases would have been expected[15]. Furthermore, during the cold spell of 2012 wholesale day-ahead gas prices increased by more than 50% on the European hubs compared to levels registered before the cold weather. Notably in Italy prices reached 65€/MWh from 38€/MWh, while in UK, Germany and Austria prices kept aligned and reached 38€/MWh from levels of 23€/MWh[16].

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13 European Commission, *The January 2009 Gas Supply Disruption to the EU: An assessment*, SEC(2009) 977 http://ec.europa.eu/danmark/documents/alle_emner/energi/2009_ser2_autre_document_travail_service_part1_ver2.pdf

14 Christie, E. H. et al: Vulnerability and Bargaining Power in EU-Russia Gas Relations.

15 UK's Risk Assessment from 2012

16 Source: European Commission

The current situation is the result of a number of problems of different nature and magnitude, including **behavioural biases, external factors and technical issues**:

- Behavioural biases (purely national approaches to security of supply)

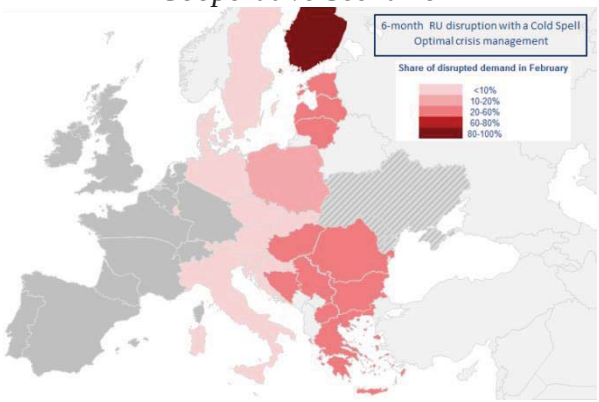
The first and most significant problem is related to behavioural biases, i.e. the fact that Member States only think national when designing their security of supply policies. Behavioural biases are widespread across Member States and therefore lead to significant negative effects overall.

The approach applied by Member States in the design of their security of supply policy remains almost purely national, as evidenced by the stress tests and the Commission's assessment[17] of the Preventive Action Plans and Emergency Plans prepared by Member States. The assessment of the second cycle of Plans confirms this trend, which was already observed in the first cycle prepared in 2012.

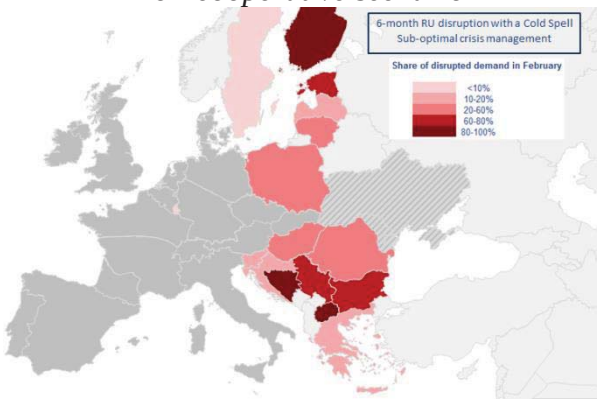
National approaches lead to sub-optimal measures, in particular for the compliance with the supply standard,[18]and make the impacts of crises more acute than they could be. The stress test exercise has shown how a cooperative approach among Member States would significantly dampen the impacts of very severe disruption scenarios in the most vulnerable Member States.

Maps 2 and 3: Likely supply interruptions – before further national measures – in February at the end of a 6-month Russian gas supply disruption scenario in cooperative and non-cooperative scenarios during a cold spell.

Cooperative Scenario



Non-cooperative scenario



Source: ENTSOG.

Purely national approaches are not very effective in case of a severe disruption, given their, by definition, reduced scope. This is particularly problematic for Member States with specific historic dependence backgrounds and/or particular geographical positions and without diversified and fully functioning markets. Moreover, their situation can be further exacerbated as a result of national over-protective measures in other Member States that reduce the liquidity of the markets (i.e. by hoarding certain gas volumes) and consequently the ability of

17 https://ec.europa.eu/energy/sites/ener/files/documents/opinions_SoS%20Plans.pdf

18 The supply standard refers to the obligation on gas undertakings to ensure the gas supply to certain categories of consumers even under demanding conditions such as severe winter conditions or supply disruptions. See Annex 2 for further details.

shippers to deliver gas to those vulnerable Member States where it is most needed. The negative spill-over effects of such over protective measures, particularly when they are not fully transparent, also affect Member States in well-connected and fully-functioning markets, although to a lesser extent.[19]Another weakness of purely national approaches is the fact that the impacts of simultaneous emergencies in neighbouring Member States are hardly ever factored in, which may likely make envisaged measures inadequate in practice.

Synergies also tend to be overlooked or disregarded by purely national approaches. Consequently, the use of existing and/or envisaged resources can be sub-optimal (e.g. cross border use of storages, LNG terminals) and result in higher costs. In line with this, industry expressed concerns during the public consultation process about the costs associated with security of supply measures and overall advocated for increased transparency and justification of new measures, in particular regarding the supply obligations[20]. Costly measures can have a negative impact in gas prices for European households as well as the industry, whose international competitiveness may thus be negatively affected. It must be borne in mind that wholesale gas prices in Europe are still more than twice as high as in the US[21].

The reasons behind these national approaches can be several and of diverging nature. Some Member States underestimate risks of supply disruptions, for example due to historic relationships with main suppliers, and therefore they focus on national measures even though their scope and effectiveness is necessarily limited. Such underestimations can have serious consequences in case of an emergency. Moreover, they nourish mistrust from other Member States, who will be inclined to concentrate on their own policies for fear that others might free-ride on their efforts. Mistrust is also fuelled by Member States' fears that actions that other Member States may undertake in the case of an emergency could negatively affect their security of supply.

As a result of these behavioural biases, Member States are less likely to cooperate in a spirit of solidarity with other more vulnerable Member States. Solidarity is however needed to ensure security of supply across Europe and to keep overall costs at a minimum, as demonstrated by ENTSOG in the context of the Stress Test Exercise. Effects will be spread out more evenly and the overall negative effects of a severe disruption would be smaller.

- *External factors (notably the behaviour of third country suppliers)*

The second largest problem stems from the fact that external risks are not properly factored in the design of security of supply policies, given that the relevant information is not always available. Under the current Regulation, Member States (and the Commission) have only access to some, limited, commercial information out of emergency situations. This makes it difficult for them to assess the nature and extent of some very important risks.

This type of problems is more acute in Member States with less developed and less competitive markets. Those markets are exposed to additional security of supply risks

19 According to the "Gas Security of supply Report" prepared by Ofgem in November 2012 the uncertainty in the honouring of Public Service Obligations by market participants or surprise interventions by Governments without warning can make the market struggle to manage these risks effectively. This increases the uncertainty around whether gas would flow from continental Europe in response to price signals from a gas emergency in GB.

20 See for example the replies of EFET, IOGP, Eurogas, Eurelectric to the public consultation.

21 Calculations of DG Energy based on Platts markets reports and IEA data for first half of 2014.

stemming from large contracts, mainly in the hands of only a few gas companies, with third country suppliers. Preparations ahead of and for a crisis in such Member States may not be optimal due to the existence of clauses in contracts that can jeopardize the reaction by European shippers or the Member State. Further to the external risks, market players active on less developed gas markets claim that lack of transparency on long-term gas prices of other bilateral contracts puts them in a difficult position in price negotiations with an up-stream gas producer.

Overall, situations of potential supply tightness, e.g. a modification of gas supply patterns to a given buyer or buyers in a Member State beyond what would be expected under the normal functioning of the market, cannot be fully assessed in advance due to the limited access to information provided for in the Regulation[22]. The lack of information prevents early reaction by market players and public bodies, if needed. As an example, due to a lack of information, it was not possible to fully assess the observed deviations in gas flows to a certain number of European shippers during the autumn/winter 2014/2015, nor their potential implications. The deviations at issue forced some Member States to resort to storage withdrawals at an unusual period of the year, which could have had negative consequences towards the end of the heating season if the winter had been more severe. Many Member States explained that the lack of a legal basis to require certain information ahead of a crisis hampered their ability to access to information that would otherwise improve their assessment of the magnitude of potential threats.

- *Technical issues (infrastructure not sufficiently available or not sufficiently protected)*

The third type of problems in terms of its magnitude and impact is related to infrastructures. Physical connection between production and consumption areas is a prerequisite for satisfying demand. During the 2009 gas supply crisis the necessary amounts of gas were available on the EU internal market but it was physically impossible to ship them to the affected Member States in Eastern Europe. Thanks to the implementation of the Security of Supply Regulation, the situation has improved but it is still not optimal. The stress test exercise demonstrated clearly that in a crisis situation when the EU is cut off from its Eastern supply route, countries in Central and Eastern Europe start to draw on gas from western markets. In such scenario, missing reverse flow capabilities on some major interconnection points are limiting factors. It was concluded that the EU misses out on the potential for Eastern Europe to tap into LNG sources available in Western Europe and on the full access to Norwegian deliveries.

One reason for such missing capacities, despite the obligation contained in the Regulation, is the fact that decisions to build capacity or to agree on an exemption from the obligation to build such reverse flow capacity are taken by the two Member States at both sides of the interconnection[23] point and it does not necessarily take into account the potential benefits of building the infrastructure for other Member States along the whole supply corridor.

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22 See report on the implementation of Regulation (EU) 994/2010 for a more detailed assessment. https://ec.europa.eu/energy/sites/ener/files/documents/SWD%202014%20325%20Implementation%20of%20the%20Gas%20SoS%20Regulation%20en.pdf

23 The capacity for the Commission to intervene in such decisions is limited to the cases where there is a discrepancy between the Member States concerned, irrespective of the benefits for other Member States or the accuracy of the assessment carried out by the concerned Member States.

Moreover, from a pure capacity point of view, a Member State's ability to react in case of an emergency or to prevent its occurrence cannot be considered fully satisfactory yet. The introduction of the N-1 standard[24] was a very positive first step in the aftermath of the 2009 crisis. It obliges Member States to have a certain capacity margin in their gas systems to face the situation of failure of their largest infrastructure. However, the N-1 standard does not capture other aspects of security of supply such as the benefits of infrastructure variety or the identification of missing infrastructures (such as internal bottlenecks). Consequently those aspects are hardly ever addressed as part of the Risk Assessments prepared by Member States and, more importantly, improvements in the networks are not undertaken as part of the preventive measures. A number of replies to the public consultation[25], from both Member States and industry, confirm such problem as they ask to specifically address with this standard other elements, such as for example other infrastructures that due to their utilisation rate can be more critical.

Finally, Member States currently take a rather narrow approach when considering risks affecting their infrastructures. They tend to focus on physical aspects only, whilst overlooking 'newer' types of risks such as risks relating to cybersecurity or risks relating to a change of ownership. The Energy Security Strategy identified a need to better protect key energy infrastructure against the risk of a take-over by a foreign entity, which aim at penetrating European markets or hampering diversification rather than developing an integrated EU network or infrastructure. Experience with recent take-overs (and planned take-overs) of strategic energy assets in Europe shows that the risks are serious, notably where the buyer is controlled by a third country, which may exercise political influence on the owner/operator of the infrastructure and require the latter not to respect EU law or to take decisions that go against the strategic interests of the countries or regions concerned.

- *Limited scope of application of the current Regulation*

Another external risk is the lack of proper involvement of the Energy Community Contracting Parties in the EU security of supply policy. This is particularly important as relations with Ukraine and Balkan countries i.e. Contracting Parties of the Energy Community, are vital for the gas supply. Ukraine is the major transit country for the EU and the EU is the sole transit geographical area for Balkan countries. The EU has a vital interest in expanding the common regulatory space between the EU and the Energy Community Contracting Parties by creating a functioning regulatory framework in the field of security of supply. Not only would such a common approach help to ensure that principles of the internal energy market are exploited to the fullest in times of a supply crisis, but it would also allow for a better risk assessment and more efficient crisis management at the EU level.

3.2. What has been done so far with the implementation of Regulation (EU) No 994/2010?

Since Regulation 994/2010 ("the Regulation") entered into force, the Commission has facilitated its implementation with a number of concrete measures, in particular, with the publication of guidelines for conducting the risk assessment and good practices for the preparation of the preventive action plans and emergency plans prepared by the Joint

[24] See Annex 2 for a detailed description of the mechanism and provisions in place under the current Regulation

[25] Such as FNB Gas and CEER.

Research Centre (JRC)[26]. In the regular meetings of the Gas Coordination Group (around four per year) discussions have been held since the adoption of the Regulation between the Commission, Member States and industry regarding the major challenges in the implementation of this Regulation as well as best practices that could be wide spread. In addition, several workshops[27] were organized with the aim to assist Member States in the implementation. The regional cooperation in the most vulnerable regions has also been enhanced with the preparation by the JRC of a joint risk assessment for the South-East region (Romania, Bulgaria and Greece).

Some of the deadlines contained in the Regulation were not respected by a number of Member States, notably with regard to the submission of their Preventive Action Plans and Emergency Plans in 2012 as well as their updates in 2014 and to the decisions on reverse flows. The Commission engaged in a close discussion with those Member States who had not complied with the deadlines and adopted, where appropriate, the necessary means to enforce the Regulation[28].

The Commission has assessed[29] the Preventive Action Plans and Emergency Plans prepared by the Competent Authorities of the Member States and has presented its assessment, for its discussion, to the Gas Coordination Group[30]. Following this discussion, the Commission has adopted a set of opinions on the Plans reflecting its assessments and asking Member States, where appropriate, to amend their Plans in order to fully comply with the obligations of the Regulation. After the adoption of the opinions, the Commission has in many cases engaged in a fruitful discussion with Member States to assess and advice on possible options to amend the Plans.

Additionally, in 2014, and in light with the obligations contained in the Regulation[31], the Commission prepared a report[32] assessing the implementation of the Regulation and possible means to enhance the security. The report assesses in detail the numerous tools contained in the Regulation focussing on how they have been implemented by Member States and their performance, i.e. how each of them has contributed to enhancing the security of supply of the

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26 Support material for the implementation of Regulation 994/2010 is available on the Commission's website: http://ec.europa.eu/energy/en/topics/imports-and-secure-supplies/secure-gas-supplies

27 With the aim to assist Member States in the preparation of the risk assessment and Plans and in the implementation of other relevant provisions of Regulation 994/2010, the Commission organized several workshops since the Regulation entered into force: in 2011 (9 November, 30 May), 2012 (19 April, 10 October) and 2013 (18 March). ENTSO-G, the Energy Community and ACER were also invited.

28 In total there have been 30 instances between 2012 and 2015 where the Commission engaged in a structured dialogue with the Member States in order to discuss the failure to comply with various obligations under the Regulation (e.g. reverse flow, plans, definition of protected customers). While in the majority of the cases this structured dialogue has led to compliance with the Regulation, so far in two cases formal infringement procedures, have been started, one of which is still ongoing.

29 In accordance with Article 4(6)(b)(i) to (iii) of the Regulation. The Commission has already issued 23 opinions (1 opinion per Member State for both plans and 1 opinion for the joint Preventive Action Plan for UK and Ireland) and 4 more are under preparation, following the notification by the respective Member State. The opinions are published in the Commission's website:

https://ec.europa.eu/energy/sites/ener/files/documents/opinions_SoS%20Plans.pdf

30 For the second cycle of Plans (submitted in December 2014 and afterwards), the Commission presented its assessment of the Plans in the meetings of the Gas Coordination Group of 28 January, 4 May and 22 September 2015.

31 Article 14 of Regulation (EU) No 994/2010.

32 https://ec.europa.eu/energy/sites/ener/files/documents/SWD%202014%20325%20Implementation%20of%20the%20Gas%20SoS%20Regulation%20en.pdf

EU and its preparedness. The implementation report evidenced that the Regulation has already delivered important benefits on Europe's gas security of supply situation, both in terms of preparation and mitigation. Member States are now better prepared to face a supply crisis thanks to a number of measures introduced following the Regulation. First of all, all Member States have now prepared and even updated a full assessment of risks affecting their security of supply. Such assessments have been the basis upon which to prepare and put in place Preventive Action Plans and Emergency Plans. These Plans constitute already a very significant improvement compared to the situation in 2009, where the crisis revealed that a number of Member States did not have contingency plans to apply for this type of scenarios[33]. Furthermore, Member States must now comply with standards aimed at ensuring the flexibility of their gas system (in the event of failure of the largest infrastructure, N-1 standard) and the availability of gas even under demanding situations, such as a gas disruption or a significant increase in demand.

The Regulation has also established a clear system of responsibilities via a three-tier approach. Natural gas undertakings, based on market mechanisms, are primarily responsible to ensure gas supplies. In case the market mechanisms fail to deliver gas in a country, Member State measures kick in to ensure gas to protected customers. The European Commission provides general coordination and ensures the consistency of national measures. Moreover, Member States have all appointed a single authority responsible for the implementation of the Regulation, which ensures consistency and facilitates the necessary contacts between Member States.

Finally, the Regulation has also contributed to a much more thorough discussion on security of supply measures involving not only Member States and the Commission, but also representatives from natural gas undertakings and gas consumers in Europe through the Gas Coordination Group.

Overall, the Regulation has been instrumental in putting in place the basic building blocks of gas security of supply at national level and thus improving the resilience of Member States in case of a gas crisis. Nevertheless, and despite the efforts, a conscious cross-border approach to security of supply does not yet exist.. Furthermore, the implementation of the Regulation has evidenced a number of practical issues that were not foreseen initially but which hamper the cooperation process (e.g. language regime, heterogeneity of Plans). It seems clear at this stage that the design of the current Regulation has overall proven useful but it remains insufficient so that further improvements should be pursued.

3.3. Baseline scenario

In the absence of any action, the problems identified in the previous section, related to behavioural biases, the fact that external elements are not properly factored in, and the fact that infrastructure is not sufficiently available or protected, will remain. This will continue to limit the scope for strengthening the EU's preparedness and capacity to respond effectively to a gas supply crisis.

[33] European Commission, *The January 2009 Gas Supply Disruption to the EU: An assessment*, SEC(2009) 977 http://ec.europa.eu/danmark/documents/alle_emner/energi/2009_ser2_autre_document_travail_service_part1_ver2.pdf

First of all, the preparation of the **risk assessments, preventive action plans and emergency plans** will continue to be **largely national and uncoordinated**. The implementation has shown that they had very different focuses and paid little attention to common or coordinated scenarios and actions in the case of a supply disruption and the cross-border impact of national measures were not taken into account to the necessary extent.

The current Regulation also foresees the possibility to adopt a regional approach and prepare regional Plans (on a voluntary basis). However, this possibility has been hardly used until now and it is unlikely that the existing Regulation in its current form would trigger further initiatives. At present regional Plans have only been prepared where they were necessary to comply with other provisions of the Regulation, i.e. the joint Preventive Action Plan prepared by the UK and Ireland, which was mandatory for Ireland in order to comply with the N-1 standard (at regional level). The Baltic States adopted a joint Risk Assessment in 2012 and have since then worked, together with Finland, on the preparation of a Joint Preventive Action Plan and Joint Emergency Plan within that region, within the context of the BEMIP HL group. However, these plans are still unfinished.

The experience gained in the implementation of the existing Regulation has proven that administrative issues, although in principle minor, can also play a relevant role and stand in the way of proper cooperation. In addition to the difficult comparability of Plans, missing translation rules and different timings in the submission of national plans will continue to make the exchange of plans with neighbours difficult in practice and will often lead to a very rudimentary consultation and merely to "tick the box".

Additionally, the freedom to implement certain measures (e.g. **supply standard** and **definition of protected customers**) will likely continue as a patchwork of different groups of protected customers, rules and monitoring systems among the Member States. Indeed, the group identified as **protected customers** largely differs among Member States and some Member States go also beyond the limits set out in the Regulation by including other consumers alleging technical reasons (e.g. impossibility to cut gas supply to non-protected customers when they are in the same distribution network). Even though differences in approaches can often be justified given the widely diverging situation of the gas market in the various Member States, they can also be counterproductive when it comes to cross-border solidarity measures. As an example, the larger is the group of protected customers more gas is needed to ensure the supply standard and therefore less gas would be available to help neighbouring countries in case needed.

In recent years important efforts have been taken to ensure that sufficient infrastructure is available[34]. Yet if no further action is taken under the Regulation, further improvements are unlikely. Whilst a majority of the stakeholders in the public consultation highlighted that the N-1 is a good indicator for "minimal level of infrastructure" in the event of a technical failure, they also pointed out there is scope for improvement underlining as main limitations of the N-1 the fact that: 1) it only takes infrastructure into account, no gas volumes; 2) it could give a false impression of security of supply if not combined with other indicators such as the daily withdrawal rates from storages under various filling scenarios.

[34] Thanks to the implementation of the Regulation (EU) No 994/2010 the number of interconnection points bi-directional have almost duplicated between 2009-2014 (from 12 to 21).

Regarding the **reverse flow obligation**, a number of major interconnection points are still not equipped with bi-directional capacity (32 interconnections are still unidirectional) and this situation will not necessarily change under the existing decision's regime already mentioned in the previous section. The TEN-E Regulation clearly contributes to the implementation of the reverse flow projects thanks to e.g., streamlined procedures, cross border coordination and guidance for cross-border cost allocation. These improvements could facilitate enabling reverse flow capacity in existing or new pipelines. However, this is not sufficient to ensure that Member States carry out on a regular basis feasibility assessments for enabling or increasing bi-directional capacity in line with the results of the risk assessment. For new pipelines, the lack of obligation to assess the feasibility of bidirectional capacity in the very early stage of the project is a clear shortcoming, which is not addressed through the TEN-E Regulation.

Table 1: Interconnection with bidirectional flow capability

	2009	2014
Number of cross-border interconnection points in the EU	49	53
Number of bi-directional interconnection points	12	21
Number of unidirectional interconnection points	37	32

Source: Report on the implementation of Regulation (EU) 994/2010 [SWD (2014) 325 final, 16.10.2014)]

Regarding **information exchange**, implementation has shown that the high level of aggregation of data on the gas supply contracts with third countries makes it impossible to conduct a proper security of supply assessment at EU level, as required under Article 13 of the Regulation. In the absence of further action, it is very unlikely that a better access to information will be granted, as evidenced during the autumn/winter 2014/2015 mentioned earlier.

With regard to the **Energy Community**, there is no commitment yet to the implementation of the Regulation and so far an outdated security of supply Directive (2004/67/EC) has been transposed. Moreover, if the Regulation were to be implemented in the Energy Community, a parallel legal regime for its implementation would be created under the current practice of implementation of the EU energy acquis into the Energy Community legal order. As such, the obligations would apply only between the Contracting Parties and not between the EU Member States and the Contracting Parties, which would lack the necessary involvement of the Energy Community Contracting Parties in the EU security of supply policy.

As regards risks relating to foreign take-overs of strategic energy assets, it should be noted that current EU law does not offer the tools necessary for tackling these problems. Article 11 of the Electricity and Gas Directives requires National Regulatory Authorities (NRA) to make certification of a transmission system operator (TSO) acquisition by non-EU entity dependent on proof that the foreign owner complies with the unbundling rules and that 'the security of energy supply of the Member State and the Community' is not at risk. Before certifying, the NRA must seek an ex-ante assessment of the Commission, which is however not binding and

not always followed in practice either (e.g. DESFA case)[35]. In addition, the assessment under Article 11 applies only to TSOs, i.e. it does not cover all security of supply relevant infrastructures (e.g. storage or LNG terminals). The Commission has strong investigative powers to screen merger and acquisitions with EU relevance in merger procedure, in which it also takes binding decisions. However, the objective of merger control is to prevent distortions of competition related to concentration of the market, and does not aim to address issues related to security of supply as such.

At the national level, the situation is very diverse. Whilst some Member States exercise hardly any form of control, an increasing number of Member States[36] have put in place or are putting in place measures to subject foreign investments to screenings, or to limit the participation by foreign entities in the capital of companies. This shows that foreign ownership of strategic infrastructure, notably in the energy sector, is of increasing concern to Member States.

Given that national approaches are very different in nature, there is a risk that in some Member States foreign ownership risks are taken too lightly, whilst other Member States might 'over-react'.

In conclusion, the experience gained in the implementation of the Regulation shows that, despite the important achievements, its design has proven insufficient to overcome a number of problems. Efforts undertaken by Member States in this area are strictly limited to the explicit obligations contained in the Regulation. Consultation among Member States has resulted in many cases in a "tick-in-the box" exercise rather than a thorough reflection process where issues such as the different perceptions of risks, mistrust and free-riding concerns (see section 3.1) could have been addressed. Additionally, existing tools have proven insufficient to properly factor in external risks. Therefore, in the absence of any action, the identified problems will remain damaging the EU's ability to efficiently prevent and react in case of a gas emergency.

3.4. Subsidiarity

While the revision of the Regulation has been inspired primarily by the existence of a number of problems of different nature, behavioural biases are the most significant affecting the vast majority of Member States. Against this background, the **necessity of EU action** is based on the evidence that national approaches not only lead to sub-optimal measures, they make also the impacts of a crisis more acute. Additionally, the risk of a major disruption of gas supplies to the EU is not confined to national boundaries and could directly or indirectly affect several Member States. Therefore, national actions in terms of preparedness and mitigation cannot only be defined nationally, given the potential impact on the level of security of supply of a neighbouring Member State and/or on the availability of measures to tackle scarcity situation.

The increasing interconnection of the EU gas markets and the "corridor approach" in gas supply framed in the **Energy Union strategy**, require a coordination of measures. In the absence of such coordination, security of supply measures implemented at national level are

[35] Commission opinion C(2014) 7734 final of 17 October 2014 correcting Opinion C(2014) 5483 final of 28 July 2014 pursuant to Article 3(1) of Regulation (EC) No 715/2009 and Article 10(6) and 11(6) of Directive 2009/73/EC - Greece - Certification of DESFA, https://ec.europa.eu/energy/sites/ener/files/documents/2014_101_gr_en.pdf

[36] Austria, Denmark, Finland, France, Germany, Italy Lithuania, Poland, Portugal, Slovenia, Spain, UK.

likely to jeopardize other Member States or the security of supply at EU level. Situations like the cold spell of 2012 and the stress test of 2014 showed that coordination of action and solidarity are of vital importance. An action in one country can provoke a shortage and risks of blackouts in neighbouring countries (e.g. electricity export limitations imposed by Bulgaria in February 2012 had an impact on the electricity and gas sectors in Greece). By contrary, coordination may offer a wider range of solutions (e.g. swaps to deal with congestions).

So far, the potential for more efficient and less costly measures thanks to regional cooperation has not being fully exploited, which is detrimental to EU consumers. While the stress test has shown that functioning markets are key to secure gas supplies, it has also shown that well-coordinated actions by Member States, in particular in case of an emergency, can significantly increase supply security. This concerns not only better coordination of national mitigation actions in case of an emergency, but also of national preventive measures, such as proposals for better coordination of national storage or LNG policies, which can be of strategic importance in certain regions. The cooperation should be also extended to specific measures to foster solidarity between Member States in security of supply matters.

However, the regional approach to security of supply also requires paying special attention to the divergences that could appear between regions. The creation of regions with different levels of security of supply could seriously hamper the internal market and the benefits that the cooperation can bring. Such coordinated approach requires action at the EU level.

Action at EU level could be also needed under certain situations (e.g. Union and regional emergency) where the security of supply in the EU, cannot be sufficiently achieved by the Member States alone and can therefore, by reason of the scale or efforts of the action, be better achieved at Union level.

The EU action is framed under **Article 194** of Treaty of the Functioning of the Energy Union (TFEU) which recognizes that certain level of coordination, transparency and cooperation of the EU Member States' policies on security of supply is necessary in order to ensure the functioning of the energy market and the security of supply in the Union.

4. OBJECTIVES

4.1. General objectives

As one of the 15 actions of the Energy Union, the revision of the Regulation aims at making the EU more resilient with the ultimate goal to give EU consumers –households and business- secure, sustainable, competitive and affordable energy.

The revision of the Regulation aims at achieving an adequate level of preparedness in Europe to gas supply disruptions and to mitigate any effect which should occur, at the least possible cost for the EU consumers.

The general objectives pursued by the revision of the Regulation are in line with the EU Treaty goal to ensure security of energy supply in the Union (Article 194(1)(b) TFEU). The measures proposed also ensure the proper and continues functioning of the internal market and well interconnected energy markets, in line with the EU Treaty goals to establish a functioning internal market in gas, in the spirit of solidarity between the Member States

(Article 3(3) TEU; Article 194(1) TFEU) and to promote the interconnection of energy networks (Article 194 (1)(d) TFEU).

4.2. Specific objectives

The revision of the Regulation pursues four specific objectives:

(1) Enhanced regional cooperation

A regional approach in the assessment of risks and in the definition and adoption of preventive and mitigation measures could provide for a coordination of efforts that will bring significant benefits in terms of the effectiveness of measures and optimisation of resources. This is particularly relevant for those measures aimed at ensuring the supply, under very demanding conditions, of the categories of consumers considered protected (e.g. the supply standard). As result of this, Member States could be better prepared ahead of a crisis (e.g. more accurate assessment of correlated risks) and delay the resort to emergency measures. Moreover, even if an emergency were declared, a coordinated approach to security of supply would ensure a consistent response in the event of a crisis. This could reduce the potential negative spill over effects of purely national measures in neighbouring Member States. Overall, exploiting synergies could lead to a more cost-effective solutions resulting in an increased security of supply with a less cost for consumers and minimizing any negative impact.

(2) Improved assessment and consideration of external factors

More accurate assessments of the external aspects in the design of security of supply policies will be achieved, mainly, through improvements on information exchange ahead and during a crisis and the scrutiny of the gas supply contracts with third countries.

(3) Improved infrastructure standard obligations

Improved N-1 and reverse flow obligations could ensure more robust and resilient gas system and flexible EU network, which is a pre-condition to ensure that gas flow where it is most needed without physical restrictions, enhancing the security of supply at national, regional and EU level.

(4) Enlargement of the geographic scope

The enlargement of the regulatory framework to the Contracting Parties in the Energy Community will allow for a better level of preparedness and more efficient crisis management in the whole European territory.

The specific objectives identified will be achieved while respecting the functioning of the market and ensuring that market measures are used to respond to supply crisis situations for as long as possible.

5. POLICY OPTIONS

With the intention to meet the objectives set out in the previous section, the Commission services have identified five policy options ranging from an enhanced implementation of the existing Regulation to the full harmonization at EU level. Option 0 represents the baseline or the measures currently in place. Each policy option consists of a package of measures combining existing tools, possible updated and improved, and new tools. In broad terms, the options could be described as follows:

Option 0: No further action at EU level
Option 1: Enhanced implementation and soft law measures
Option 2: Enhanced coordination with an increased scope for tailor made solutions
Option 3: Enhanced coordination with some principles/standards set at EU level
Option 4: Full harmonisation at EU level

For a summary of the measures contained in each of the proposed options see Annex 3.

5.1. Option 0: No further action at EU level

This option implies that the measures in place will continue and no further measures will be introduced. Member States will produce **national plans** based on the outcome of their national **risk assessments**. The flexibility in the definition of **protected customers** and in the implementation of the **supply standard** will remain. The current mechanisms of **information exchange** will persist, basically: a) information on gas contracts will be provided in an aggregated manner; b) Member States should report certain information only during an emergency. Regarding the **infrastructure standard**, Member States will continue calculating the **N-1** standard following the current methodology, while for the **reverse flow** the cross border consultations will remain limited to the physically neighbouring countries.

With regard to the **Energy Community**, there will not be further commitment than the implementation of the Regulation.

5.2. Option 1: Enhanced implementation and soft law measures

This option introduces a set of measures to enhance the implementation of the Regulation without introducing any amendment to the legislative act. Building on what has already been done to implement the existing Regulation, this option goes one step further proposing soft law that could improve the enforcement of the legislation and the use of voluntary measures that have not been fully explored by Member States.

As the possibility to prepare joint risk assessment and plans has been used only in a limited number of cases (e.g. UK-Ireland and Estonia-Lithuania-Latvia), under this option Member States would be encouraged to improve coordination and explore the regional approach with guidelines, prepared by the Commission, setting out how to prepare a **regional assessment of risks** (e.g. definition of common scenarios, structured information on relevant national and regional circumstances such as market size, network configuration, flows). Based on the outcome, Member States would be encouraged to elaborate **coordinated preventive action plans and emergency plans**. The guidelines would facilitate the preparation of the plans providing the minimum elements to be included in the plans in accordance with Articles 5 and

10 (e.g. mechanism for cooperation before and in the case of a crisis, preventive measures to enhance diversification of sources and routes, contribution of reverse flows to mitigate the impact of gas disruptions).

Under this option, a more harmonised system for the compliance with **the supply standard** would be proposed with the use of guidelines. The guidelines, prepared by the Commission and based on best practices observed, would introduce transparency and predictability in certain aspects relevant for the fulfilment of the supply standard. For example, the guidelines would provide the sequential steps for the Competent Authorities to ensure accurate and timely compliance: 1) the identification of the natural gas undertakings to ensure the gas to protected customers, 2) quantification of gas needed for protected customers under the scenarios defined in Article 8, 3) measures taken to fulfil the standard, 4) the monitoring process and, 5) the mechanisms adopted at national level in case of non-compliance by the natural gas undertakings.

Both guidelines on the supply standard and on Plans and the Risk Assessment would be based on the numerous efforts carried out by the Commission[37], including workshops and the Gas Coordination Group, but will also take into account the best practices observed in the second cycle of Plans prepared by Member States in 2014.

Given the observed issues with regard to the definition of protected customers, the Commission would be stricter in the implementation of this definition ensuring the enforcement of the current legal text and initiating infringement procedures when the threshold is surpassed by Member States. No technical reasons or other type of reasons could justify the consideration of protected consumers beyond the limits established by the Regulation.

With regard to the **infrastructure standard**, the enforcement of the current legal text would require initiating infringement procedures immediately against three countries that do not fulfil the N-1 rule today[38]. Regarding the **reverse flow obligation**, still today some major interconnection points remain not equipped with bi-directional capacity as they have been granted exemptions. Under this option, the Commission would re-examine the assessment carried out by Member States under Article 7 of the existing Regulation in the framework of the current biannual update of the Risk Assessments.

For the improvement of the **information exchange,** the Commission will prepare a series of **guidelines**. First of all, instructions would be prepared for the collection and submission to the Commission by the Competent Authorities of the data required under the new current Regulation with regarding to commercial contracts. It would result in a more accurate and better diagnosis of the situation. The system regarding commercial gas contracts would also be complemented by **guidance with respect to the EU acquis,** including security of supply and competition law with respect to clauses in gas supply contracts**.** Such guidance would focus on illegal or possibly anticompetitive clauses and contract frameworks based on the experience of security of supply analysis and competition investigations. Furthermore, **guidance** would be provided with respect to **gas market pricing** (e.g. hub pricing) and their relevance for long-term gas contracts. The latter could be tackled at least in two ways: a) by

[37] See section 3.1

[38] According to the information provided by these three Member States in their Preventive Action Plans, the implementation of infrastructure projects currently under construction will enable them to fulfil the N-1.

the Commission's recognition that competitive and not distorted gas markets, including gas hubs, are relevant for pricing of long-term gas contracts in combination with increased transparency of price quotations on gas hubs and transport costs from production centres to markets or, b) by creating an aggregated benchmark price, consisting of a sufficiently large number of individual prices to prevent disclosing price of individual undertakings, on a regional level.

Under this option, Member States could also assess the potential merits for crisis situations of collective purchasing of gas for offsetting or mitigating the impacts of supply shocks in very severe supply situations. To the extent such measures would be implemented or organized by commercial entities, their benefits should be weighed against potential adverse effects on competition. Any assessment of such collective purchasing schemes would be without prejudice to the possible parallel application of Article 101 to horizontal co-operation agreements. In this context, the Commission guidelines[39] on horizontal co-operation agreements provides guidance regarding which practices are allowed and which could be anticompetitive.

5.3. Option 2: Enhanced coordination with an increased scope for tailor made solutions

This option introduces a series of changes in the Regulation aimed at improving coordination among Member States while leaving them flexibility in some areas to decide on measures tailor-made for their security of supply needs.

The starting point of this option is a **mandatory regional Risk Assessment** to be carried out jointly by the Competent Authorities of all the Member States included in a concrete area. Such regional Risk Assessment would replace the current national Risk Assessments and should be based on common scenarios to de decided by Competent Authorities in each area on the basis of the existing criteria detailed in the Regulation (e.g. market size and network configuration, supply disruptions, correlation of risks, etc). This Risk Assessment would be developed according to a **mandatory template**.

On the basis of the results of the regional Risk Assessment, the Competent Authorities of the Member States will have to develop their **national Preventive Action Plans and Emergency Plans**. These Plans will remain national plans but should be prepared following **mandatory templates**[40] and accompanied by a courtesy translation into English[41]. Additionally, a more far-reaching consultation process will apply in the form of a mandatory revision process (**peer review**). Thus, each national plan would be reviewed by peers from the Member States in the same area as well as other neighbouring Member States potentially impacted by the Plans[42]. Furthermore, the involvement of other stakeholders such as natural gas undertakings, industrial gas customers, the relevant organisations representing the interests of households and industrial gas customers, electricity transmission and distribution system operators could be considered in such a system, to provide further input to the peer review team.

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39 See Chapter 5 of the Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, 2011/C 11/01, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:011:0001:0072:EN:PDF

40 The majority of the responses to the public consultation favoured some type of guidance regarding the Plans and around half of the respondents preferred binding templates.

41 See for example the reply of Eurogas to the public consultation.

42 ENSTOG should also participate in the peer reviews.

The Commission will be required again to assess and deliver an opinion on the Plans, as under the current Regulation, but under this option the Commission will take into account the peer review carried out for each set of Plans. Following its assessment, the Commission may require the Competent Authority who prepared the Plans to review any or both of them and present specific recommendations for amending them. In the case the Member States do not take the Commission's opinion into account or do not duly justify the reasons why it does not agree with the Commission's opinion, the Commission would have the right to issue a **decision** requiring the amendment of the Plans.

The Preventive National Plans will continue to serve as a planning and transparency tool where preventive measures are described by each Member State, including the compliance with the supply standard. In this option the **level of the supply standard** would no longer be defined at EU level. Instead, each Member State will, on the basis of the regional Risk Assessment, define the necessary level(s) of the supply standard as well as the means to ensure undertakings take measures to comply with it.

The definition of the **protected customers**, to be established by the Competent Authorities, will not change under this option but an **increased oversight** of the implementation will be proposed. In their Emergency Plan Competent Authorities will have to define measures to ensure that, in the case of an emergency, non-protected customers would not use gas intended for the supply of the protected customers. The nature and type of the measures will be decided by the Member States (e.g. technical improvements in the networks to enable selective curtailments, deterrent sanctions for non-eligible consumptions, etc.).

A new **solidarity principle** will be introduced in the system. According to such principle each Member State would be obliged to send excess gas to a neighbouring country in which the supply to protected customers is at risk. Excess gas would be defined as any gas that is available on top of what is needed for the protected customers in that Member State. The principle only takes effect in an emergency situation, i.e. when the amount of gas available in a given Member State is insufficient to meet the gas demand of protected customers. Members States will have to identify and assess in their Emergency Plans ways to ensure the application of such solidarity principle and, provided the assessment shows positive outcomes, implement it.

With regard to infrastructures, the calculation of the **N-1** standard would be amended by focusing on the **most critical infrastructure**[43] instead of the single largest infrastructure. Each Member State would have to identify the most critical infrastructure, on the basis of the Regional Assessment, and explain in detail in the Preventive Action Plan the measures, volumes and timing needed to comply with the N-1 standard calculated with this new approach.

The infrastructure standard would be completed by considering in the implementation of bi-directional capacity (**reverse flows**) a cost-benefit analysis along the whole transportation corridor[44]. Thus, Member States along the transportation corridor will also be specifically consulted ahead of the adoption of a decision on a concrete interconnection point. Such approach would be required for the request of any exemption as well as for the decisions setting the level of the reverse flow capacity. The tools already developed under Regulation

43 See replies of FNB Gas and CEER to the public consultation.

44 Most stakeholders (e.g. Spanish Government, Gas Terra, National Grid, ENTSOG, CEER, Gaz-System) expressed their support for involving in the exemption decision-making process Member States located along the transportation corridor affected by the interconnection, even if they are situated beyond the immediate physical border.

(EU) No 347/2013 such as for the cost-benefit analysis and cross-border cost allocation for PCIs should be applied.

In order to improve the access to security of supply relevant **information and facilitate information exchange**, the scope of the reporting obligations under the current Regulation for gas supply contracts with a duration of more than one year concluded with suppliers from third countries would be widened by adding information on minimum daily, monthly and yearly contracted quantities as well as conditions for the suspension of gas deliveries. Natural gas undertakings will continue to be responsible for sending the information to the Competent Authorities and the latter to the Commission. Furthermore, the data will be now notified to the Commission in a non-aggregated form (i.e. per contract). This obligation would be complemented by a more **flexible and focused system** under which Competent Authorities will also be legally enabled to request suppliers' security of supply relevant information under duly justified circumstances which could be in relation to but ahead of the declaration of an emergency. Information subject to this request could cover information contained in gas supply contracts but only to the extent needed on security of supply grounds. Such information would typically cover non-price related gas delivery information, such as total maximum and minimum contract volumes, delivery points, or flexibility margins. The circumstances under which this information could be requested would be, for example, unexplained modifications in the gas supply pattern to a given buyer or buyers in a Member State which would not be expected under the normal functioning of the markets and which could have a negative impact on the security of supply of the Union or its parts. In any case, the Competent Authority would have to duly justify its request. The Commission will be entitled to request the information gathered by the Competent Authority in a non-aggregated form, and could also trigger the request of such information by the Competent Authority, in order to assess the overall security of supply situation of the Union or its parts. The confidentiality of commercially sensitive information will be ensured.

As for the **Energy Community**, the revised regulation would be adopted into Energy Community Contracting Parties' national legal orders following the standard procedure based on the Title II of the Treaty establishing the Energy Community. Only **voluntary cooperation on cross-border issues** between the Contracting Parties and Member States would be animated by the Commission in a similar manner to the existing Commission Recommendation[45] for internal market rules.

For the approach presented in this option to be workable, a certain grouping of Member States is necessary, above all for practical reasons. The **definition of the groups** should take into account: a) supply patterns, b) existing and planned interconnections and interconnection capacity between Member States, c) market development and maturity, d) existing regional co-operation structures and e) the number of Member States in a region, which should be limited in order to keep it workable also in practice. Finally, Member States should in principle not be in more than one region. In view of those criteria, annex 5 contains a possible regional set-up building also on the currently operative regions in the framework of Regulation (EU) No 347/2013 (TEN-E Regulation).

[45] Recommendation on application of internal energy market rules between the EU Member States and the Energy Community Contracting Parties (2014/761/EU of 29 October 2014)

5.4. Option 3: Enhanced coordination with some principles/standards set at EU level

Option 3 builds on option 2 and goes one step further towards harmonisation by increasing the regional cooperation as a tool to improve security of supply and by setting at EU level a limited number of levels and principles to be complied with by all Member States while leaving them flexibility to decide on the most appropriate measures.

Under this option, the Competent Authorities of the Member States would also be required to prepare **regional Risk Assessments** as described in option 2, which will serve now as the basis for **regional Preventive Action Plans and Emergency Plans**. Therefore, Plans would now be prepared on the same **regional** basis as the Risk Assessment and would replace the national Preventive Action Plans and Emergency Plans. These Plans should be prepared according to **mandatory templates** and will be subject as well to the **peer review** assessment already described under option 2. Additionally, and in order to ensure the coherence of the different regional Plans as well as to assess the cross-regional effects of a gas emergency, the **Gas Coordination Group** will be given a stronger role. The Gas Coordination Group will discuss the Plans and will advise the regions on how to ensure the coherence between all the regional Preventive Action and Emergency Plans. The discussions at the Gas Coordination Group will be taken into account in the **Commission's decisions** on the Plans. Such discussions could also be taken into account by the Commission when addressing the situation of security of supply in the EU in the Report on the State of Energy Union.

The **supply standard** will remain a national obligation, as under the current Regulation, but, contrary to option 2, the current definition set at EU level will continue to apply[46]. This option would also retain the current discretion at national level as regards the means to ensure the compliance with the supply standard[47]. The difference will be an **increased oversight** of the existing measures as well as new measures to comply with the supply standard involving Member States and the Commission. New measures envisaged by Member States would be subject to increased scrutiny, most notably a **thorough impact assessment**[48] covering the impacts on the national energy market, the EU energy market, impacts on neighbouring Member States, proportionality and costs. Such assessment should be carried out by the Member State before implementation and made publicly available. The **Commission** would assess the analysis submitted by the Member States focusing on **cross-border impacts and impacts on the internal market** and may request the amendment or the removal of measures with negative impacts in a decision.

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46 A majority of respondents to the public consultation, including Member States, regulatory authorities and industry, considered the scenarios defined in the existing Regulation as still valid and fit for purpose

47 An overwhelming majority of respondents to the public consultation, from all sectors, advocated for the current results-oriented definition of the supply standard to be maintained, although the reasons underlying such support are divergent. A high number of respondents, mostly in the western parts of the EU, do not want to resort to prescriptive measures and prefer market based systems, such as for example systems based on incentives (e.g. Belgium, Denmark, Germany, The Netherlands), while the market is allowed to play its role (e.g. IOGP). Other respondents however argued that Member States should retain the possibility to prescribe at national level measures tailor made to the specific needs (e.g. Slovakia, Hungary, GIE).

48 The idea of conditions and thorough impacts assessments, particularly in the context of non-market based measures, was also proposed by some respondents to the public consultation (e.g. UK, EFET, EDF), including an stronger role for the Commission in such assessment (e.g. UK, EFET).

Existing measures will also be assessed but in the framework of the assessment of the Preventive Action Plan[49]. As part of the Plans prepared by the Competent Authorities, they will be subject to the peer review, the discussion in the Gas Coordination group and the Commission's decision on the Plans. In this regard, the criteria for the Commission's assessment of the Plan will be widened to specifically include negative effects in the functioning of the internal market or the distortion of competition.

As in option 2, the current definition of **protected customers** would continue to apply, together with the increased oversight already described under option 2. However, a priority will be given to certain subcategories of protected customers (i.e. households, essential social services and district heating), to the extent they exist, for the **application of the solidarity principle** described under option 2, which in this option will be mandatory and not only a best efforts obligation. Thus, the supply to non-protected customers in a Member State will not be able to continue for as long as the households, essential social services and district heating (to the extent they are considered protected customers) in any of the Member States to which its transmission system is connected are not supplied. The practical arrangements to apply this principle will have to be agreed between Member States and reflected in the Emergency Plans, thus maintaining a high degree of flexibility.

As regards **infrastructures**, the calculation of N-1 would be improved by amending certain **technical aspects of the N-1 formula**. The changes proposed by the majority of industrial stakeholders look at better capturing the *internal* bottlenecks within entry-exit systems[50], withdrawal rates from *storages* under various filling scenarios[51] and the effectively available cross border capacity[52]. This approach is complemented by an increased transparency in the parameters used for the calculation of the N-1, both in terms of their values as well as the underlying calculations, achieved through the templates for the Plans.

Additionally, the pure capacity approach of the N-1 rule will be complemented by a national **hydraulic calculation** as well as a series of **EU-wide scenarios**. The hydraulic calculation would incorporate actual gas flows into the picture and will be explicitly included in the Risk Assessment prepared by the Competent Authorities[53]. Regarding the EU-wide scenarios and similarly to the stress test exercise carried out in 2014 or the ENTSOG winter/summer outlooks, the European Network of Transmission System Operators for Gas (ENTSOG) would carry out such an EU-wide simulation in consultation with the Gas Coordination Group (e.g. scenarios to be modelled, duration, tie of the year, assumptions). Member States should then take into account the outcome of the simulation in their risk assessments, in order to take the appropriate measures to reduce the impact of a potential disruption (e.g. diversification of suppliers, routes, infrastructures).

With regard to the **reverse flow** obligations, and in addition to the cost-benefit analysis along the whole transportation corridor introduced under option 2, the time duration of exemptions will be limited (although they can be renewed subject to the reassessment of the security of

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49 As under the existing Regulation, the Preventive Action Plan should describe the measures adopted to comply with the supply standard.

50 See for example RWE's reply to the public consultation.

51 See for example the replies of E.ON Gas Storage, the Polish Government, Engie and the Czech NRA to the public consultation.

52 See for example ENTSOG's reply to the public consultation.

53 Competent Authorities may delegate such task to other entities, such as TSOs, in line with the exiting provisions of the Regulation.

supply benefits and costs). There will also be a higher involvement of the Commission and, for the first time, the Agency for the Cooperation of Energy Regulators (ACER)[54], in line with the work currently being carried out in the framework of the PCIs according to the TEN-E Regulation. The national decisions regarding the exemptions and capacity figures would be replaced by a joint decision adopted by the Competent Authorities on both sides of the interconnection point in question and would be subject to the opinion of the Agency as well as to the Commission's final decision, which would no longer be limited to the cases of disagreement among the Member States on both sides of the interconnection.

As regards potential risks to security of gas supply stemming from infrastructure take-overs by third country companies, the current EU and national tools do not allow to address the situation in a satisfactory manner. Therefore we propose to introduce in the new regulation an obligation for the Member States as part of their overall obligation to make preventive action plans (at a regional level) to: identify in the Preventive Action Plans infrastructures relevant for security of supply (on the basis of criteria defined in annex to the regulation), assess various risks, including risks relating to a change of ownership of such infrastructure and if applicable to identify mitigating measures. If measures are proposed, these should be compatible with the EU law, including the free movement of capital and the freedom of establishment.

The provisions under option 2 to improve the exchange of information will remain under this option as well. This will be complemented by an efficient and targeted mechanism for accessing **key security of supply relevant gas supply contracts for the overall security of supply assessment** of the Union and its parts ahead of an eventual emergency or unscheduled gas flows. The mechanism will consist of (i) **mandatory ex-post notification of certain gas key security of supply relevant supply contracts[55]** and (ii) **a right of the Commission to request certain gas contracts which could also be very important for security of supply**.

i. Parties would be obliged to submit all new key security of supply relevant gas supply contracts**,** as defined above, or any modifications of the existing ones[56] (including all amendments, annexes or other documents signed or agreed in relation to and having an impact on the execution of these gas supply contracts) to the Competent Authorities and to the Commission for a security of supply assessment immediately after being signed. This will not apply to the revisions which are solely related to the contract price or a price formula, which is by far the most common reason for contract amendments.

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54 The participation of a supranational authority as the Commission or ACER is backed by some stakeholders (e.g. EDP, Gasunie) alleging the need to ensure transparency and a global overview of the process taking into account the concerns of Member States potentially affected. The role of the Commission is perceived, in particular, very relevant when European funds are involved. A more prominent role of the Commission is also mentioned by some stakeholders (e.g. NET4GAS,) who call for the approval of the Commission before the exemption could be granted

55 Security of supply relevant contracts subject to notification refer to contracts with a long-term duration (i.e. contracts exceeding one year) that provide individually or cumulatively with other contracts with the same third country supplier or its affiliates more than 40% of yearly natural gas consumption in the Member State concerned to one natural gas undertaking or to its affiliates. The definition looking at the buyers' side appears to strike the right balance in terms of administrative burden and making obligations clear for market participants. The 40% threshold does not prejudge that other long-term contracts may have relevance for the security of supply assessment and other gas contracts may be requested by the Commission.

56 Modifications of the existing security of supply relevant gas supply contracts is understood as a modified gas contract is a contract which has undergone any change in substance to the contract or to any element of the contractual framework (e.g. change of delivery points, duration, allowed off-take flexibility, contract's execution, suspension or implementation)

ii. Moreover, the Commission would also have a discretion to request suppliers to submit to the Competent Authority and the Commission certain existing long-term security of supply relevant gas supply contracts, even if they were not subject to a revision, where the Commission has reasonable indications to assume that a given on-going contract with a third country could raise security of supply issues or if such contracts would be needed for a comprehensive assessment of the impact of a contractual framework on the security of supply situation in a Member State, region or in the Union and in particular for the Risk Assessments, Preventive Action Plans and Emergency Plans. The confidentiality of commercially sensitive information will be ensured.

Subsequently, the Commission could address eventual security of supply issues by requesting the Competent Authorities of the Member States concerned to update their Risk Assessments and include adequate measures in the Preventive Action and Emergency Plans in the light of the new, updated or existing gas supply contracts.

In addition, should a Competent Authority identify a competition law concern in relation to a gas supply contract, it could refer to the Commission for a substantial competition law assessment. Should the Commission find a competition concern, it could under existing rules adopt a binding decision bringing the infringement to an end and as appropriate sanctioning it.

Finally, for the **Energy Community**, option 3 proposes the description in the revised regulation of a set of precise obligations of the EU Member States towards Energy Community Contracting Parties, whose application would be conditioned to the adoption by the latter of matching obligations[57] towards the EU Member States (via several "switch-on clauses"). Such conditional obligations would be associated with particular provisions of the Regulation considered to be the most relevant for the general policy goal which is to develop a coherent and functional security of supply framework with Contracting Parties. The main focus should be put on emergency plans, peer review of plans, cooperation in established regions and risk assessments.

5.5. Option 4: Full harmonisation

This option builds on option 3 but goes further proposing a full harmonisation approach by preparing an EU-wide Risk Assessment and Plans and setting at EU level a number of levels and principles to be complied with by all Member States as well as the measures to comply with them, thus reducing the flexibility to a minimum level.

Under this option, the scope of the **Risk Assessment and the Plans** would be extended to the **EU level** and would be prepared by the Commission. The EU-wide Risk Assessment will replace the regional Risk Assessment described under option 2 and will serve as the basis for the EU Preventive Action Plans and the EU Emergency Plans, which will also replace the regional Plans. The establishment of centralised **EU Risk Assessment** would contain information of all Member States, assessing in an integrated and coherent manner correlated risks and cross-regional effects in the case of a gas emergency. The **EU Preventive Action Plan** would include all measures to put in place to tackle the risks identified in a coordinated

[57] The 'switch-on' clauses would not automatically ensure that similar obligations would be put on the Contracting Parties towards EU Member States. The Contracting Parties would need to bind themselves through the adoption of a specific and separate legal act.

way, while the **EU Emergency Plan** would contain all measures to mitigate the impact of an unexpected event such as gas supply disruption to the EU or severe weather conditions affecting several Member States.

The supply standard will remain a national obligation but the values will increase compared to option 3 and the current standard[58]. In addition, the flexibility given to Member States in option 3 to comply with the supply standard would be reduced and **prescriptive measures** would be introduced on the way in which Member States have **to ensure the standard is met**. The most obvious example[59] of this approach would be prescribing a minimum level of gas stocks to be kept in underground storages by each Member State. Furthermore, as much supported by the industry itself, market-based demand side measures, such as interruptible contracts, voluntary firm load shedding, etc. for industry should also be included here.

As a new element compared to option 3, the **full harmonisation of protected customers** proposed under this option would limit the eligible categories of consumers to households, critical social services, like hospitals, and district heating for households and critical social services. A definition that is clear and limited in scope would facilitate a fair and straightforward allocation of scarce gas resources on the basis of solidarity. Furthermore, not only **the solidarity principle but also the mechanisms** to apply it in the event of an emergency would be prescribed under this option with the aim to ensure that the expected – and agreed – missing volume of gas for protected customers in Country A can only be acquired via a market-based mechanism (e.g. tender or auction) among non-protected customers in Country B. In that way, the TSO of Country A is sure to procure the agreed missing volume from its neighbour, but at a price at which the non-protected customers with supply contracts are willing to give up their supplies.

Regarding the infrastructure standard, **the N-1 standard** would here be mandatory at regional level and would replace the current N-1 standard at national level. This option also contemplates **mandatory reverse flow at every interconnection point**, eliminating the exemption procedures foreseen in previous options and in the existing Regulation. New pipelines would also have to be designed to be bi-directional. This absence of flexibility with the elimination of the exemption procedure is the new element compared to option 3.

With respect to the information exchange, this option would go a step further than option 3 and include an **ex-ante notification** of **security of supply relevant gas supply contracts[60] with third countries and the assessment by the Competent Authorities and the Commission.** Under this mechanism, commercial parties would be obliged to submit security of supply relevant gas supply contracts to the Competent Authorities and the Commission before signature. The Competent Authorities would issue a draft decision on the contracts' implications for security of supply that would be submitted to the Commission. If considered necessary, the Commission would be able to request undertakings to provide any additional

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58 There are several ways to increase the level of the supply standard, such as, for example, increasing the number of days during which supplies must be guaranteed (e.g. adopting the 90 days applicable to strategic oil stocks). Another option is to be prepared for even colder winters: not just a winter that occurs once every 20 years, but for instance once every 50 years. A third option that has been put forward by a couple of respondents to the public consultation is the 'Source Scenario' or S-1, whereby Member States would have to ensure supplies for their protected customers in case the largest supply route (e.g. Russia, Ukraine) falls away.

59 Another option would be to prevent Member States from depending too much on hubs or to prescribe the acquisition of LNG contracts or options

60 This obligation would cover the same type of contracts described in option 3.

information needed for a comprehensive assessment of the impact of a contractual framework on the security of supply situation in a Member State, region or in the Union.

The Commission would then issue an opinion on the assessment (i.e. the draft decision) by the Competent Authority which should take the Commission's opinion into utmost account when adopting its final decision. The procedure would have a suspensive effect for the entry into force of the contract until the final decision is adopted by the Competent Authority. The Competent Authority, on the basis of its assessment, should take eventually effective preventive measures in view of the contract and up-date the risk assessments and the Preventive Action Plans and Emergency Plans.

Under this option, Member States would increase their bargaining power by resorting to mandatory **joint gas purchasing.** This binding character is the new element compared to option 1 where the joint purchasing remains voluntary. It would consist of a central buyer contracting on behalf of a number of EU gas suppliers a pre-determined quantity of gas. Such regime would in first instance be inspired by a desire to achieve more bargaining power.

The involvement of the **Energy Community** will under this option be based on a general **"switch on" clause**. Similarly to option 3, this legal solution would imply a general obligation put on Member States towards the Energy Community Contracting Parties "switched on" as soon as the Contracting Parties decide to implement the Regulation[61], but under option 4 it will cover the whole Regulation.

6. ANALYSIS OF THE IMPACTS OF THE VARIOUS POLICY OPTIONS

In this section the impacts of the different policy options are identified and assessed, as well as the ability of the options to contribute to the achievement of the identified objectives.

The options proposed should first and foremost be effective at improving the current level of gas security of supply and thus be suitable to tackle the specific problems.

As regards the impacts, given the administrative nature of the measures and the objectives pursued with the revision of the regulation, the most relevant impacts in terms of magnitude are of **economic** nature. Consequently, for each policy option, the assessment will cover:

- Costs of the measures and impact on prices
- Impact on stakeholders, with a special focus on SMEs
- Administrative burden
- Likelihood of contributing to the completion of the internal market

In terms of **social impacts**, all options are likely to have a positive impact on the welfare of EU citizens by avoiding the occurrence of gas supply crisis and mitigating its effects should they nevertheless occur. The magnitude of this impact varies depending on the effectiveness of the option to address the identified problems (see section 7 for a comparison of the options, including on the basis of their effectiveness). From a point of view of **employment**, policy

[61] The 'switch-on' clause would not automatically ensure that similar obligations would be put on the Contracting Parties towards EU Member States. The Contracting Parties would need to bind themselves through the adoption of a specific and separate legal act.

options related to enhanced cooperation, such as peer review, or infrastructure development such as reverse flow obligations may have an impact on employment due to some additional tasks appearing, however, these cannot be considered significant or valid for a sustained period of time (see per option the assessment of the impact in terms of administrative burden). Out of these measures, building more reverse flow capacity may have a positive impact on employment for the duration of design and construction.

The direct impact of the proposed changes to the current Regulation are mostly administrative in nature, such as improving regional cooperation or improving information exchange on security of supply aspects. Therefore, the proposed policy options can only have an indirect, likely positive **impact on the environment** in that they are the consequence of stakeholder (e.g. competent authorities, gas undertakings, etc.) decisions on specific measures they will take. The current Regulation provides the possibility to use preventive and emergency measures with potential environmental impact, such as fuel switch (in most cases to oil or coal) or curtailment of gas consumption. As a result of more regional cooperation, as pursued by all the options, we expect a more efficient use of such national and cross-border measures decreasing the overall impact at EU level with less switching to more polluting fuels, for example. The Regulation does not make a choice for gas as a preferred supply option, but where this has been chosen it ensures the necessary security of supply. In line with the 2030 targets, the Regulation already requests Member States to consider efficiency measures and the revised regulation will allow for the use of alternative energy sources, such as renewables, to comply with certain obligations, such as the supply standard[62]. Therefore, the expected environmental impact of security of supply measures introduced in case of a crisis should also overall decrease as a consequence or at least not change considerably.

From the point of view of **ICT,** the options proposed could have a theoretical impact in terms of ICT. Close regional cooperation and the exchange and review of plans of other Member States require appropriate software to be at the disposal of the Member States. Such tools are however already in place and were set up in 2013 to enable Member States to notify their plans to the Commission (the Circbac platform). Competent Authorities have used this tool systematically for the notification of the second cycle of Preventive Action Plans and Emergency Plans prepared under the existing Regulation as well as for their replies to the Commission's opinions on their Plans. In addition to this, the use of web conference tools has become usual practice, for example to hold technical meetings on short notice to assess the security of supply situation under changing circumstances (e.g. online meetings of the Gas Coordination Group on 3 and 14 March 2014). Furthermore, the Commission will build on existing IT systems to ensure the secure handling of confidential documents, notably in the framework of the new targeted system to improve access to information.

6.1. Option 1: Enhanced implementation and soft-law measures

6.1.1 Contribution to the policy objectives

Setting principles and mechanisms for cooperation via guidelines would facilitate and streamline the procedure for the coordination among Member States in the preparation of coordinated Risk Assessments and Preventive Action Plans and Emergency Plans. The guidelines, based on the experience gained during these five years of implementation, would

[62] See for example the reply of Sweden to the public consultation.

help Member States to carry out a joint assessment of risks, paying special attention to correlated risks affecting several countries at the same time (e.g. severe weather conditions or failure of upstream pipelines). On the basis of the results of the joint risk assessment, Member States would then prepare coordinated Preventive Action and Emergency Plans.

The **guidelines for the supply standard** would allow for a more harmonised compliance introducing transparency and predictability in certain relevant aspects such as the measures taken to fulfil the standard and the monitoring process.

Regarding the definition of **protected customers,** the enforcement of the existing legislation seems in any case insufficient to solve the problems identified in the implementation of this provision[63]. Technical reasons, different definitions of essential social services and different levels of gas penetration across Europe reduce the effectiveness of this provision even in the case of timely and accurate implementation.

Regarding the **infrastructure standard**, the room for improvement seems limited. For example, it is unlikely that the re-examination of the reverse flow exemptions will conclude with indications of enabling bi-directional capacity in exempted pipelines, mainly due to the market environment does not normally change rapidly to amend decisions adopted by Member States, which are mostly based on the results of the market demand assessment and the cost benefit analysis.

As regards the guidelines for better implementation of **information exchange** obligations, they will have positive impact in the regional and EU assessment by the Commission based on more comprehensive and comparable information. In addition, the **guidance with respect to the acquis** has a positive preventive character thanks to an increased awareness of risky and/or illegal contract clauses and frameworks, as for example, the insertion of a territorial restriction in a supply contract with a buyer may have a negative impact on the security of supply in other Member States. **Guidance on gas market pricing** will also provide useful reference for pricing of long-term gas contracts, in particular, in areas without liquid hubs. It is claimed that gas prices of other buyers are a relevant benchmark for such negotiations. This would create more transparency and strengthen the bargaining position of gas purchasers by allowing them to compare an offer from a supplier with competitive prices at the various European hubs. Regional benchmarks can possibly strengthen the bargaining position of gas purchasers vis-a-vis gas suppliers by allowing a rough comparison of an offer with other long-term gas contracts in the absence of local gas hubs.

Regarding collective **voluntary common gas purchasing**, undertakings can already today, to the extent they respect competition and trade rules, aggregate their demand and address suppliers to achieve better terms and conditions. In the retail energy market, but also in other sectors, it is not uncommon that buyers join forces to negotiate better conditions with their suppliers. In theory, this could also be the case on wholesale gas markets. The Commission has issued guidance as to the applicability of Article 101 TFEU to joint purchasing schemes and what the relevant elements are in assessing their compatibility.[64] It is therefore up to

63 See sections 3.2 and 3.3.

64 See Chapter 5 of the Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, 2011/C 11/01, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2011:011:0001:0072:EN:PDF

market participants to decide for themselves whether pooling their demand and setting up a scheme would indeed result in increased buyer power and therewith improved conditions. Whereas in general such considerations related to price may be more relevant, such schemes could also have security of supply effects, for instance when they enable to tap in to a new source or spur the development of new infrastructure.

6.1.2 Analysis of impacts

a) Costs of the measures and impact on prices

Overall option 1 will have a limited impact in costs as the measures proposed are oriented to improve the implementation of existing measures and the enforcement of current obligations. Indeed, the main advantage of soft law is the minimum cost in their implementation, as it only requires limited number of changes in the measures already in place. For example, the guidelines for the supply standard will imply more detailed information on the fulfilment of this obligation that Member States have to report to the Commission. Therefore, the costs of option 1 and the impact on prices are negligible.

b) Impact on stakeholders, with special focus on SME

The measures proposed under option 1 have limited impact on stakeholders, as it only requires the improvement of existing measures. Among the stakeholders, the Competent Authorities will be the most affected as actors responsible for the implementation of the Regulation and therefore, natural addressees of most guidelines. In this regard, the measures proposed to enforce and improve the implementation could have a short-term impact in view of the necessary changes in the approach usually followed by the Competent Authorities. In any case, as the actions aim to improve the way to put in practice existing measures the impact will be limited and, in the long-term, even positive.

c) Administrative burden

In line with the arguments expressed before, the administrative burden is limited as it is only related to changes in the approach to put in place existing measures. The Competent Authorities will have certain additional administrative burden as actors responsible for the implementation (explained above). Even though it is difficult to quantify, the administrative burden related to following guidelines and best practices in the short term is unlikely to be burdensome. The preparation of guidelines will require additional work for the Commission. However, the efforts already done in the implementation will facilitate this task minimizing the impact.

d) Completion of the internal market

As the actions proposed aim to improve the implementation and enforcement of existing measures, the contribution to the single market will be in general positive but limited. Special attention deserve the guidelines on gas market pricing, as the transparency of prices of commercial gas supply contracts could have anticompetitive effects (e.g. possible alignment of prices at upstream or downstream wholesale level but not necessarily at a lower price

level). Additionally, a regional benchmark could be also counter-productive if the resulting benchmark was not market-reflective.

6.2 Option 2: Improved coordination with an increased scope for tailor made solutions

6.2.1 Contribution to the policy objectives

Measures grouped under this option address all the problems identified while leaving room for *manoeuvre* for Member States given that a one-size-fits-all approach was almost unanimously rejected in the public consultation.

The main benefit of a **regional Risk Assessment** as a starting point of this option is that such assessment would be based on common scenarios leading to an increased coherence among the national Plans and the necessary involvement of the Member States in the region, which would create more engagement and ownership. This would enhance considerably the security of supply in the region. The mandatory templates will facilitate the development of a joint document and will facilitate the comparability of the national Plans while leaving room to include national specificities as needed.

The **mandatory templates** constitute a simple tool to ensure the consistency and increase the quality of the national Plans and the provision of the courtesy translation into English will address one of the practical difficulties identified in the Report on the implementation of the existing Regulation and will allow for meaningful discussions of the Plans. The **peer review process** serves a twofold purpose. On the one hand, it will allow for an early identification of inconsistencies and measures that could endanger other Member States' security of supply; on the other hand, it will provide for actively spreading of best practices among Member States building on the experiences of Member States with more advanced security of supply systems.

Building on the logic of this option, both the levels of and the measures to comply with the **supply standard** are left to the decision of the Member States on the basis of two key arguments: the highly divergent situations of the gas market and the different roles of natural gas as a fuel in the energy mix of Member States. Where gas markets are functioning, price signals can be relied upon to attract gas when and where it is needed most. Where gas is used by a large share of households for heating their homes in winters, Member States are more minded to enforce stricter supply levels.

This option also addresses the risk of overly protective measures with the obligation for Member States to introduce stricter enforcement measures as regards the definition of **protected customers**. Such measures would prevent that consumers who are non-eligible for the category of protected customers would, in the case of an emergency, consume the gas allocated for protected customers and thus enhance the security of supply of protected customers in a given Member State. Secondly, as the gas necessary to cover the needs of protected customers under demanding conditions (to be defined by the Member State under this option) would be limited to the strictly necessary amounts, the need to resort to high supply standards, of which risks for neighbouring Member States in terms of overly protective measures were explained in the previous paragraph, would be removed and thus, the security of supply in the region as well as the possibilities for solidarity actions would improve. Furthermore, this tool provides a viable and proportionate solution as each Member State will

decide on the nature of the measures, i.e. technical or administrative, depending on their national circumstances, typically the size of their gas market and the number of consumers connected to their distribution network that could potentially consume during an emergency gas allocated for protected customers.

Solidarity would also be improved under this option, on the one hand, as a result of the measures on protected customers and to enhance coordination; on the other hand, via the obligation to consider a solidarity principle[65]. As a best efforts obligation, this option has the benefit of flexibility both in terms of implementation and form. Moreover, the regional approach provided by the joint Risk Assessment ensures a comprehensive outlook.

Even if this may appear counterintuitive, the **consideration of the most critical infrastructure** does not seem to significantly improve the security of supply. Firstly, the classical definition of the N-1 standard already ensures that the national gas system has a capacity margin to compensate for the disruption of the largest gas infrastructure. As such, the capacity margin ensured with the classical N-1 definition is higher or equal than the margin that would be ensured by considering the most critical infrastructure. Secondly, the special consideration that the most critical infrastructure deserves and, in particular, the analysis of certain aspects e.g. utilisation level of this asset or the outage probability, should in any case be properly assessed in the framework of the Risk Assessment and the resulting needs addressed as part of the preventive measures to be included in the Preventive Action Plan.

The inclusion of the whole corridor in the consultation and assessment regarding the **reverse flow obligations** would give better understanding of the positive implications of a transnational concept of security of supply and a better magnitude of costs in relation to the benefits provided. Technical barriers such as those represented by different odorization practices need to be addressed in this context, as possible costs related to de-odorization techniques may have to be included in the cost-benefit analysis.

With regard to the external problems and **the exchange of information**, the improvement of the reporting obligations will enhance the Commission's ability to assess security of supply situation at regional and Union level as well as the adequacy of Risk Assessments, Preventive Action Plans and Emergency Plans. Furthermore, the new targeted system for access to information will improve the ability of the Competent Authorities and the Commission to prepare for and react to concerns with respect to gas supplies before they lead to crisis. Cases such as the observed deviation of flows during autumn/winter 2014/2015 show that without such a system the available information may not be sufficient for Competent Authorities or the Commission to draw operational conclusions and foresee the likely development of potentially negative events.

Finally, as regards the **Energy Community**, the foreseen voluntary cooperation would constitute a step forward in the inclusion of this area in the framework of the security of gas supply policy.

[65] See section 5.2

6.2.2 Analysis of impacts

a) Costs of the measures and impact on prices

Overall option 2 will entail a very limited increase in costs compared to the baseline scenario as a result of the flexible approach followed and the reduction of standards set at EU level (e.g. supply standard). The majority of the measures composing this option consist of improvements of existing mechanisms and the correct implementation of a number of principles and, as such, do not involve significant higher costs.

As an example, measures related to the exchange of information, the N-1 standard calculated with the critical infrastructure or the conditioning of reverse flow obligations to a cost-benefit analysis along the corridor should have no large impact on costs. The new calculation of the N-1 should also not entail additional costs as Member States already have the obligation to assess and adopt measures to address the risks associated to the failure of their most critical infrastructure, provided it is indeed a risk for the system. Similarly, the extension of the consultation along the corridor should in itself not encompass an increase in costs for the two Member States on both sides of an interconnection point. To the extent that this consultation results in investments to enable reverse flow capacity (i.e. the investment is considered to the beneficial in terms of security of supply), the costs shall be jointly allocated among those Member States who benefit from the enhanced infrastructure taking into account the proportion of the benefits. National Regulatory Authorities shall then take into account such efficiently incurred costs in the tariffs, as already foreseen in the existing Regulation.

There could be a limited amount of additional costs associated with the stricter enforcement of the protected customers and the application of the principle of solidarity. However, the flexibility provided for the enforcement of the protected customer´s definition will allow Member States not to implement technical measures, if considered too expensive, and adopt, for example, administrative measures instead, such as effective sanctions.

As the users-pay principle applies generally to the energy policy, the costs of these measures will be mostly passed on to consumers. Therefore, in the light of the precious assessment, it is very unlikely that the implementation of option 2 will lead to a significant increase of gas prices for European consumers.

b) Impacts on stakeholders, with special focus on SMEs

Given the nature of the proposed measures, no major impact on market participants nor consumers is expected. SMEs can be considered protected customers, if the Member State so decides, and therefore, would not necessarily have to undertake additional costs to ensure preparedness for a disruption of their gas supply. Furthermore, the joint Risk Assessment should lead to a better identification of problems and synergies in the design of preventive measures, which in return would lead to a reduction in the impact, including the costs, of security of supply measures.

Measures proposed regarding the exchange of and access to information would not interfere in the contractual freedom of undertakings.

c) Administrative burden

The impact in terms of administrative burden would remain relatively low. The main contributor to this impact would be the preparation of joint Risk Assessments but the increase

in the work associated to the preparation of such Risk Assessment would be limited. Exercises such as the stress tests have paved the way for the preparation on this type of projects as Member States had to simulate a set of given scenarios bearing in mind the fact that their neighbouring Member States were also facing the same situation and, consequently, effects of likely simultaneous emergencies had to be factored in. The template for the Risk Assessment will be a key tool to facilitate the work.

As regards the peer reviews, the consultation of national Plans was already mandatory under the existing Regulation. The introduction of templates for the Plans would lead to much more comparable Plans, which would significantly reduce the administrative burden of its assessment both for Member States and the Commission. These templates could be amended, in case of need, via delegated acts, which will ensure that the templates remain updated and fit for purpose without having to revise the whole legislative act. The courtesy translation into English will also reduce the burden as Member States will only have to translate one set of Plans (i.e. their Plans) instead of the Plans of all their neighbours.

The amendment of the exemption procedure could in principle require further efforts as a well-designed cross-border cost allocation needs to be applied. However, the latter should be based on the existing procedures for the Projects of Common Interest (PCI)[66], thus streamlining procedures for all stakeholders and ensuring the coherence of the whole legislative framework.

As regards the tools proposed for the exchange of and access to information, the increase in burden should be minimal, if any, given that the scope of information to be provided is only slightly enlarged and that the targeted mechanism would only be used when and if needed.

There would be a slight increase in the burden for the Commission in the management of the *peer reviews* although the Commission is already working closely with Member States in regional groups facilitating and sometimes even coordinating the work (e.g. focus groups created for the stress test exercise, regional cooperation between the Baltic States and Finland, CESEC).

d) Completion of the internal market

While this option creates common frameworks to cooperate (i.e. regional Risk Assessments), it also allows for a very high degree of flexibility and tailor-made measures, hence, it cannot be excluded that overly protective measures are adopted by a number of Member States. Overly protective measures, and overall widely divergent levels and approaches, may impact negatively on cross-border trade and the ability or willingness to supply neighbouring countries in need. In the past, stakeholders have often complained about situations in which a certain Member State suffered supply-demand tensions, but in which shippers were prevented from buying gas from neighbouring markets because the suppliers in these neighbouring marking were prohibited from selling by national public service obligations requiring them to hold certain gas volumes.[67]

66 See for example ENI´s reply to the public consultation.

67 See as well footnote 21

6.3 Option 3: Enhanced coordination with some principles/standards set at EU level

6.3.1 Contribution to the policy objectives

This option takes account of the fact major gas crises are most likely to affect several Member States and consequently, of the need to discuss possible disruption scenarios and measures to prevent and mitigate them in a cross-border context. By replacing national plans with **regional Plans**, it guarantees coherence of the actions planned and significantly reduces the risk of having national measures that would not fully reflect the spirit of solidarity in the region. These significant coordination improvements would clearly enhance the security of supply in the region.

The **peer review** process described under option 2 would remain applicable. This procedure would ensure stakeholders' interests are considered and would also allow for the involvement of other Member States outside the region who could be nevertheless potentially affected. The mandatory use of **templates** will facilitate the development of the joint Plans as well as the comparability among different regional Plans, notably with a view to the peer review process and the discussions in the Gas Coordination Group of the regional Plans. Such discussions would ensure a European dimension of all regional Plans, given the cross-regional effects of a crisis and the need to monitor security of supply at EU level, and would avoid a fragmentation of the security of supply approach in different regions. It must be borne in mind that the regional division in sub-groups is foremost a tool to facilitate the work at a regional level and make a number of improvements to policy tools workable.

As for the **supply standard**, the key change proposed under this option is a better oversight for new measures via a **mandatory impact assessment** that should ensure the early identification of measures that could negatively affect the internal market or other Member States' security of supply. Furthermore, analysis of costs should ensure that security of supply is achieved at the lowest possible cost for consumers. It would also improve transparency for the general public and facilitate informed discussions on the risk appetite of a certain market.

The notion of priority of certain protected customers over others for the application of the **solidarity principle**, which will no longer be a best efforts obligation but a substantially better defined obligation, ensures the application of a minimum solidarity in case of extreme circumstances and for very concrete needs, i.e. the priority subgroups of protected customers[68]. There will continue to be flexibility as Member States will continue to design and agree (via the Plans) on the necessary mechanisms and arrangements to apply it in practice. This option has the additional benefit that there will be pressure on Member States to keep their protected customers limited to what is strictly necessary in order to be accepted by their peers. The Commission, in the context of its assessment of the regional Plans, will monitor that the mechanisms proposed are effective and efficient.

On the infrastructure section, a more accurate definition of the various parameters of the **N-1** formula would reflect the situation of the gas system as a whole better, and obtain a more precise picture of the individual position of Member States. A higher transparency regarding raw data and values applied as well as the calculation of the parameters (e.g. total gas demand in a day of exceptionally high gas demand) to be used in the formula, as underlined by some

[68] As explained in section 5.3, this priority concept will cover households, essential social services and district heating.

stakeholders, could also provide a better understanding of the responsiveness of the gas system in the event of technical failure of a major infrastructure or gas disruption at a negligible additional cost.

The **hydraulic calculation** complements the pure capacity approach of the N-1 standard by incorporating actual gas flows into the picture and thus provides a more accurate assessment of how Member States could satisfy their total gas demand in the case of the interruption of the largest infrastructure (e.g. identification of internal bottlenecks).

The second new element, the **EU-wide simulation with common standards and specific scenarios**, brings the benefits of comparability, transparency and a better capture of the cross-border impacts of a crisis, including the impact of the measures used to mitigate the gas disruption. It would consist in simulations of hypothetical disruption scenarios with a specified duration (e.g. one week, one month) in a particular period of the year (e.g. winter).

On the second component of the infrastructure measures, the **reverse flows**, a more active participation of ACER and the Commission, including by reinforcing the latter's powers (e.g. possibility to issue a decision before the exemption procedure is concluded and the exemption granted), enhances a more coherent, coordinated and integrated approach of the cost-benefit analysis and more transparent and reasonable cost-sharing mechanisms involving also all Member States along the whole corridor (upstream, who would benefit from the increased security of supply, and downstream, where most of the investment need to take place). Such approach would result in cost-effective investments providing important benefits in terms of security of supply. Additionally, the mandatory revisions of the granted exemptions ensure a full and comprehensive analysis of the reverse flow obligation.

As regards risks to security of supply originating from infrastructure take-overs by companies owned/controlled by third states, the proposed approach has a number of advantages. It will incentivise the Member States to identify the risk and address it with appropriate measures proposed in the Preventive Action Plans. The peer review and discussion of the Plans in the Gas Coordination Group will contribute to better awareness, developing and exchanging best practises.

On external factors, the proposed mechanism with respect to **security of supply relevant contracts** constitutes an efficient and well calibrated tool providing for an ex-post assessment of key new and up-dated security of supply relevant contracts and their impact on the security of supply situation. The system consisting of an automatic flow of most instrumental long-term gas contracts providing vital gas supplies to a given market backed with a discretionary system for assessing existing contracts, to the extent that they are suspected to raise security of supply problems, ensures proportionality in the approach. It will allow the Member States and the Commission to identify promptly risks stemming from certain biggest gas contracts with third countries which due to their security of supply relevance should be adequately reflected in the Risk Assessments and for the Preventive Action Plans and Emergency Plans. Additionally, this mechanism would serve as a deterrent/preventive tool as the automatic flow of information to Competent Authorities and the Commission facilitates the investigation and possible sanctions. The Commission's opinion will raise additional political awareness, where necessary, without prejudging competition law enforcement.

Finally, regarding the **Energy Community**, the approach proposed under this option would strengthen the cooperation in the field of security of supply between the Energy Community Contracting Parties and the EU Member States and it would establish a coherent framework of implementation of security of supply provisions in the Energy Community in the course of 2016 or later.

6.3.2 Analysis of impacts

a) Costs and impacts on prices

Overall, the cost of the policy tools proposed under this option will be again very limited. While some measures could entail higher costs than option 2, these will still be very limited, and some of the proposals even aim at avoiding unnecessary costs and exploiting synergies in the security of supply measures, which should reduce the overall costs of the security of supply framework for all consumers.

Measures such as the regional Risk Assessments, regional Plans or the provisions regarding contracts will not lead to any significant increase in costs and should be rather assessed in terms of its impact in administrative burden (see section on administrative burden).

The policy tools with a likely higher impact on costs would be the refinement in the N-1 calculations and the reverse flow obligations. The implications of the later were already assessed under option 2. As regards the N-1 standard, it is however unlikely that the refinement of the formula would change the situation of a Member States from compliant to non-compliant and thus trigger mandatory investments –the possibility to comply with the N-1 standard via demand side measures will in any case remain. A fine-tuned N-1 could lead to higher investments but based on an individual assessment of the Member State and with a better picture of the actual capacity situation. Consequently, it seems a cost-effective measure in terms of benefits associated to a better diagnosis of the sector with minimum investment (e.g. real contribution of storages thanks to a more realistic estimate of withdrawal rates depending on the level of gas stored). The hydraulic calculation should not imply additional costs either as TSOs are currently equipped with tools to carry out such assessments. As for the EU-wide simulations, they can be carried out by ENTSOG as part of the annual summer and winter supply outlook required by Regulation (EC) No715/2009 and they can contribute to identifying the cost effective measures to minimize the potential negative impacts.

Other measures, such as the increased oversight on the supply standard, will enhance transparency and ensure that security of supply is achieved at the lowest possible cost for consumers. Transparency should facilitate informed discussions on the risk appetite of a certain market. Furthermore, the regional Plans should ensure that synergies are exploited to the maximum extent possible, which will again result in likely reduction of the costs of security of supply measures.

Given the limited impact expected in costs, it is unlikely that this option will have a significant impact in gas prices for European consumers. In any case, and to the extent that costs in infrastructures are incurred, the Regulation provides the framework to ensure that costs are borne by those consumers that benefit from the increases in their security of supply.

b) Impact on stakeholders, with special focus on SMEs

This option should overall have a positive impact on market participants and consumers. The improved oversight on the supply standard measures will ensure it is complied with in a transparent and cost-efficient manner. This was a common criticism by industry respondents

to the public consultation who asked for transparency[69] and fully justified measures subject to regular review or test[70].

With regard to SMEs, they will continue to be part of the "protected customers" if a Member State so decides, and, as such, this option will not have a negative impact on them. The main difference in this option is that they will not necessarily be covered under the solidarity principle. It must be borne in mind however that the solidarity principle is designed to address very extreme situations in which the supply to households and essential social services, which is a necessary priority, is at stake. This mechanism is foreseen as a last resort in a case of extreme need that the whole revised regulation aims at avoiding but for which we nevertheless need to be prepared.

The approach adopted on the provisions related to the ex-post notification of security of supply relevant contracts does not entail a suspensive effect nor interference in contractual freedom: contractual freedom is preserved in a similar manner as under competition rules.

c) Administrative burden

The assessment of this option shows again a limited increase in administrative burden, although it would be to some extent higher than option 2.

One of the main sources of administrative burden would be the preparation of regional Risk Assessments and regional Plans. However, it must be noted that this option builds on the currently existing mandatory consultation at regional level on the Plans and sets a clearer framework for a result-oriented regional cooperation and coordination, which already ensures that the increase in administrative burden is limited. Experience shows that this solution is both technically and legally feasible, e.g. the joint UK-Ireland Preventive Action Plans and the joint report prepared by the Baltic States and Finland for the stress test exercise carried out in 2014. It will require a clear definition of responsibilities and timeframes for the timely delivery of the Plans, which can be arranged according to several models, e.g. in some cases there is a secretariat while other Member States have opted in the past for a rotating allocation of leading roles per deliverable. The Commission would stand ready to provide guidance and facilitate the process as needed, as it has already done during the stress test exercise for the so-called Focus Groups and within the BEMIP Focus group for regional cooperation between the Baltic States and Finland.

Some increase will inevitably exist even if the regional Plans replace the national Plans and duplicated tasks are thus avoided. It could be also argued that agreeing on the Plans at regional level is likely to be more time consuming and require additional arrangements. For that reason, and in order to keep the increase in additional burden limited, the update interval for the regional Risk Assessment and regional Plans could be increased from 2 years, under the existing Regulation, to 4 years.

The mandatory joint decisions regarding reverse flows and the revision of exemptions would also increase burden but, once again, to a very limited extent. The revision could be now aligned with the update period for the regional Risk Assessment and Plans (4 years). This 4

69 For example E.On and Eurelectric.

70 For example Eurelectric and EFET.

year period is in line with the responses to the public consultation[71] and the alignment with the updates of the Risk Assessments would ensure a more accurate and in-depth analysis, which will improve the effectiveness of the process and the results. *Ad hoc* reviews under special circumstances (e.g. an unexpected source disruption due to a geopolitical conflict, a technical failure affecting the major gas infrastructures) would complement this longer review period ensuring a tool to react in case of sudden changes/needs.

Finally, the provisions concerning contracts will only cover a few contracts and, consequently, the impact in terms of administrative burden for the Competent Authorities and the Commission would be limited. Based on the information provided under Article 13(6)(b) of the Regulation, during the next 10 years around 20 security of supply relevant long-term contracts would come to end, and if they were prolonged, they would be have to be notified to the Commission (i.e. about 2 per year). In addition, at a 40% market share threshold, there are currently up to around 18 particularly security of supply relevant gas supply contracts. With an average revision period of three years, up to six contracts would be amended yearly on average and thus notifiable to the Commission. A large majority of these contract revisions, estimated at above 75%, concerns a price revision, which is not relevant for the security of supply assessment and therefore should be excluded from the notification obligation. Taking the above into account, a number of notifications of particularly security of supply relevant gas supply contracts would be limited to around two-three per year.

d) Completion of the internal market

This option is likely to contribute in a significant manner to a better functioning single internal market. In fact, the risks of national security of supply measures distorting competition or discriminating against non-nationals, will be significantly reduced via the proposed measures, which will act as successive filters. First of all, mandatory impact assessments for new measures to be adopted by Member States should already prevent harmful measures from entering into force and being part of the Plans. The existing measures will also be subject to scrutiny by the other Member States in the region, thus avoiding negative spill over effects of certain measures in neighbouring Member States frameworks. In a second step, the peer review process and the Commission's oversight should further enable to identify and remove possible negative impacts of security of supply-related measures.

6.4. Option 4: Full harmonisation

6.4.1 Contribution to the policy objectives

The measures of this policy option pursue the maximum level of harmonisation at EU level with the clear aim to increase the level of preparedness ahead of a crisis and the mitigation of impact in the case of an unexpected event occurs.

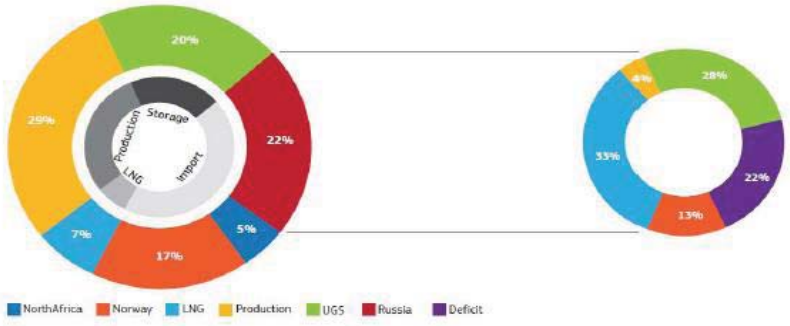
[71] The majority of stakeholders agreed that the existing framework of review in relation to the risk assessment (i.e. every 2 years, if needed) is sufficient (Governments of Portugal and Lithuania, GASUNIE, WINGAS). Some governments and TSOs (e.g. UK Government, GRT Gaz, GIE) however perceive the reviews as burdensome and argue for longer review periods (from three to five years). The main arguments for a longer period is that the general market environment does not normally change so rapidly and the consequently the current timeframe is too short and does not allow for a comprehensive assessment. The extension of the review period for the Risk Assessment to 4 years and the alignment of these reviews with them would be thus in line with the positions of both groups of replies.

The starting point for this option is the preparation of an **EU-wide Risk Assessment** and **Preventive Action Plan and Emergency Plan.** While the idea of EU Plans, already suggested by some stakeholders in 2009, could theoretically offer an overarching and comprehensive approach, the divergences across the EU in the role that gas plays in energy mixes as well as Member States' exposure to risks are such that an EU risk assessment and plans would most likely be a compendium of regional assessments and Plans. As such, these Plans would not bring effectiveness in terms of added value to the security of gas supply in the EU.

This option also proposes to increase the values of **the supply standard.** This measure would have a direct positive impact in the level of security of supply as it would ensure gas for the protected customers during a longer period in the event of a gas crisis. However, some voices suggested in the public consultation that such increase would send a wrong signal about the level of security of supply in the EU[72], and could have an impact in the security of supply of neighbouring Member States[73]. In this context, the inclusion of an additional scenario to cover geopolitical risks (S-1) is strongly rejected by some stakeholders, as they are considered disproportionately costly and more importantly, not an appropriate tool to deal with such risks[74].

The question whether or not a S-1 scenario should be included can also be phrased differently: should Europe be able and ready at any moment in time to replace the full volume of Russian supplies? As ENTSOG has demonstrated in its scenario-modelling carried out for the Commission's Stress Test Exercise, Russian volumes would have to be replaced mostly by increased LNG imports, given the limited availability of other sources.

Graph 1: EU supply portfolio by source and replacement possibilities



Source: ENTSOG

The practical implementation of a standard including such a scenario would also be difficult and could create great uncertainty as regards the content of the subsequent obligations. The consideration of the S-1 scenario implies the analysis by each Member State of possible simultaneous gas scarcity situations in several Member States upstream along a supply corridor. While for Member States closer to the supply source this scenario would largely

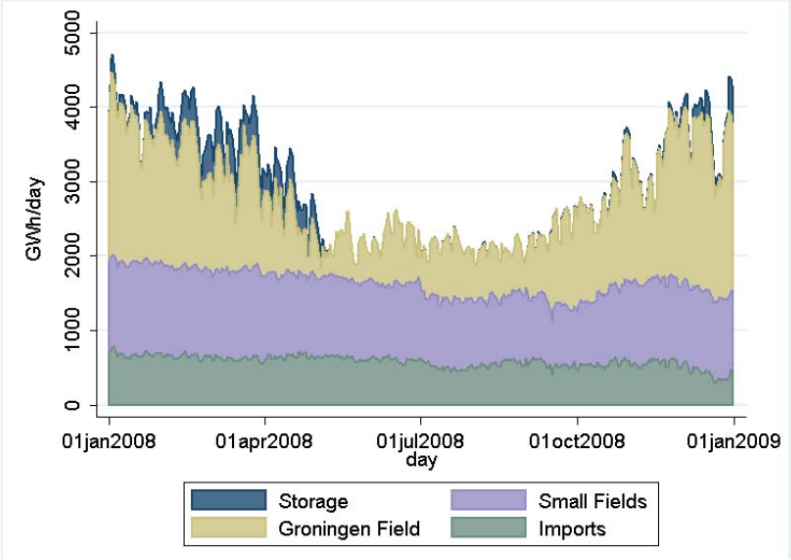
72 See for example the reply of the Czech Government to the public consultation.
73 See for example the replies of RWE and the Slovak Government to the public consultation.
74 See for example the reply of the Austrian Government to the public consultation.

coincide with the N-1 scenario (disruption of the single largest infrastructure), for Member States downstream along the corridor this case would entail the assessment of an increasing number of hypothetical scenarios based on probabilistic calculations.

Option 4 also proposes the **prescription of the measures to comply with the supply standard.** This has a positive impact on security of supply as it would ensure that gas is physically available to the protected customers in case of a disruption, preventing also free-riding behaviour. In the public consultation only few respondents[75] are in favour of the prescription of measures, as it would remove the flexibility to a given extent by imposing a given common level of protection and common means to achieve it.

Currently, a majority of Member States already do have in place some form of intervention in the storage market for the purpose of security of supply. Current practice thus suggests that gas storage plays an important role in ensuring security of supply. This is substantiated also by the Load Duration Curves of the Member States assessed, which demonstrate clearly that in a situation of peak demand storages provide the necessary flexibility. It is possible to see the pivotal role of storages in providing the necessary 'swing' in some countries like the Netherlands, a country with a high number of households connected to the gas distribution grid and therefore with a very temperature-sensitive demand structure.

Chart 1: Gas Delivered to the transmission grid in The Netherlands by source (2008),



source: ACM

The question is whether an obligatory EU-wide roll-out of detailed gas storage obligations for security of supply purposes is an appropriate way of realising a better fulfilment of the supply standard. The definition of a common level (or a formula to calculate that) would be extremely challenging given the different role of natural gas in the energy mix of the different Member States. Moreover, the development of gas storages across the EU has historically been driven by geological conditions and, while the cross-border use of storage would be certainly beneficial, this would imply higher costs for Member States that do not have storages in place. As many stakeholders in their response to the Public Consultation point out,

[75] See for example the reply of Engie to the public consultation

prescribing one instrument automatically limits the use of others. Other replies even questioned whether such a measure would indeed increase the security of supply[76]

Finally, it is doubtful whether predefined levels of storage will actually ensure a higher degree of security of supply. A study commissioned by the Commission demonstrates that countries which currently have some form of storage obligations do not experience higher filling rates of their storages than Member States which have not introduced such obligations. The study also demonstrates that despite decreasing summer/winter spreads so far utilisation levels have not dropped. This may suggest that market parties continue to value storage for its physical character and take into account their reputational risks in case they cannot meet their supply obligations. A more prescriptive approach with regard to the measures in general was not supported by stakeholders[77].

Regarding **the protected customers,** the definition proposed under option 4 is clear and limited in scope, which facilitates a fair and straightforward allocation of scarce gas resources on the basis of solidarity[78]. In the responses to the public consultation, most stakeholders agreed that further harmonisation on a regional or pan-European level could provide benefits. A common definition and most importantly a common understanding and application of this definition are a pre-requisite for solidarity measures between Member States.

The prescription under this option of **the solidarity principle as well as the mechanisms to apply in the event of an emergency** would ensure the necessary clarity as regards the application of the solidarity principle as well as a choice of market based mechanisms (such as a tender or auction) using price signals to steer the process. However, the prescription of a mechanism also entails a certain rigidity that prevents the consideration of the different roles of gas in the various regions. Moreover, it would be difficult to amend in case the mechanism prescribed appeared to have shortcomings.

The **mandatory N-1 at regional level**[79] calculated in the framework of a mandatory regional risk assessment could give a better idea of the benefits that regional cooperation could bring in terms of sharing a diversified pool of infrastructures to mitigate scarcity situations in a cost efficient manner. The calculation of the N-1 value at regional level could also help to identify improvements needed in the expansion of common infrastructures. The optimization of investments and the complementarity of a portfolio of infrastructures is clearly one of the main benefits that a regional calculation of the N-1 standard could provide.

Nevertheless, some of the shortcomings identified for the N-1 calculated at national level would also apply to the regional calculation and would even be amplified. This would be notably the case of the bottlenecks and missing internal infrastructure. As the N-1 would look

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76 See for example the reply of IOGP to the public consultation

77 See for example the reply of the Governments of Belgium, Denmark, Netherlands and Germany and industry (IOGP, Eurogas) to the public consultation

78 An appropriate solution would nevertheless need to be found to deal with the technical problems described under previous options (e.g. difficulties in carrying out selective curtailments among customers connected to a same distribution network).

79 The majority of stakeholders expressed that an additional regional assessment, complementary to the national level, could improve the overall ability to react and to prepare the necessary actions in the field of security of supply (e.g. sharing information, avoiding or mitigating infrastructure failure and preventing stranded assets). However, some respondents oppose any binding commitment leaving a decision on regional approach to the free choice of the Member States (e.g. the Governments of Germany, the Netherlands, Belgium and Denmark and the Dutch and Austrian TSOs).

at the region as a sort of "black box", it would not necessarily take into account whether sufficient interconnections between Member States exist so as to effectively compensate throughout the region the loss of the regional single largest infrastructure.

Additionally, the **mandatory reverse flow at every interconnection point** would clearly have a direct positive impact on the level of security of supply ensuring reverse flow all over the EU.

In terms of information exchange, the advantage of the **ex-ante notification of gas supply contracts** is that it could prevent situations that could put at risk the security of supply of a country or a region. The Commission's decision on the ex-ante assessment would have an effective preventive effect against the conclusion of contracts impacting negatively on security of supply considerations.

Option 4 also includes **mandatory joint gas purchasing** whose main advantage is to ensure certain volumes of gas to be supplied to the EU in scarcity situations (e.g. due to severe weather conditions or geopolitical conflicts).

For the **Energy Community**, the switch-on clause would establish the framework for the relations between the Energy Community Contracting Parties and the EU Member States.

6.4.2 Analysis of impacts

a) Cost of the measures and impact on prices

Overall option 4 will have a significant impact in terms of the economic costs of the measures proposed that could result in an increase of gas prices for consumers. This could have serious negative impacts for industrial customers and SMEs affecting in particular their competitiveness[80]. Main increases in cost would stem from the increases in the level of the supply standard, the prescription of the measures to comply with it and the mandatory reverse flow at every interconnection point.

With regard to the increase in the values of the supply standard stakeholders in the public consultation pointed to the costs of such increase for the end consumers[81], particularly in functioning markets with hubs[82]. Gas sellers and buyers even warn about the risk of making gas an uncompetitive fuel[83]. An additional scenario to cover geopolitical risks (S-1) is also considered disproportionately costly by the stakeholders. It appears that the additional costs are significant with very negative impact on gas prices for consumers. As an example, the following table estimates the costs of using the S-1 scenario for replacing missing Russian gas volumes.

To impose detailed gas storage obligations for security of supply will have also significant implications in terms of costs. Natural gas is an expensive fuel to store, involving high investment and operational costs, especially as a result of the fact that in order to keep the gas

80 This is a particular concern taking into account that today wholesale gas prices in Europe are still more than twice as high as in the US.

81 See for example the reply of the Spanish Government to the public consultation.

82 See for example E.On's reply to the public consultation

83 See for example the replies of Eurogas and E.On to the public consultation

underground the pressure needs to be constantly kept at an appropriate level (as opposed to for instance oil). In 2014, the Dutch government presented calculations to the Dutch Parliament regarding the costs of keeping strategic gas stocks and concluded these are ten times higher than for oil, projecting a cost of around EUR 0,80/m3 of stored gas or around three times the current price of gas, a cost that would be reflected in the energy bills of consumers. A study carried out by independent consultants in the United Kingdom on the impacts of gas market interventions on security of supply concluded that the net present value over ten years of such measure was largely negative (between 495 and 751 £million). Also the Commission's study on gas storage demonstrates that for all the assessed disruption scenarios costs outweigh benefits if storage measures were to be introduced EU-wide.

Table 2: Means and costs of replacing missing Russian gas volumes

Table 4.5.1 Disruption scenarios

Indicator		Reference (no disruption)	-100% Russian supply for 6 months + cold spell in Feb. under current SRSMs cooperative	-100% Russian supply for 6 months + cold spell in Feb. under current SRSMs not cooperative	-100% Russian supply for 1 month + cold spell in Feb. under current SRSMs cooperative
Total imported LNG	(GWH)	582 292	887 406	747 673	796 227
	(% change from reference)		52%	28%	37%
Total deficit	(GWH)	0	-174 051	-198 931	-4 395
Total costs of EU supply	Million €	118 649	154 807	156 014	119 688
	(% change from reference)	-	30%	31%	1%
Total costs of EU supply net of storage	Million €	110 307	146 374	147 595	110 942
	(% change from reference)	-	33%	34%	1%
Total costs of storage	Million €	8 342	8 436	8 419	8 747
	(% change from reference)	-	1%	1%	5%

Note: Totals refer to the whole considered period from September of year to August of year t+1
Source: REF-E's elaborations based on ENTSOG data

Source: Study "The role of gas storage in internal market and in ensuring security of supply"[84]

Table 3: Costs and benefits of various types of storage measures

84 SRSM refers to Storage Related Security of Supply Measures. Cooperative and non-cooperative refer to the scenarios considered, as in the stress test exercise.

Table 4.5.3. Costs and benefits of SRSM models under the 1-month Russian supply disruption +Cold Spell scenario

-100% Russian supply for 1 month + cold spell in February

Indicator		Current SRSM (baseline)	No existing strategic storage	Light SRSM to all	Tight Srsm to all	Strategic storage to all
Total imported LNG	(GWH)	796 227	776 255	797 363	794 986	770 588
	(% change from baseline)	-	-3%	0.1%	0%	-3%
Total deficit	(GWH)	4 395	26 825	2 821	0	74 316
	(% change from baseline)	-	510%	-35.8%	-100%	1 591%
Total costs of EU supply (k€)	Million €	119 840	120 999	119 755	119 804	129 515
	(% change from baseline)	-	1%	-0.1%	0%	8%
Total costs of EU supply net of storage (k€)	Million €	111 093	112 649	110 980	110 954	118 030
	(% change from baseline)	-	1%	-0.1%	0%	6%
Total costs of storage (k€)	Million €	8 747	8 350	8 774	8 850	11 485
	(% change from baseline)	-	-5%	0.3%	1%	31%
Storage benefit	Gain compared to baseline /€ million)*	-	-2 350	85	36	-10 866
Storage cost	Incremental cost compared to baseline /€ million)**	-	-396	28	103	2 738
Prob. (5%)-weighted Net Benefits	Million €		278.6	-23.5	-101.6	-3 281.8
Prob. (5%)-weighted Net Benefits	% of baseline costs		0.23%	-0.02%	-0.08%	N.A.
Prob. (10%)-weighted Net Benefits	Million €		161.0	-19.3	-99.8	-3 825.1
Prob. (10%)-weighted Net Benefits	% of baseline costs		0.13%	-0.02%	-0.08%	N.A.
Break-even probability			16.85%	32.74%	288.55%	N.A.
*						
**						

Note: Totals refer to the whole considered period from September of year to August of year t+1

Source: REF-E's analysis on ENTSOG data

Source: "The role of gas storage in internal market and in ensuring security of supply"

The mandatory reverse flow at every interconnection point would also introduce a certain amount of costs that would be difficult to allocate. Compared to option 3, the mandatory introduction of reverse flow at every interconnection point avoids, as a first step, a cost-benefit analysis without which any proposal for cross-border cost-allocation would be hard to substantiate. This could lead to enormous disputes among Member States that could negatively affect the cooperation climate pursued by this Regulation. In could also be possible that consumers could end up paying for an investment from which they would not benefit.

In summary, it is very likely that the implementation of option 4 will lead to a significant increase of gas prices for European consumers, not always justified nor necessarily correctly allocated.

b) Impact on stakeholders, with special focus on SME

Some of the measures proposed in option 4 will have important implications for the stakeholders, notably the supply standard, the definition of protected customers and the provisions regarding the ex-ante notification of certain contracts.

The increased supply standard with prescriptive measures to comply with will have considerable implications for natural gas undertakings (for those under the obligation to ensure gas for protected customers). By prescribing a concrete way to implement the supply standard, provisions and investments already arranged or undertaken by natural gas undertakings to ensure the supply to their share of protected customers (e.g. long term capacity bookings, options on LNG cargos) may end up being redundant and lead to significant sunk costs for them. Such costs will most likely be even higher for undertakings active in Member States without favourable conditions for the development of gas storages.

The full harmonisation on the definition of protected customers will have a direct impact on SMEs who will no longer be considered "protected customers". This measure will have a different impact depending on the level of penetration of gas across Europe and whether Member States have considered SMEs as protected customers or not in the past. To the extent that they were considered in the past as protected customers, SMEs will now face an increased likelihood of disruptions and therefore, may have to incur additional costs to ensure preparedness ahead of a disruption[85].

The ex-ante notification of gas supply contracts with third countries implies a high intrusiveness into commercial freedom of undertakings, leading to delays in contract negotiations or implementation. It is very difficult to reconcile the dynamics of contract negotiations with the Commission's investigation procedure.

The proposed general switch on clause with regard to the Energy Community Contracting Parties may have negative effects on Member States as it establishes the application of all the obligations imposed on Member States by this Regulation towards the Energy Community Contracting Parties to the same extent as obligations between Member States. First of all it is questionable whether all obligations of the Regulation need to be applied also towards Contracting Parties of the Energy Community. Secondly, in the light of the manifold obligations included in the Regulation, the absence of specified obligations taking into account the differences in the institutional setting in the Energy Community and the EU and the consequent differences in relations between Contracting Parties and EU Member States is likely to result in asymmetries and heterogeneous implementation, which would undermine the effectiveness of the whole instrument.

c) Administrative burden

Overall option 4 will put significant administrative burden for the stakeholders involved in the implementation of the measures proposed. For example, the preparation of the EU-wide Risk Assessment and Plans will require important efforts to gather information related to national and regional circumstances and contribute to the joint task of assessing the risks and identifying the measures to be included in the EU Plans. The use of existing regional platforms and the experience of EU-wide exercise like the stress test of 2014 could facilitate the task. In any case, it would seem unrealistic to coordinate all Member States with diverging security of supply situations to come up with a comprehensive document with valuable conclusions for all of them.

Furthermore, the ex-ante notification of gas contracts and their assessment will result in additional administrative burden for the Competent Authorities and the Commission, particularly due to time constraints given that the assessment has a suspensory effect.

d) Completion of the internal market

Certain measures such as increased levels for the supply standard or the prescription of the measures to comply would imply strong interferences in the market.

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85 Based on the implementation of Regulation 994/2010, nine Member States include SMEs in the definition of protected customers.

Prescribing detailed EU-wide rules on how to use gas storages for the compliance with the supply standard is also likely to be inappropriate for those Member States that have developed well-connected and liquid gas markets which deliver security of supply in the most cost-efficient manner. Here, competition between sources of flexibility takes place and the active shippers have an incentive to choose the flexibility source which ensures they meet the supply standard at the lowest possible cost. Prescribing for instance a percentage of the consumption of protected customers to be met with gas from storage appears to be an unnecessary distortion of the market. Various respondents to the public consultation warn of the effects such intervention could have not only as a potential source of discrimination between users or a barrier to entry, but also for the overall cost of natural gas in competition with other fuels.

Mandatory joint gas purchasing would have a drastic impact on the functioning of the internal gas market. In a situation in which wholesalers all pay the same price, competition is limited to ancillary services which are of marginal importance for a homogenous product such as natural gas. It is also questionable to what extent the wholesalers would pass-through their benefits to the retail level. Generally, this pass-through only occurs fully when there is vibrant competition on the retail level. In addition, even if in the short term discounts for the buyers could be realized, which is unlikely for areas that are dependent on a single supplier but also for areas in which competition determines prices, in the long run the lock-in effect may have counterproductive effects. Where buyers realize welfare gains, sellers (outside the EU) suffer from welfare losses. These sellers may re-consider their strategy and decide to leave the market or search for alternative markets. Furthermore, incentives to diversify are reduced thus increasing de facto dependency on fewer sources. Finally, mandatory mechanisms are likely to raise serious EU competition law concerns.

7. COMPARISON OF THE OPTIONS

Taking into account the impacts of the options and the assessment presented in Section 6, this section compares the different options against each other using the baseline scenario as the reference and applying the following criteria:

- **Effectiveness:** the options proposed should first and foremost be effective at improving the level of security of supply protection compared to the levels achieved by the current Regulation and thus be suitable to tackle the specific problems.

- **Efficiency:** this criterion assesses the extent to which objectives can be achieved at the least cost (benefits *vs* the costs).

- **Consistency with other policies:** some security of supply measures are by definition interfering with the internal energy market (IEM) and thus distorting its functioning. Therefore, market based approaches should be the preferred option and, where these are not appropriate, the options proposed should limit the impact on the functioning of the internal energy market as much as possible.

From the point of view of impacts, particularly costs and administrative burden, options 1 and 2 could in principle appear as preferred options. However, their performance in terms of effectiveness is rather poor, and consequently, also in terms of efficiency. Furthermore, to the extent that there are higher risks of having measures that could negatively affect the internal market, as indicated in section 6.2.2, option 2 could make the

implementation of the Regulation less consistent with other EU policies. Option 1 would not interfere negatively with other policies.

Overall, the more harmonized and enforced implementation pursued by option 1 would not solve the problems identified and it would result in a minimum increase of security of supply. The evidence shows that in spite of the efforts done so far, Member States do not take fully into account the added value of soft measures. Moreover, guidelines for a more harmonized implementation, for example, of the supply standard would not solve the problem identified, which is directly linked to the flexibility allowed by the legislation and the lack of effective oversight. In order to have an effective protection of the protected customers at EU level, further measures would be needed.

As regards option 2, the main drawback of this approach is that each Member State would be drafting and adopting the national Plans under their own responsibility. While the mandatory templates, the peer review process and the Commission's binding decision at the end of the assessment process aim at ensuring some more uniformity and at preventing the introduction of measures with a negative impact on the internal market and/or on other Member States' security of supply, national Plans could continue to be too much focused on the national situation. Therefore it would not be guaranteed that all regional specificities and needs will be duly taken into account or in the most effective manner. Furthermore, it cannot be ensured under option 2 that a minimum level of security of supply is guaranteed even for the minimum categories of protected customers, i.e. households. Where clear rules are absent, Member States would be less well-prepared and disruptions can have more serious consequences[86]. This lack could result in *free-riding* and, as such, hampers efforts for regional solidarity.

The contribution of options 1 and 2 to **solidarity** is quite uncertain. The current Regulation does not contain specific provisions regarding solidarity and therefore, it is highly unlikely that an enhanced implementation, as proposed in option 1, would result in more solidarity. In this regard, option 2, as well as options 3 and 4, represents the first time that this principle would be reflected in secondary legislation under Article 194 TFUE. Nevertheless, the implementation is not obligatory under option 2 and Member States may opt for the easy way out and not implement a sufficient degree of solidarity in their region. Furthermore, a well-defined and regionally accepted protected customer's standard is a pre-requisite for this tool to work properly. In this regard, even if the measures proposed to enforce the definition of protected customers would certainly reduce overprotection and facilitate a better cooperation and approach to solidarity, the risk would remain that the existing flexibility on the definition of protected customers, even if legitimate under this option, may still deter neighbouring countries from coming to the rescue in an emergency situation, typically in situations where the inclusion of SME's as protected customers varies across the borders and competition concerns may be weighed in.

From the point of view of the **consideration of external risks** in the design of energy policies, option 1 will deliver very limited improvements compared to the baseline scenario. The Report on the implementation of the existing Regulation already explained why the provisions of the existing Regulation were not fit to provide an adequate perspective in terms of security of supply. Moreover, a support in terms of guidelines, although useful, does not

86 European Commission, *The January 2009 Gas Supply Disruption to the EU: An assessment*, SEC(2009) 977 http://ec.europa.eu/danmark/documents/alle_emner/energi/2009_ser2_autre_document_travail_service_part1_ver2.pdf

guarantee that their content is followed nor the availability of the necessary information to assess external risks and take them into account in the design of security of supply policies.

The targeted system proposed in option 2 represents a step in the right direction but, on its own, it would be insufficient. The proposed mechanism can only be triggered once the Commission observes or is informed of abnormalities in gas supplies to the EU. The mechanism is blind towards potential serious security of supply issues hidden in most important gas supply contracts on gas markets dominated by a single supplier. Once problems in gas supply patterns are identified it may be too late to properly tackle the problem.

It is also unlikely that either option 1 or 2 will ensure an appropriate framework under which EU Member States and Energy Community Contracting parties could cooperate. Option 1 will not entail any improvement compared to the baseline scenario and option 2 will not set a legally binding framework applicable between the Energy Community Contracting Parties and the EU Member States. The voluntary cooperation foreseen under option 2 can work in practice, but it will have its limits when it comes to binding decisions that have cross-border character and may be ineffective when it comes to complex management of regional cooperation mechanisms oriented at prevention and mitigation of potential gas supply disruptions.

Concerning **infrastructures**, option 1 will not ensure that concepts not captured under the N-1 approach are considered by the Member States and option 2 may even be less effective than the baseline scenario as explained in section 6.2.1. On reverse flows, even if option 2 ensures that the benefits along the whole corridor are considered, it is uncertain that such consideration will trigger the necessary decisions by the Member States on both sides of the interconnection.

Option 3, however, provides an effective package of solutions. Under option 3 the definition of the supply standard is set at EU level ensuring a common protection framework across the EU. Additionally, the preparation and adoption of the Plans at regional level ensure the regional consistency of the measures and a common consideration of the key issues at stake.

Options 3 includes the mandatory application of the **solidarity principle** and addresses the problems stemming from divergent definitions of **protected customers** by decoupling both concepts, i.e. the definition of protected customers, which may include SMEs, from the application of the solidarity principle. By limiting the application of the solidarity principle to households and essential social services, i.e. excluding SMEs from this principle, competition concerns do not stand in the way of cooperation.

Options 3 builds on options 1 and 2 and adds a more specific system to access information related to certain contracts ensuring more accurate information for the assessment of security of supply risks. The assessment of many clauses contained in the contracts cannot be effectively carried out ex-ante and will depend instead on the market context or factual circumstances which can only be established by a fully fletched investigation; some provisions may turn out to be problematic only years after the contract has been implemented. In addition, abuses often derive from implementation or side agreements between the contracting parties. Overall, the ex-post assessment seems to be more effective from a security of supply point of view.

Compared to the baseline scenario, option 3 also provides for a concrete framework for cooperation between Member States and the **Energy Community** Contracting Parties defining concrete obligations for a number of provisions relevant to both sides.

With regard to **infrastructures**, option 3 ensures the use of more appropriate parameters for the calculation of the N-1 standard and complements the pure capacity approach provided by the N-1 standard with some modelling regarding flows. Moreover, it provides for a system with sufficient guarantees to ensure that benefits for all Member States along the supply corridor are considered in the decision making related to the reverse flows (i.e. joint decisions, consultations of Member States, Commission´s decisions at the end of the process) together with an appropriate consideration of the benefits, the costs and its allocation on the basis of existing tools and practices (e.g. use of TEN-E tools, ACER´s opinion).

Option 4 provides for a number of solutions that are, to a certain extent, effective. However, they are generally more costly and some can even be counterproductive.

Similarly to option 3, option 4 provides for an effective solution with regard to the supply standard. Nevertheless, and despite its reliance on physical measures, it still cannot hedge against all possible risks. Furthermore, by prescribing the precise measures it does not exploit to the fullest extent the benefits that would stem from the regional cooperation for the compliance with the supply standard, in particular on a market based approach. The added value for the regional cooperation of the EU Plans compared to the regional Plans is also highly questionable as they may likely result in a compilation of regional plans.

Option 4 will, as option 3, ensure the application of the solidarity principle. It would furthermore ensure the reliance on market-based mechanism for its application, which is positive, notably as it provides an opportunity for consumers flexible enough to cease consumption in times of scarcity. However, it removes the possibility to include SMEs among the protected customers, with the impacts already discussed in section 6.4.2

With regard to the solution to improve the access to information, the ex-ante notification, the theoretical advantage that could be considered is that the assessment and potential enforcement would take place ahead of the signature of the contract. However, as indicated above, there are a number of shortcomings in an ex-ante notification that make an ex post notification system more effective. Furthermore, a cursory review lacks: (i) decisional (binding) power, (ii) sanctions, (iii) insufficient investigative powers of the Commission, also due to time pressure constraints (a proper review would likely take at least several months). Other limitations are related to the assessment, under time-pressure, lengthy and complex gas contracts in various EU languages. However, it could even be counterproductive as raising a substantial risk of prejudging competition law enforcement: perception that the Commission blesses commercial contracts would bring substantial risk of prejudging or even undermining competition law enforcement by creating the perception that the Commission blesses commercial contracts. These concerns are even more significant for the more intrusive variant that the contract would be submitted ex-ante to the Competent Authorities for a competition law assessment. It would not be possible to conduct any meaningful competition assessment in a relatively short timeframe in line with the established procedural and substantive requirements.

The analysis of the impacts of option 4 shows that they are not proportionate nor fully justified by the effectiveness of the solutions, which makes option 4 perform poorly in terms of efficiency.

Overall, option 4 represents a highly intrusive approach that tries to address possible risks by resorting to a full harmonisation of principles and the prescription of concrete solutions. For example, the risk of free-riding is removed by ensuring that gas is physically available for the supply of protected customers. However, the likely benefits achieved under this options need to be weighed against the cost incurred. The assessment of impacts in option 4 shows that the estimated impact on cost is likely to be high, and looking at the above description of the

performance of option 4 in terms of effectiveness, it makes option 4 a disproportionate and not very efficient option. Furthermore, option 4 has stronger negative impacts on the achievement of the internal market, which makes this option less consistent with other EU policies.

The assessment of impacts carried out in section 6.3.2 has shown that the costs associated to option 3 are quite limited. Consequently, option 3 is not only effective but also an efficient overall package of measures. Moreover, other negative impacts (such as impacts on stakeholders and SMEs) would also be limited under this option. Option 3 is also consistent with other EU policies, such as measures related to the internal market, as it actively seeks to prevent the introduction of measures with negative effects on the internal market (see the assessment of impacts in the internal market in section 6.3.2).

In the light of the previous assessment, the preferred option would be option 3. This option is the best in terms of effectiveness and, given its economic impacts, has been demonstrated to be the most efficient as well as consistent with other policy areas.

The following table summarizes the assessment of the policy options. The options are measured against the criteria applied for the assessment of the impacts (section 6) and the comparison of the options (section 7). Each policy option is rated between "---" (very negative), 0 (neutral) and "+++" (very positive).

Table 4: Comparison of policy options

Criteria → --- **Options ↓**	**Effectiveness**	**Efficiency**	**Consistency**	**Impacts**			
				Costs and impact on prices	Impact on stakeholders	Administrative burden	Achievement of internal market
Policy option 0 (Baseline scenario)	0	0	0	0	0	0	0
Policy Option 1	0/+	0/+	+++	0	0	-	0
Policy Option 2	+	+	-	-	-	-	-
Policy Option 3	+++	+++	+++	-	-	--	++
Policy Option 4	++	---	---	---	---	---	---

8. MONITORING AND EVALUATION

The Commission will monitor how Member States have implemented the changes of the revised regulation. Moreover, increased involvement as well as oversight and monitoring powers should ensure better compliance with the rules across the EU. Where needed, the Commission services will offer assistance to Member States for the implementation of the legislative changes in the form of workshops with all the Member States or bilateral meetings at the request of any of them. When necessary, the Commission will pursue the procedure set out in Article 258 TFUE in case any Member State fails to respect its duties concerning the implementation and application of Union law.

The Commission anticipates **"the regional approach" as the major challenge** in the implementation of the revised regulation. The challenge is to change the dynamics where security of supply is not primarily looked at from a purely national point of view but ensures, from the very early stages, a robust regional approach. The preparation of the regional risk assessment and the plans and the assessment of the reverse flow needs along the corridors, could be a lengthy and complex process for the first time. However, the experience gained on individual basis since the Regulation entered into force and the use of existing tools and regional platforms in the EU legislation (e.g. TEN-E guidelines) could facilitate the coordination and overcome the problems that could be encountered during this process. The role of supranational bodies, the Commission and ACER, is to facilitate and stimulate the coordination among Member States in particular in the revision of the plans (peer review mechanisms) and in the reverse flow procedure.

Regarding the evaluation of the consequences of the application of the revised regulation, this could take place as part of the monitoring obligations of the Commission in the current Regulation under Article 14. The evaluation pursues the assessment of the effectiveness of the measures implemented in order to achieve the general objectives identified in section 4. Given the wide set of amended and new measures of the revised regulation, the evaluation will necessarily cover the whole legislative proposal. The results of the overall implementation will be assessed six years after the entry into force of the revised Regulation. The reason for this proposed timing is to ensure a complete picture of the implementation based, in particular, on the assessment of the plans[87].

As part of the evaluation exercise, the Commission will carry out a stress test, similar to the exercise of 2014, to assess the ability of the energy system throughout Europe to cope with unusual situations such as a gas disruption or extremely high demand[88]. The results of the modelled scenarios -before and after the implementation of the revised regulation- will draw conclusions on the effectiveness of this legislative proposal to achieve the objectives identified. In particular, the EU-wide simulation will provide a quantitative assessment showing how the most vulnerable Member States are more resilient and therefore less affected in the event of a crisis, due to better level of preparedness and enhanced regional cooperation. The quantification of the benefits could include, among others, the value of disrupted demand avoided[89] and the less impact on increased prices[90].

The fulfilment of the specific objectives pursued by the revised regulation could be also assessed on regular basis (e.g. after plans are submitted by Member States) through several indicators[91]. In particular, the country-specific supplier concentration index[92] could serve to

87 The plans could be delivered for first time e.g. two years after the entry into force, following similar scheme introduced by the current Regulation. After the first submission, plans would be prepared every four years.

88 In order to carry out a stress test, the Commission would follow similar methodology used for the exercise of 2014. All Member States should participate and run a series of scenarios simulating a disruption of gas supply or extremely high demand. The analysis of the results would be carried out by the Commission in cooperation with ENTSOG.

89 Similar methodology applies ENTSOG in the cost benefit analysis set out in Regulation 347/2013 to evaluate the PCIs projects. (See further information in the Annex 6).

90 The starting point for the disrupted demand monetization would be the value of lost load (VoLL) as the basis for cash out the involuntary interruption of supply. The impact on prices could be also examined and quantified, with particular focus on the average increase of prices.

91 The indicators mentioned to evaluate the fulfilment of the specific objectives pursued by the revised Regulation will be part of the information that Member States have to include in the risk assessment and plans. The documents

assess the **degree of diversification** and evolution of the situation in Member States and regions. Complementary, the access to a **pool of gas infrastructures**, including storage and/or LNG terminals, at regional level could also give an indication of the major resilience to certain risks (e.g. infrastructure failure, gas supply disruption).

The improvement of the infrastructures could be also tested through the **N-1 rule**, in particular, how many countries fulfil the N-1 at national and regional level and how close/far they are of the 100% level. The **number of pipelines** equipped with bi-directional capacity compared to the situation today will be another indication of the effectiveness of the revised regulation.

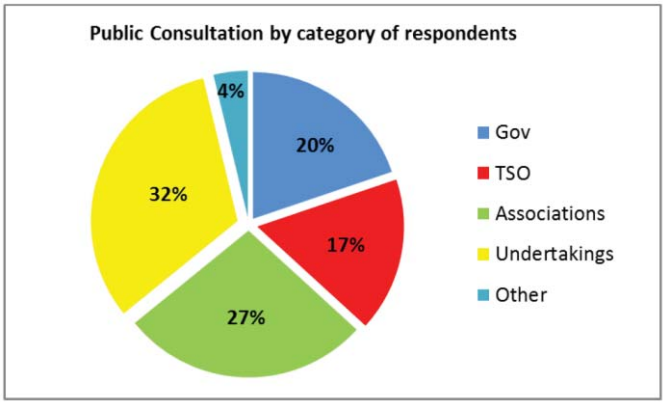
referred should be updated and submitted to the Commission periodically. The baseline values for the monitoring indicators would be the year that the revised Regulation entered into force. The evolution of the indicators would be monitored on a regular basis for example after the plans have been submitted by Member States.

92 The country-specific supplier concentration index (SCI) is computed as the sum of squares of the quotient of net positive imports from an extra European Economic Area country to an importing Member State (numerator) and the gross inland consumption of gas in the importing Member State (denominator). Smaller values of SCI indicate larger diversification and hence lower risk.

ANNEX 1: PUBLIC CONSULTATION

A public consultation was organized between January 15th and April 8th 2015 and produced 106 responses from stakeholders. The majority of respondents came from private sector and associations (consumer, regulatory and industry) but relatively a large number of public authorities also participated. Therefore the reach of the consultation can be considered very wide.[93]

Chart 2: Public consultation structure



Source: European Commission, *Responses to the Public consultation on the Revision of Regulation No 994/2010 on security of gas supply*

The consultation followed the structure of the existing Regulation based on two pillars: prevention and mitigation. On the prevention side, the questions aimed to gain insight in whether improving provisions were necessary, but also gave room to test new ideas, most notably with regard to the application of measures to fulfil the supply standard. On the mitigation side, questions aimed to ensure that Member States were prepared to manage an emergency situation and in doing so consider efficient coordinated solutions rather than adopting a purely national approach, resorting to counter-effective measures impacting neighbouring countries.

Regarding the outcome, most of public authorities focused on deficiencies in cooperation between Member States, while private undertakings and associations insisted that market measures should be priority in tackling security of supply issues. In most of cases, the proposed options differed depending on the state of the gas market in which the respondent operates. For example, the more mature and developed the market the higher confidence in market measures. The opinion of the different stakeholders has also been reflected in the assessment and impacts of the policy options in sections 6 and 7.

93 See for a list of respondents: https://ec.europa.eu/energy/sites/ener/files/documents/List%20of%20stakeholders%20FOR%20PUBLICATION%20-%20updated%2018%2006.pdf

ANNEX 2: PROVISIONS UNDER THE CURRENT REGULATION

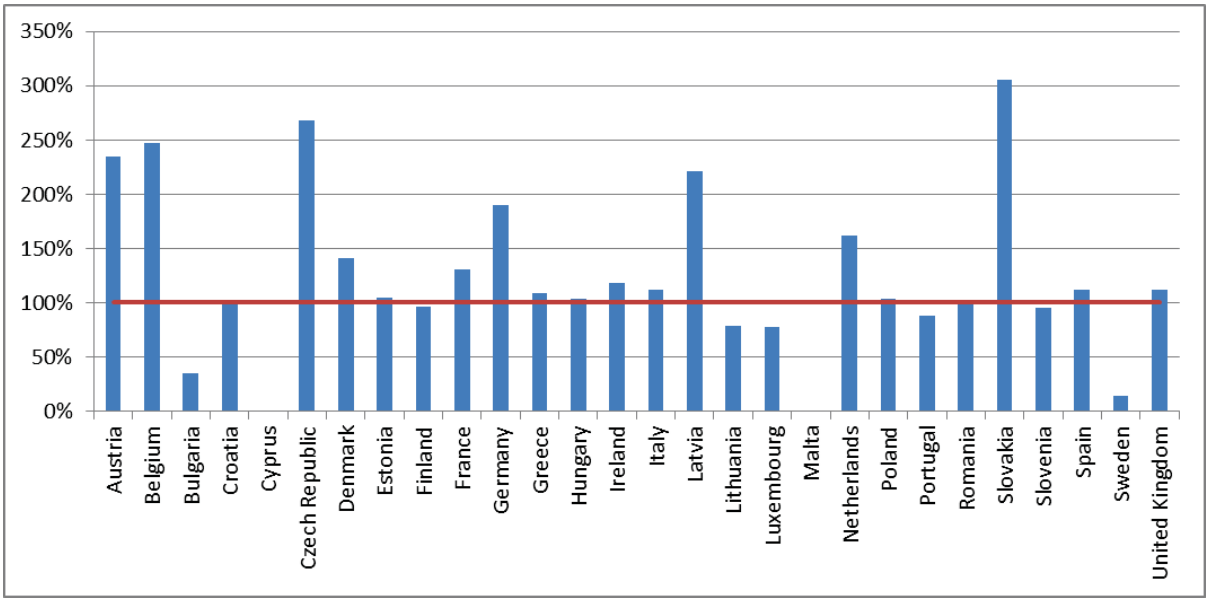
1. The infrastructure standard: N-1 and reverse flow

The Regulation contains two main elements that aim to ensure a sufficient degree of infrastructure: the N-1 and the obligation to install physical reverse flow capabilities at interconnection points.

The **N-1 rule** aims at ensuring a certain redundancy in the system so that in the event of a disruption of the single largest gas infrastructure, the capacity of the remaining infrastructure is able to satisfy the transportation of the total gas demand. A regional approach to N-1 can be considered when the same gas infrastructure contributes to the supply of gas to more than one Member State.

The number of Member States who comply with the N-1 rule has been increasing over the years and currently stands at 20. Three Member States with small and isolated gas markets – Sweden, Luxembourg and Slovenia – are exempted from the N-1 rule.

Graph 2: Which Member States meet the N-1 rule?



Note: Finland fulfils the N-1 using demand-side measures; Ireland fulfils the N-1 at regional level (UK-IE); Sweden, Slovenia and Luxemburg are exempted
Source: Member States' Risk Assessments and Preventive Action Plans

The N – 1 formula describes the ability of the technical capacity of the gas infrastructure to satisfy total gas demand in the calculated area in the event of disruption of the single largest gas infrastructure during a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years. Gas infrastructure includes the gas transmission network including interconnectors as well as production, LNG and storage facilities connected to the calculated area. The technical capacity of all remaining available gas infrastructure in the event of disruption of the single largest gas infrastructure should be at least equal to the sum of the total daily gas demand of the calculated area during a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years. The results of the N – 1 formula, as calculated below, should at least equal 100 %.

$$N-1[\%] = EPm \quad + P_m + S_m + LNG_m - I_m Dmax \times 100, N-1 \geq 100\%$$

'D max' means the total daily gas demand (in mcm/d) of the calculated area during a day of exceptionally high gas demand occurring with a statistical probability of once in 20 years.

'EPm': technical capacity of entry points (in mcm/d), other than production, LNG and storage facilities covered by P m , S m and LNG m , means the sum of the technical capacity of all border entry points capable of supplying gas to the calculated area.

'Pm': maximal technical production capability (in mcm/d) means the sum of the maximal technical daily production capability of all gas production facilities which can be delivered to the entry points.

'Sm': maximal technical storage deliverability (in mcm/d) means the sum of the maximal technical daily withdrawal capacity of all storage facilities which can be delivered to the entry points, taking into account their respective physical characteristics.

'LNGm': maximal technical LNG facility capacity (in mcm/d) means the sum of the maximal technical daily send-out capacities at all LNG facilities, taking into account critical elements like offloading, ancillary services, temporary storage and re-gasification of LNG as well as technical send-out capacity to the system.

'Im' means the technical capacity of the single largest gas infrastructure (in mcm/d) with the highest capacity to supply the calculated area. When several gas infrastructures are connected to a common upstream or downstream gas infrastructure and cannot be separately operated, they shall be considered as one single gas infrastructure.

Regarding **the reverse flow**, the Regulation put an obligation on transmission system operators to enable permanent bi-directional capacity on all cross border interconnections. The Regulation also foresees *explicit* exemptions, e.g. in the connections to gas fields. Moreover, Competent Authorities may decide to grant an exemption on a *case by case* basis where reverse flow investments would not enhance security of supply in the target market or the estimated costs would outweigh the potential benefits for security of supply. See as an example the cost estimates for enabling bi-directional capacity in the BBL pipeline.

Table 5: Cost estimates for enabling di-direction capacity in the BBL pipeline between UK and NL (1)

	Scenario 1	Scenario 2
Technical feasibility study	Reverse flow capacity is 0,7 mln m3(n)/h (equals 168 GWh/day). This scenario assumes the maximum physical reverse flow capacity without compression in the UK	Reverse flow capacity is 1,6 mln m3 (n)/h (equals 384 GWh/day). In this scenario physical reverse flow capacity with maximum compressor capacity at Bacton (3+1 units) is assumed. It would give the same reverse capacity as the initial forward capacity
Investment costs	✓ **€ 420 M** [€20 M improvements in the pipeline (boilers, valves) + € 400 M reinforcement of adjacent networks] ✓ **€ 110 M per year** for storing the BBL inventory gas	✓ **€ 225 M** (improvements in the pipeline) ✓ **€ 850 M** (reinforcement of the adjacent systems)

(1) The data is based on the technical study done in 2011 so the costs today might be different
Source: Notification of exemption for reverse flow (Article 7 of the Regulation)

2. Risk assessment, Preventive Action Plan and Emergency Plan

In order to ensure that all Member States analyse the threats and hazards to their security of supply, and draw up preventive and emergency measures in a coherent and comparable manner, each Member State has to prepare and notify to the Commission three separate documents (see the graph below). These must be updated every two years or if necessary even more frequently.

The Risk Assessment serves to analyse exceptionally high gas demand and supply disruption scenarios and to categorize the threats and hazards into high-, medium- and low-risks while taking into account national specificities. It also examines the fulfilment of the infrastructure and supply standards, and it should identify the interaction and correlation of risks with other Member States in a cross-border dimension.

The Risk Assessment is the basis for both the Preventive Actions Plan and the Emergency Plan, because the specific measures described in the latter must address the various threats and hazards identified.

The Preventive Action Plan aims to collect those measures that may help to avoid or at least reduce the probability or impact of various risks. The measures included in the Preventive Action Plan must be primarily market-based as they cover the pre-crisis period and those situations when the market is still functioning and is able to supply customers .

The Emergency Plan focuses on those situations when the amount of gas provided by the market is not enough to cover all demand. It governs the roles and responsibilities, the information exchange schemes and the course of action to be taken by the authorities, gas supply companies, transmission system operators, consumers and other players. The Emergency Plan must be based on the three crisis levels, and it has to describe the mechanisms that are used to cooperate with other Member States at each crisis level.

The Plans must be exchanged and consulted between Member States to ensure that the national measures are not inconsistent with each other. The final Plans must also be published.

Member States have the possibility, and the Commission has strongly encouraged Competent Authorities to establish joint Risk Assessments and Plans on regional level. These documents focus on the region as a whole, and should identify both the common and the correlated risks which each participating Member States is facing

3. Supply Standard and protected customers

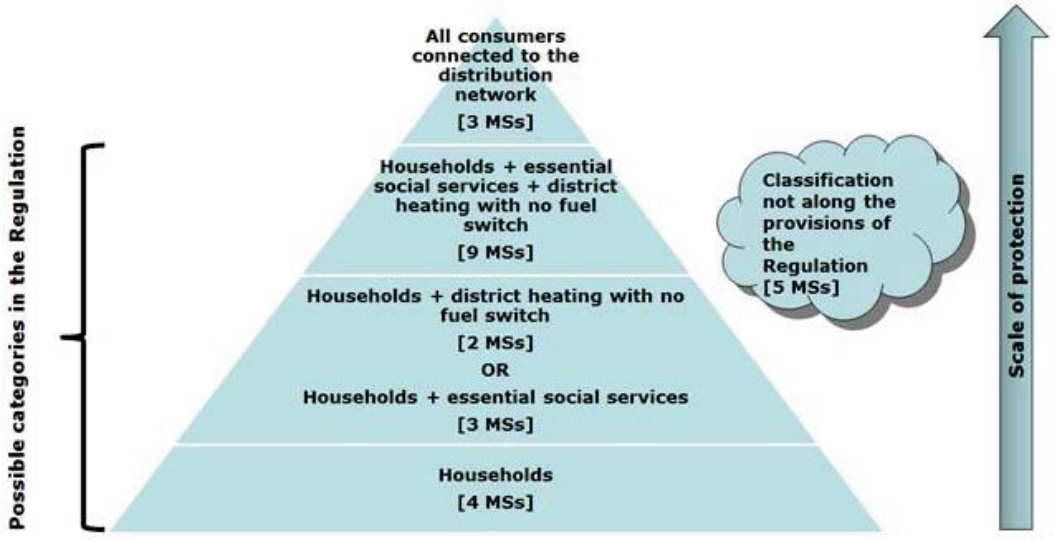
The Regulation provides for an obligation to ensure a minimum degree of gas deliveries to a specifically identified group of "protected customers" in times of scarce gas supplies and/or exceptionally high gas demand (the "supply standard"). The Regulation also prescribes that protected customers should be supplied as long as possible and can only be curtailed last. In case of a disruption or extreme demand increase, authorities have to put in place initially market based and later non-market based measures to free up gas supplies to protected customers.

Member States have a margin of discretion to define the group of "protected customers" in their jurisdiction, but the Regulation prescribes that, as a minimum, all households must be included. In addition, Member States may include (1) SMEs and essential social services provided that they do not represent more than 20% of the final gas use in the country and/or (2) district heating installations to the extent that they deliver heating to households or other protected customers and are not able to switch to other fuels .

The supply standard foresees that uninterrupted gas supplies to protected customers is guaranteed for a minimum of 7 or 30 calendar days depending on the defined scenario, even in case of scarce gas supplies and/or exceptionally high demand.

The supply standard is binding in its result. As such, the Regulation does not prescribe how and through what tools it should be fulfilled. Competent Authorities must require the natural gas undertakings which they identify in a non-discriminatory way to take measures – e.g. have valid capacity and supply contracts, deposit gas in underground gas storage facilities etc. – to ensure gas supply to the protected customers. The supply standard can hence not be considered as a gas storage obligation.

The ways to enforce the supply standard (including penalties for undertakings that fail to comply) are also left for Member States to be developed. Member States should describe in their Preventive Action Plans how they intend to implement and enforce the supply standard.



Graph 3. Categories of protected customers as notified by Competent Authorities. The ranking does not reflect the absolute quantity in gas consumption or the share of protected customers within national gas demand.

4. Competent Authorities

The Regulation requires Member States to designate an authority specifically responsible for the security of supply the so called "Competent Authority".

Article 2 of the Regulation defines Competent Authority as the national governmental authority or the national regulatory authority designated by each Member State to be responsible for ensuring the implementation of the measures set out in the Regulation. This is without prejudice to the ability of Member States to allow the Competent Authority to delegate specific tasks set out in the Regulation to other bodies. Such delegated tasks shall be performed under the supervision of the Competent Authority and shall be specified in the plans referred to in Article 4.

5. Gas Coordination Group

Article 12 of the Regulation establishes the Gas Coordination Group with the aim to facilitate the coordination of measures concerning security of gas supply. The Group is composed of representatives of the Member States, in particular of their Competent Authorities, as well as the Agency, the ENTSO for Gas and representative bodies of the industry concerned and those of relevant customers. The Commission chairs the Group.

The Gas Coordination Group shall be consulted and shall assist the Commission in particular on the following issues:

(a) security of gas supply, at any time and more specifically in the event of an emergency;

(b) all information relevant for security of gas supply at national, regional and Union levels;

(c) best practices and possible guidelines to all the parties concerned;

(d) the level of security of supply, benchmarks and assessment methodologies;

(e) national, regional and Union scenarios and testing the levels of preparedness;

(f) the assessment of the Preventive Action Plans and the Emergency Plans and the implementation of the measures foreseen therein;

(g) the coordination of measures to deal with an emergency within the Union, with third countries that are Contracting Parties to the Treaty establishing the Energy Community and with other third countries;

(h) assistance needed by the most affected Member States.

The Commission convenes the Gas Coordination Group on a regular basis (normally four meetings per year).

ANNEX 3: SUMMARY OF THE SET OF MEASURES INCLUDED IN THE OPTIONS PROPOSED FOR THE REVISION OF THE REGULATION

Option 1	Option 2
• Guidelines to encourage the use of the voluntary regional approach for the preparation of the Risk Assessment and the Preventive Action Plan and Emergency Plan • Enforcement of an accurate implementation of the definition of protected customers • Guidelines to ensure harmonized implementation for the compliance with the supply standard • Enforcement of compliance with the N-1 rule and re-examination of the assessment carried out by Member States for granting reverse flow exemptions • Guidelines for the information exchange and guidance with respect to clauses in gas supply contracts and hub pricing with special focus on their relevance for long term gas contracts • Encourage the assessment of measures to enhance bargaining power	• Mandatory regional Risk Assessment as the basis for national Preventive Action Plans and Emergency Plans (all prepared according to templates). Mandatory review by peers and possibility for the Commission to request amendments (Commission's decisions) • The level of the supply standard and the means to comply with it set at national level on the basis of the regional Risk Assessment • No changes to the current definition of protected customers but an increased oversight in its implementation • New solidarity principle to be applied, subject to a positive result of its assessment in the Emergency Plan • N-1 calculated on the basis of the most critical infrastructure • Consultation and cost benefit analysis along the whole transportation corridor mandatory for the reverse flows decisions • Improved targeted access to relevant information ahead of an emergency under duly justified circumstances • Voluntary cooperation with the Energy Community on cross-border issues after the adoption of the Regulation in the Energy Community
Option 3	**Option 4**
• Mandatory regional Risk Assessment as the basis for regional Preventive Action Plans and Emergency Plans (all prepared according to templates). Mandatory review of the Plans by peers, discussions at the Gas Coordination Group and possibility for the Commission to request amendments (Commission's decisions) • Supply standard defined at EU level with an increased oversight of the measures to comply with it, via the assessment of the Plans or, for new measures, a mandatory public impact assessment • No changes to the current definition of protected customers but an increased oversight in its implementation • Priority granted to certain categories of protected customers for the application of the solidarity principle • Mandatory application of the solidarity principle on the basis of technical and administrative arrangements agreed between Member States • Improved the N-1 complemented by a national hydraulic calculation and a series of EU-wide scenarios. • Higher involvement of the Commission and ACER in the reverse flows obligations on the basis of joint decisions to be adopted by Member States • Mandatory ex-post notification of certain key security of supply relevant contracts with third countries and discretion to request certain key security of supply gas contracts in force for security of supply assessment in addition to the targeted access system proposed under option 2 • Inclusion of cross-border issues between the Energy Community contracting parties and the EU Member States based on "switch-	• EU wide risk assessment, Preventive Action Plan and Emergency Plan • Increased values of the supply standard and prescription of the measures to comply with it • Full harmonisation of the definition of the protected customers limiting it to households, critical social services, like hospitals, and district heating for the previous categories. • Prescription of the mechanisms to apply the solidarity principle. • Mandatory N-1 at regional level and mandatory reverse flow capacity at every interconnection point • Ex-ante notification of security of supply relevant contracts with third countries (in addition to the measures under option 2) • Mandatory joint gas purchasing mechanism • Inclusion of cross-border issues between the Energy Community contracting parties and the EU Member States based on a single "switch-on" clause

on" clauses	

ANNEX 4: BACKGROUND INFORMATION

Figure 1: Different degrees of single supplier dependency in Member States, Source: ACER

Table 1: Overall results of GTM 2011 criteria assessment

Member state	Churn rate	Zone size (TWh/year)	Number of sources	HHI	RSI
Austria	3	105	3	7,500	143%
Belgium	6	197	8	1,709	279%
Bulgaria		39	2	7,587	13%
Croatia		535	5	5,987	125%
Czech Republic		95	3	9,051	159%
Denmark		45	2	2,570	22%
Estonia		9	1	10,000	0%
Finland		36	1	10,000	0%
France	3	485	13	1,240	137%
Germany	4	438	4	1,982	116%
Greece		49	9	5,181	131%
Hungary		113	4	3,198	60%
Ireland		52	2	1,215	8%
Italy	3	799	12	2,093	108%
Latvia		15	1	10,000	0%
Lithuania		39	1	10,000	0%
Luxembourg		12	4	3,185	0%
Netherlands	7	424	6	2,488	189%
Poland		193	3	4,550	56%
Portugal		55	6	2,821	93%
Romania		157	4	3,270	104%
Slovakia		70	2	9,595	369%
Slovenia		12	5	5,027	74%
Spain		365	12	2,000	159%
Sweden		13	1	2,766	0%
United Kingdom	15	910	11	950	142%
GTM target	≥ 8	≥ 215	≥ 3	< 2,000	≥ 110

Source: Frontier Economics, based on Eurostat and BP Statistical Review 2013

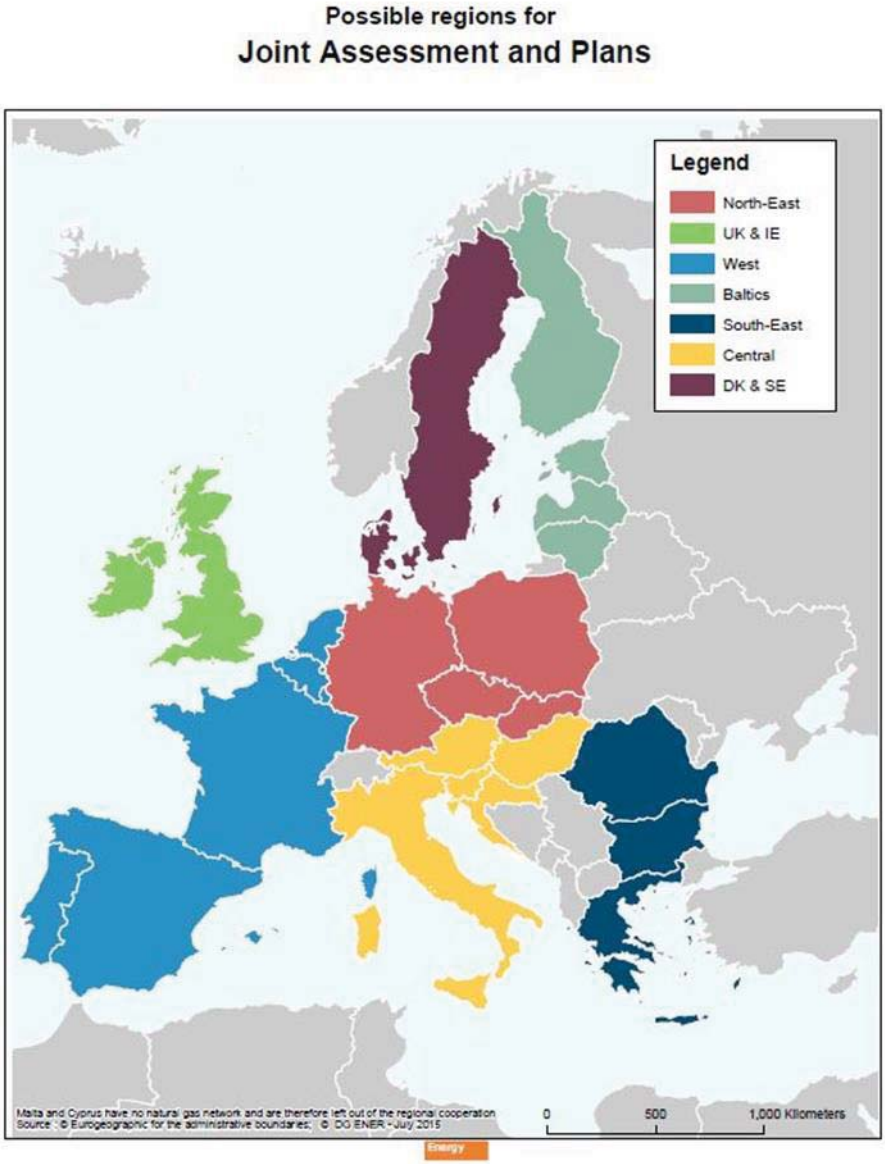
*This table compares the gas sector of the Member States on a number of fundamental indicators for market functioning with each other and with the desired level set by ACER in its '**Gas Target Model**' or GTM. The **Churn Rate** in the context of the Gas Target Model is the volume of gas traded relative to physical volume. The higher this number is, the more 'liquid' is the hub in the country. The absence of a figure means the absence of a hub. The **HHI** stands for Herfindahl Hirschman Index and is a measure of concentration amongst suppliers based on energy measured by firm. The HHI of a market is calculated by summing the squares of the percentage market shares held by the respective firms. The highest possible figure is 10,000, which corresponds to a monopoly. The **RSI** is the Residual Supply Index which assesses market power by subtracting the Largest Seller's Supply from the Total Supply and dividing it by Total Demand. A figure below 100% is a signal that the largest supplier x is able to practise market power.*

Table 6: Overview of storage obligations and strategic storage regimes in place in a sample of Member States

Member State	Presence of storage obligations and strategic storage, and description
Austria	NO
Bulgaria	YES The **dominant Bulgarian supplier** shall store gas quantities needed to safeguard supplies and to cover seasonal shortage. The criteria to determine such amount are not disclosed.
Czech Republic	YES **Gas suppliers** in Czech Republic are obliged to fulfill at least the 20% of supply standards by storing gas in underground storage facilities, not necessarily located within Czech Republic.
Denmark	YES **Storage users** are paid by TSO to maintain stored volumes in winter time, such volumes can only be used in case of emergency. Criteria not disclosed
Germany	NO
France	YES **Gas suppliers** have to store not less than 80% of their storage rights by the 1st of November, which in turn depend on the consumers' climate zone and frequency in metering.
Hungary	YES **Gas suppliers** have to store 10% of total consumption. Moreover, a dedicated storage facility is partly reserved as strategic storage.
Italy	YES Storage companies take out of the market a share of storage capacity and dedicate to the strategic storage reserves amounting to 4.6 bcm.
Poland	YES **Gas suppliers that import gas** are obliged to maintain compulsory storage stocks: equivalent to at least 30 days of the average daily import, the whole mandatory stored gas has to be injected into the grid within a period of not more than 40 days
Spain	YES **Gas suppliers and direct consumers** must maintain strategic natural gas reserves to cover 20 days of their firm sale/consumption, computed from the previous year's sales. In addition, suppliers and direct consumers must maintain operative natural gas reserves, computed as: - Volumes equivalent to 2 days of firm sale, computed as the average daily sales from 1 April to 31 March (these volumes can be held also on regas. facilities) - Volumes equivalent to 8 days of firm sale, computed as the average daily sales in October from year n (these volumes cannot be held on regas. Facilities)
UK	NO

Source: Study on the role of gas storage in internal market and in ensuring security of supply, prepared by REF4E, Mercados, E-Bridge for DG Energy, July 2015

ANNEX 5: POSSIBLE REGIONS FOR JOINT RISK ASSESSMENTS AND PLANS



ANNEX 6: MODEL FOR THE EVALUATION OF THE REVISED REGULATION BASED ON THE STRESS TEST OF 2014 AND ENTSOG METHODOLOGY

The model for the evaluation of the revised regulation will be based on previous EU-wide simulations of scenarios (e.g. gas supply disruptions and extremely high gas demand) carried out by ENTSOG.

Stress test exercise carried out in 2014:

- The objective of this exercise was to test the ability of the energy system throughout Europe to cope with a severe gas disruption occurring in winter 2014/2015. All Member States were asked to participate as well as the Energy Community Contracting Parties, Georgia, Switzerland and Turkey.

- All participants were asked to run a series of scenarios simulating a disruption of gas supply. The modelled scenarios cover the disruption of the Ukrainian route as well as all Russian flows to the EU for a period of 1 month or 6 months covering the whole fall and winter until February. The results of these simulations have been reflected in national reports submitted to the Commission at the end of August and September and in a joint report for the case of the Baltics and Finland.

- The analysis carried out by ENTSOG shows that in a 6-month disruption of Russian gas flows 9 bcm of gas would still be missing for the EU and Energy Community without Ukraine (out of an estimated consumption of 291 bcm). This means that despite the increase in LNG imports, in imports via pipeline, in domestic production and in withdrawals from storage to compensate the 65 bcm from Russia that would be disrupted in a 6-month scenario, a deficit of 9 bcm would still remain. This deficit would have to be covered from other measures such as fuel switching, market-driven demand reductions and, ultimately, by gas curtailments to different categories of consumers. Although this shortfall figure is not very high, barely 3% of the estimated consumption over the period, it must be noted that the impact will be concentrated in a number of countries such as Finland, Estonia, Bulgaria, Bosnia and Herzegovina, Serbia and the former the former Yugoslav Republic of Macedonia.

- ENTSOG has also simulated a scenario in which Member States and Energy Community countries apply solidarity to the extent that shortfalls in gas are spread equally, a so called cooperative scenario. As a result of this approach, the impacts in the most vulnerable Member States are significantly dampened, in particular Bulgaria, Estonia, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia and Serbia. At the same time, however, Greece and Latvia will also experience some non-negligible deficits. The results show that an enhanced cooperative approach can significantly improve the ability of Europe to face a severe disruption. This cooperation must however go beyond a mere consistency-check of national measures and be extended to include the identification of synergies and agreements on solidarity measures. Such an approach would result in efficiency gains, both in economic terms but also in terms of ensuring a very short terms security of gas supply.

ENTSOG methodology to evaluate the Projects of Common Interest set out in Regulation 347/2013:

The modelling based indicators developed by ENTSOG to assess the contribution of the projects to the security of supply are the following:

1) Remaining Flexibility (RF): This indicator measures the resilience of a zone as the room before being no longer able to fulfil its demand and the existing flows to adjacent systems. The value of this indicator is set as the possible increase in demand of the zone before an infrastructure or supply limitation is reached somewhere in the European gas system.

2) Disrupted Demand (DD): In case the Remaining Flexibility of a zone is zero, the amount of disrupted demand for a given zone is provided as: a) the unserved demand, b) the relative share of unserved demand. This amount is calculated under the flow pattern maximising the spread of the non-fulfilled demand in order to reduce the relative impact on each country.

3) Uncooperative Supply Source Dependence (USSD): This indicator identifies zones whose physical supply and demand balance depends strongly on a single supply source when each zone tries to minimize its own dependence.

.4) Cooperative Supply Source Dependence (CSSD): This indicator identifies zones whose physical supply and demand balance depends strongly on a single supply source when all zones together try to minimize the relative impact (the flow pattern resulting from modelling will spread the dependence as wide as possible in order to mitigate as far as possible the dependence of the most dependent zones).

5) Supply Source Price Diversification (SSPDi): This indicator measures the ability of each zone to take benefits from an alternative decrease of the price of each supply source (such ability does not always mean that the zone has a physical access to the source).

ENTSOG seasonal assessments:

As part of its obligation under Art. 8(3)(f) of Regulation (EC) 715/2009, ENTSOG undertakes seasonal assessments of the European gas network. For the winter outlook, the analysis focuses on the possible evolution of underground storages inventory along the season and the ability of the gas system to face high daily demand situations. Sensitivity studies are also carried out to further illustrate, among other, the ability to face some disruption events under high daily demand situations and the ability to face a disruption of gas supply from a third country (e.g. from Russia through Ukraine for 14 days of high daily demand).

ANNEX 7: GLOSSARY

GAS TARGET MODEL

The Gas Target Model is a structural framework setting out how a functioning European gas market should emerge. It was developed in the framework of CEER (the Council of European Energy Regulators, association of EU NRAs) to enable the target to complete the internal market in 2014 but also offers a vision by 2020 and 2025. It advocates for market rules enabling European markets to become integrated and advance in terms of competition, sustainability and security of supply.

PRIMES

The PRIMES energy model simulates the European energy system and markets on a country-by-country basis and across Europe for the entire energy system. The model provides projections of detailed energy balances, both for demand and supply, CO2 emissions, investment in demand and supply, energy technology penetration, prices and costs. The model produces projections over the period from 2015 to 2050 in 5-years intervals. The data are based on Eurostat statistics. The PRIMES model covers individual projections for the EU28 Member States, and also for Norway, Switzerland, Albania, Serbia, Montenegro, Kosovo, Bosnia-Herzegovina, FYROM and Turkey. The PRIMES model simulates a multi-market equilibrium solution for energy supply and demand and for ETS and other potential markets by explicitly calculating prices which balance demand and supply. PRIMES simulates demand and supply behaviour by agent (sector) under different assumptions regarding economic development, emission and other policy constraints, technology change and other drivers. The simulation of agents behaviour is based on microeconomic founded modelling which includes technical – engineering oriented – constraints.

AGENCY FOR THE COOPERATION OF ENERGY REGULATORS (ACER)

ACER's missions and tasks are defined by the Directives and Regulations of the Third Energy Package, especially Regulation (EC) 713/2009 establishing the Agency. In 2011, ACER received additional tasks under Regulation (EU) No 1227/2011 on wholesale energy market integrity and transparency (REMIT) and in 2013 under Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure.

The Agency's overall mission, as stated in its founding regulation, is to complement and coordinate the work of national energy regulators at EU level, and to work towards the completion of the single EU energy market for electricity and natural gas.

ACER plays a central role in the development of EU-wide network and market rules with a view to enhancing competition. The Agency coordinates regional and cross-regional initiatives, which favour market integration. It monitors the work of European networks of transmission system operators (ENTSOs), and notably, their EU-wide network development plans. Finally, ACER monitors the functioning of gas and electricity markets in general, and of wholesale energy trading in particular.

GAS CRITICAL INFRASTRUCTURE

Gas critical infrastructure means an asset, system or part thereof located in Member States which is essential for the maintenance of the gas supply to customers.

ANNEX 8: MINUTES OF THE LAST MEETING OF THE IMPACT ASSESSMENT STEERING COMMITTEE

EUROPEAN COMMISSION
DIRECTORATE-GENERAL FOR ENERGY

Brussels,
ENER/

MINUTES
FOURTH MEETING OF THE INTER-SERVICE GROUP
FOR THE REVISION OF THE SECURITY OF SUPPLY REGULATION

The fourth meeting of the Inter-Service Group on the revision of the Security of Supply Regulation (Regulation (EU) No 994/2010) took place on 7 July in DG ENER's premises. The meeting was chaired by DG ENER and a list of attendants is provided as an annex to this note.

A draft version of the Impact Assessment was distributed to the members prior to the meeting and was discussed in detail during the meeting. Members of this ISG may send further additional comments in written until Friday 10th July c.o.b.

DG ENER introduced each of the topics, the options proposed and the choice of the preferred options and asked attendants for comments/questions.

Infrastructure standard: N-1 and reverse flows

JRC warned that a regional N-1 could be misleading and further hinder internal bottlenecks, both at national and regional level. In this regard, and in order to address national internal bottlenecks, MS should be required to carry out a hydraulic calculation in addition to the compliance with the N-1. JRS highlighted that all TSOs should be currently in a position to perform such calculation as they use this type of models on a regular basis. Such national calculation should furthermore consider the analysis of neighbouring Member States to avoid double counting (i.e. several Member States relying on the same infrastructure for their own domestic use). They support the improvement of the conditions for the calculation of certain parameters in the N-1 formula, such as for storage.

DG ENER considered that such a hydraulic calculation could complement the N-1 and the modelling by ENTSOG, providing a more accurate picture of how Member States could satisfy gas demand in the case of the interruption of the largest infrastructure. Attention should be paid to the possible obligations, in terms of infrastructure building, stemming from

such a calculation as they could have a significant impact in costs. A cost benefit analysis could be envisaged to address this problem. Alternatively, the calculation of the hydraulic model could be explicitly included in the Risk Assessment as part of the scenarios to be run by Member States.

DG ENER also recalled the situation of pipelines for which an indefinite exemption from the obligation to ensure reverse flow capacity has been granted. Regardless of the duration of the exemption, Member States have an obligation to repeat the exemption request process in case the updated Risk Assessment (every two years) shows a need for additional capacity. The regional Risk Assessment, to be proposed in the revised Regulation, could automatically trigger this review.

Supply Standard

DG COMP supported the approach taken by DG ENER and recalled that storage obligations are used as a barrier to entry in certain markets. DG ENER will also consider amending the table on page 30 on the costs of storage by including additional figures, such as the GDP, so as to allow a reader to understand the order of magnitude of the storage costs.

Risk Assessment, Preventive Action Plans and Emergency Plans

No comments

Protected customers

DG COMP inquired about the technical issues referred to in option 1.

DG ENER clarified that it refers to the alleged technical impossibility to selectively curtail non-protected customers connected to a distribution network located among protected customers. Some deterrent to the consumption of these non-protected customers could be introduced via sanctions and obligations to notify consumption levels when an emergency is declared and right after it.

Transparency of contracts

DG ENER apologised that, due to a last-minute reshuffling of the text, the draft impact assessment distributed contained a number of editorial mistakes in this section, e.g. the table on page 52 needs to be updated and aligned with the current policy options, the definition of security of supply relevant contracts should be first described under option 2 and the national authorities should be reintroduced in option 3 as the first ones to be notified of the security of supply relevant contracts.

Following a comprehensive discussion, it was concluded that:

- Option 1 should be clarified so that it is easier to understand for a reader what the new elements are compared to the existing provisions under article 13. This option is meant to allow the Commission to access relevant security of supply information, which could cover elements included in contracts (e.g. contractual flexibility margins), in duly justified circumstances and before an emergency is possibly declared. The purposes for requiring this information would have to be included in the revised Regulation.
- In option 2, it will also be added why an ex ante assessment also on competition grounds is not viable.
- Option 3 would be clarified, and possibly split in two sub-options, to indicate that:

- Security of supply relevant contracts will be automatically notified to the national authorities, as well as to the Commission for the security of supply assessment.
- Authorities responsible for security of supply first and then also the Commission would assess the contracts from the point of view of security of supply. Subsequently the Commission (DG ENER) could request the Member State to review the Risk Assessment/Plans in the light of the contract if there are security of supply concerns.
- National authorities would carry out their assessment of the notified contracts and, where relevant, present a complaint to the Commission (DG COMP) that could trigger the investigation by DG COMP.

DG ENER will correct the current text on this topic and take some of the comments made into account in an updated version to be circulated as soon as possible, which should then serve as a new basis for further comments by the group.

Options to increase the bargaining power

SecGen insisted on the importance of this topic being addressed in the Impact Assessment to the extent possible in the light of the interim results of the on-going study.

Declaration of emergencies

No comments

Application of the revised Regulation to the Energy Community

DG COMP asked whether the general clause under option 1 can be already considered as an option while at the same time it is acknowledged that, since the exact details for the revised Regulation are not ready yet, we do not know exactly to which provisions it will apply. DG ENER explained that the Contracting Parties' main interest is in a number of issues, such as the risk assessment, emergency plans and emergency measures. It further explained how the options could look like in the final legal text and offered to clarify this in the Impact Assessment to avoid confusion, including highlighting as examples the topics already known as topics of interest for the Contracting Parties.

DG ENER also informed the members of the ISG that the calendar for the revision of the Decision on Inter-Governmental Agreements (IGAs) is likely to be accelerated and, for that reason, they would like to launch a public consultation as soon as possible before the summer holidays. It is proposed to consult this ISG on such a document ahead of the creation of its own ISG, which can only take place after summer. SecGen offered to further discuss in bilateral on the procedures for this proposal.

AOB

No further issues were discussed under AOB.

List of attendants

Participants – 4th meeting ISG on the revision of the security of gas supply Regulation
7 July 2015

NAME	DG	SIGNATURE
Peter HANTUFV	SG	
Marek KOSKA	SG	
Odile BEYNET	SJ	
Klara TALABER	SJ	
Barbara GLOWACKA	COMP	
Annette KLIEMANN	COMP	
Johannes LUEBKING	COMP	
Cristian KANOVITS	GROW	
Elisabeth HAMDOUCH	GROW	
Mirco TOMASI	ECFIN	
Ms Emmanuelle MAINCENT	ECFIN	
Viviane ANDRÉ	ENV	
Reet KASE	HOME	
Sven DAMMANN	CLIMA	
Heidi HILTUNEN	CLIMA	
Nicholas CENDROWICZ	NEAR	
Johannes BAUR	NEAR	
Jan Gerrit WESTERHOF	TRADE	
Andras ROZMER	EEAS	
Sigurd SCHMIDT	EEAS	
Marcelo MASERA	JRC	
Burkhard SCHADE	JRC	
Ricardo BOLADO	JRC	
Yona MARINOVA	ENER A1	
Ignacio PEREZ CALDENTEY	ENER A1	

Morten WESTRUP	ENER A1	
Bartlomiej GURBA	ENER A3	
Gaspard DEMUR	ENER A3	
Alex MASON	ENER A3	
Adam CWETSCH	ENER A3	
Dinko RAYTCHEV	ENER A4	
Michal TRATKOWSKI	ENER A4	
Massimo MARAZITI	ENER C3	
Stefan MOSER	ENER B4	
Amaryllis VERHOEVEN	ENER B4	
Joerg KOEHLI	ENER B4	
Maciej CISZEWSKI	ENER B4	
Yolanda GARCIA MEZQUITA	ENER B4	
Mikolaj JASIEK	ENER B4	
Beatriz SINOBAS	ENER B4	
Ruben VERMEEREN	ENER B4	
Olgerts VIKSNE	ENER B4	
Monika ZSIGRI	ENER B4	
Marcel Preuß	GROW C1	
Jaqui Connor	GROW C1	
PETER CHRISTENSEN	GROW A1	