Federal Ministry
for Economic Affairs
and Energy

Emergency Plan for Gas for the Federal Republic of Germany

pursuant to Art. 8 of REGULATION (EU) No 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010

September 2019

Table of Contents

1. Background

In the European Union, security of gas supply is a shared responsibility of gas undertakings, Member States, notably through their competent authorities, and the European Commission within their respective areas of activities and competence. This shared responsibility requires a concerted exchange of information and cooperation between stakeholders.

Against this background, Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010 (Security of Supply (SoS) Regulation) provides for a comprehensive range of instruments to strengthen the internal market for gas and to take precautions for the case of a supply crisis. The necessary fundamental national policies and the rights for undertakings and authorities to act are already in place within the legal framework currently in force in Germany.

Germany's natural gas supply is very secure and reliable. This is especially true of the supply to "protected customers", e.g. private households, which are of particular significance in the SoS Regulation. However, as is the case in every other energy sector, the need for intervention by the competent authorities in the event of a serious deterioration in supply, in addition to measures taken by the gas undertakings (i.e. market-based measures and possibly measures pursuant to Section 16 subsection 2 Energy Industry Act), cannot be ruled out completely. Even though the likelihood of such a severe crisis in supply actually occurring is very small, precautionary measures have to be taken for such an event so as to ensure not only the necessary cooperation between all involved parties but also the availability of the relevant measures.

Basically, the SoS Regulation distinguishes between three crisis levels: early warning level, alert level and emergency level. It provides for market-based measures by the gas undertakings at the first two levels and, additionally, the possibility for the state to intervene solely in the case of emergency, which are described in the SoS Regulation as "non-market-based measures". In this regard, it sets out the areas of competence and duties of undertakings, national authorities and the European Commission and calls on Member States to set out in advance, and within the framework of Preventive and Emergency Action Plans, how they envisage managing a crisis as well as the preventive measures they will take. The revised SoS Regulation of 25 October 2017 provides for the first time for the production of regional chapters in which the Member States belonging to the various risk groups defined in Annex I of the SoS Regulation jointly stipulate suitable and effective cross-border measures for the event of a crisis. According to Art. 8 of the SoS Regulation:

(2) The competent authority of each Member State shall, after consulting the natural gas undertakings, the relevant organisations representing the interests of household and industrial gas customers, including electricity producers, electricity transmission system operators, and, where it is not the competent authority, the national regulatory authority, establish:

a) a preventive action plan containing the measures needed to remove or mitigate the risks identified, including the effects of energy efficiency and demand-side measures in the common and nationals risk assessments and in accordance with Article 9;

b) an emergency plan containing the measures to be taken to remove or mitigate the impact of a disruption of gas supply in accordance with Article 10.

(3) The preventive action plan and the emergency plan shall contain a regional chapter, or several regional chapters, where a Member State is a member of different risk groups as defined in Annex I. The regional chapters shall be developed jointly by all Member States in the risk group before incorporation in the respective national plans. The Commission shall act as a facilitator so as to enable that the regional chapters collectively enhance the security of gas supply in the Union, and, do not give rise to any contradiction, and to overcome any obstacles to cooperation (...).

The competent authority for ensuring the above-mentioned measures is the Federal Ministry for Economic Affairs and Energy (BMWi). The Bundesnetzagentur (Federal Network Agency – BNetzA) has been assigned the competence for the regular drafting and updating of the risk assessment. The Preventive Action Plan drawn up by the Federal Ministry for Economic Affairs and Energy on this basis is described in a separate document (including the summary of the risk assessment).

The Emergency Plan for Gas presented here meets the requirements of the SoS Regulation.

2. Timetable for the production of the Emergency Plan

2.1 Timetable pursuant to the Security of Supply Regulation

The Federal Ministry for Economic Affairs and Energy first published the Emergency Plan in line with the SoS Regulation in December 2012. It must be updated every four years, unless circumstances warrant more frequent updates.

2.2 Drafting process and consultations

The Emergency Plan for Gas was drafted by the Federal Ministry for Economic Affairs and Energy in cooperation with the gas industry and the Federal Network Agency. The gas industry has ensured its involvement in the work to implement the SoS Regulation by setting up a project group under the German Association of Energy and Water Industries (BDEW); the Federal Ministry for Economic Affairs and Energy attended its meetings on a regular basis. In the course of the current revision, the BDEW, EFET Germany (European Federation of Energy Traders – Germany), FNB Gas (association of gas transmission system operators), INES (association of natural gas storage operators), and the VKU (Association of Local Utilities) were consulted. The *Länder* were also involved. The interests of the household and commercial consumers were taken into account via consultation with the Association of German Chambers of Industry and Commerce (DIHK) and the Federation of German Consumer Organisations (VzBV).

The regional chapter of the Emergency Plan (Chapter 12) was drawn up in agreement with the Member States of the respective risk group. The regional chapters of the risk groups to which Germany belongs but of which it is not the coordinator can be found in the Emergency Plans of the respective risk group coordinators.

This Emergency Plan has been consulted on with the competent authorities of all neighbouring EU member states, Italy, Switzerland, Sweden and Slovakia.

3. Content of the Emergency Plan

3.1 Requirements pursuant to Art. 10 of the SoS Regulation

The required content of the national Emergency Plans is defined in Art. 10 of the SoS Regulation. According to this provision, the Emergency Plans must meet the following criteria:

a) They are built on three main crisis levels:

- *Early warning level (early warning)*
- *Alert level (alert)*
- *Emergency level (emergency)*

b) they define the role and responsibilities of natural gas undertakings and of industrial gas customers including relevant electricity producers, taking account of the different extents to which they are affected in the event of gas supply disruptions, and their interaction with the Competent Authorities and where appropriate with the national regulatory authorities at each of the crisis levels;

c) they define the role and responsibilities of the Competent Authorities and of the other bodies to which tasks have been delegated (...) at each of the crisis levels defined;

d) they ensure that natural gas undertakings and industrial gas customers are given sufficient opportunity to respond at each crisis level;

e) they identify, if appropriate, the measures and actions to be taken to mitigate the potential impact of a gas supply disruption on district heating and the supply of electricity generated from gas, including through an integrated view of energy systems operations across electricity and gas if relevant;

f) they establish detailed procedures and measures to be followed for each crisis level, including the corresponding schemes on information flows;

g) they designate a crisis manager or team and define its role;

h) they identify the contribution of market-based measures for coping with the situation at alert level and mitigating the situation at emergency level;

i) they identify the contribution of non-market-based measures planned or to be implemented for the emergency level, and assess the degree to which the use of such non-market-based measures is necessary to cope with a crisis. The effects of the non-market-based measures shall be assessed and procedures for their implementation defined. Non-market-based measures are to be used only when market-based mechanisms alone can no longer ensure supplies, in particular to protected customers, or for the application of Article 13;

j) they describe the mechanisms used to cooperate with other Member States for each crisis level;

k) they detail the reporting obligations imposed on natural gas undertakings at alert and emergency levels;

l) they describe the technical or legal arrangements in place to prevent undue gas consumption of customers who are connected to a gas distribution or transmission network but not protected customers;

m) they describe the technical, legal and financial arrangements in place to apply the solidarity obligations laid down in Article 13;

n) *they estimate the gas volumes that could be consumed by solidarity protected customers covering at least the cases described in Article 6(1);*

o) *they establish a list of predefined actions to make gas available in the event of an emergency, including commercial agreements between the parties involved in such actions and the compensation mechanisms for natural gas undertakings where appropriate, taking due account of the confidentiality of sensitive data. Such actions may involve cross-border agreements between Member States and/or natural gas undertakings. Such actions may involve cross-border agreements between Member States and/or natural gas undertakings.*

3.2 Design

In line with the above-mentioned requirements, this Emergency Plan describes the cornerstones of the organisation and system of operational crisis and emergency management in Germany. It takes account of the findings gained in the risk assessment.

4. Players, market roles and responsibilities on the German gas market

The German gas market is characterised by a large number of privately organised operators in the areas of networks, storage operations and gas trading. The market is experiencing an increasing intensity of competition.

There are currently two market areas (NCG and Gaspool – cf. Figure 2 in Chapter 7.2), in which 16 transmission system operators are currently active (status: July 2019). Here, the various parts of the grid are each assigned to a market area with various qualities of gas. This means that H and L gas can be traded in both market areas, and the gas grid operators ensure that the prescribed gas qualities are complied with in the respective grid areas. Germany currently has no LNG terminal of its own, but is connected via the interconnected system, e.g. to the terminals in Rotterdam, Zeebrügge and Świnoujście.

In Germany, a distinction is made in particular between the following players with their respective responsibilities for ensuring the supply of gas:

Transmission system operators (TSOs): Operate grids with border-crossing points or market-area crossing points which in particular ensure the inclusion of large European import pipelines in the German transmission system, (...) and which are responsible for the orderly operation, maintenance and if necessary the expansion of a grid (...) [cf. Section 3 no. 5 of the Energy Industry Act].

Distribution system operators (DSOs): are responsible for distributing gas and for operating, maintaining and if necessary expanding the distribution system in a particular area and possibly also the connectors with other systems [cf. Section 3 no. 7 of the Energy Industry Act]; these DSOs can also be municipal undertakings.

Underground storage operators (USOs): are responsible for storing natural gas and operating a storage facility [cf. Section 3 no. 9 of the Energy Industry Act].

Transport client (TC): Wholesalers, gas suppliers, end consumers [cf. Section 3 no. 31b of the Energy Industry Act].

Market Area Manager (MAM): Natural or legal person nominated by the TSO and providing services in a market area needed to ensure an efficient handling of access to the gas system in a market area [cf. Section 2 no. 11 of the Gas Network Access Ordinance]. Procures balancing energy to offset physical differences between input and offtake. Has information about the supply situation in the market area.

Balancing group manager (BGM): Natural or legal person answering to the party responsible for the market area and in charge of the handling of the balancing group [cf. Section 2 no. 5 of the Gas Network Access Ordinance]. Nominates to TSOs and MAMs on behalf of its TCs, responsible for the management of the balancing groups, obliged to ensure the availability of quantities and the equilibrium of the balancing groups within the market area.

Input and offtake systems operators (ISOs, OSOs): System operators with which the transport client concludes an input or offtake contract [in line with the Gas Cooperation Agreement].

The unbundling of the market roles in order to promote competition within the meaning of the EU single market packages liberalising the electricity and gas markets requires that the market players undertake the tasks directly relating to their respective roles. In line with this, the operators of gas supply systems (all TSOs, DSOs) and storage facilities (USOs) pursuant to Sections 6 ff. of the Energy Industry Act currently operate independently from the other fields of activity of energy supply and ensure the non-discriminatory handling of the grid and storage operation.

The complexity of the market activities on the German gas market has thus increased significantly in recent years. The separation of the market roles has resulted in new challenges in terms of the interplay between the various players, and especially of coordination and communication in the case of bottleneck situations. For example, the communication with and between the gas traders and suppliers must also take place in compliance with the requirements of antitrust legislation.

The rules governing the various activities on the market derive chiefly from the Energy Industry Act, the relevant ordinances and regulations of the Federal Network Agency, and the generally accepted rules of the DVGW (German Association for Gas and Water).

5. Statutory rules governing crisis and emergency management in the gas sector in Germany and responsibilities and competencies

In addition to Security of Supply Regulation (EU) no. 2017/1938 (the "SoS Regulation"), the following national laws in particular form the legal basis of the implementation of the crisis and emergency planning in Germany:

- Act on the supply of electricity and gas (Energy Industry Act – EnWG)
- Act to Ensure the Supply of Energy (EnSiG)
- Ordinance to Ensure the Supply of Gas in a Supply Crisis (GasSV)

Market-based instruments and measures by the gas undertakings are anchored in law in Germany in the Energy Industry Act. Market-based measures are measures which can be taken by the gas undertakings active on the market without state intervention. These can be both market-related and system-related measures. Market-related measures are measures which involve the market, e.g. the purchase of balancing energy or the curtailment of gas supplies. In contrast, system-related measures, e.g. system switching, are not noticed by the market. Measures which the system operators take in accordance with Section 16 subsection 1 and Section 16a of the Energy Industry Act shall be regarded as market-based within the meaning of the SoS Regulation and the Emergency Plan. Further to this, there are measures pursuant to Section 16 subsection 2 of the Energy Industry Act which are taken by the TSOs if they unable individually to tackle the danger or disruption in their own system as part of their own responsibility for the system. Within the meaning of this Emergency Plan, non-market-based measures are rights for the state to intervene, including the measures pursuant to VIII of the SoS Regulation, are anchored at national level in the Act to Ensure the Supply of Energy and the Ordinance to Ensure the Supply of Gas in a Supply Crisis. This means that the instruments outlined in the SoS Regulation are in principle already covered by the relevant national legal instruments. However, the implementation of the revised SoS Regulation requires further adjustments to the legal framework in Germany, e.g. via the bilateral agreements which are still to be negotiated on solidarity mechanisms with other Member States.

5.1 Energy Industry Act (EnWG)

5.1.1 Responsibilities of the gas undertakings

According to the Energy Industry Act, gas undertakings are tasked with ensuring a supply of gas to the general public which is as secure, low-cost, consumer-friendly, efficient and environmentally compatible as possible. Further to this, the SoS Regulation attaches especial significance to the supply to protected customers (cf. definition of protected customers under 6.1). The gas undertakings must in particular supply this category of customers as defined in the SoS Regulation with gas, even in the case of a partial interruption to the gas supply or in the case of unusually high demand for gas, *"as long as it is reasonable in economic terms to supply the gas"*. This obligation is implemented in Germany in Section 53a of the Energy Industry Act. The new definition of the "protected customer" was reported to the European Commission in February 2018. This definition is currently being implemented in national law. The gas undertakings can have recourse to market-based instruments (cf. Chapter 7).

A supply of the protected customers is only possible if the gas grid is safe and reliable. For this reason, the transmission and distribution system operators play a key role in ensuring the gas supply on the basis of Sections 15, 16 and 16a of the Energy Industry Act. In the case of measures pursuant to Section 16 of the Energy Industry Act, they must take account of the need to ensure the supply to protected customers where the security or reliability of the gas supply system is endangered or disrupted in the respective grid. In particular in the case of a danger of bottlenecks in the gas supply, the operation of the system and the granting and planning of capacities including transit capacities must be undertaken in a manner which maintains the security of supply to the protected customers and the solidarity

protected customers in other Member States. The gas undertakings carry out these tasks on their own responsibility. Close coordination takes place between gas system operators, the gas crisis team and the load distributor in order to cope with supply crises (cf. 6.2.2.).

The "Third Act revising Energy Industry Rules" contains rules on improving security of supply and ensures that an integrated view is taken of the gas and electricity systems.

The new Section 16 subsection 2a of the Energy Industry Act in conjunction with Section 13f of the Act is of especial significance for this integrated approach to ensuring supply. Basically, in the case of a bottleneck in the field of electricity and gas, the operator of the electricity transmission system must weigh up the potential damage and other repercussions in the case of any necessary emergency measures in both fields, and on this basis can require that "systemically relevant" gas-fired power stations are supplied with gas. The designation of a gas-fired power plant with nominal capacity above 50 megawatts as "systemically relevant" (for a maximum period of 24 months in each case) is undertaken by the electricity transmission system operators and must be approved by the Federal Network Agency (cf. Section 13c subsection 1 of the Energy Industry Act).

Furthermore, pursuant to Section 13 subsection 1 of the Energy Industry Act, the operators of systemically relevant gas-fired power plants are required to ensure that the feed-in of effective capacity and reactive power or the take-off of effective capacity is adjusted when so required by the TSOs. This means that the power plant must be operationally ready. To this end, the operator of the gas-fired power plant can use existing fuel-switching possibilities to secure the necessary capacity if this is possible in technical and legal terms and reasonable in economic terms (this is stipulated explicitly in Section 13f subsection 2 sentence 1 of the Energy Industry Act). Alternatively, the TSO can require the operator of the gas-fired power station to book the necessary quantity of fixed capacities in the gas supply system in order to establish operational readiness within the meaning of Section 13a subsection 1 of the Energy Industry Act. Should the relevant operators of the gas supply networks not currently be able to offer any fixed capacities, they must take all technically possible and economically reasonable measures to enable them to offer these fixed capacities as quickly as possible.

5.1.2 Cooperation between the system operators

Within the context of their responsibility for their own system, pursuant to Section 16 subsection 1 of the Energy Industry Act the TSOs must themselves remove dangers or disruptions by means of system- and market-related measures (cf. also Chapter 7). A corresponding obligation exists for DSOs pursuant to Section 16a of the Act.

If the TSO proves unable to remove the danger or disruption in its system in the context of its own responsibility for the system, it shall be *"entitled and obliged to adapt all gas input, gas transport and gas offtake in its system to the needs of a secure and reliable operation of the systems or to require this adaptation"* in the context of cooperation pursuant to Section 16 subsection 2 in conjunction with Section 15 subsection 1 of the Energy Industry Act (i.e. with other TSOs). As far as possible, *"the relevant operators of other transmission and distribution systems and gas traders shall be informed in advance"*. The same applies pursuant to Section 16a of the Energy Industry Act to the DSOs.

Within the meaning of Art. 10(1) l) of the SoS Regulation, this is to prevent undue gas consumption of customers who are connected to a gas distribution or transmission network but are not protected customers.

In order to secure the supply of gas, the TSOs/DSOs shall also be obliged pursuant to Section 15 subsection 2 of the Energy Industry Act to provide the necessary information to each other operator of gas supply systems which is linked with its own system. The obligation also applies to operators of storage facilities.

The operators of the gas supply systems located in Germany have arranged their cooperation in the form of a cooperation agreement (KOV). The updated version of Cooperation Agreement IX entered into force on 1 October 2018. It contains guidelines entitled "Contingency Planning for Gas". These guidelines take account of the content of this Emergency Plan and mainly describe procedures in bottleneck situations in the gas supply systems, related information obligations and communication channels between system operators for a coordinated implementation of the measures pursuant to Section 16 and Section 16a of the Energy Industry Act. Where necessary, the gas and electricity

system operators also cooperate on measures to secure the supply of electricity and gas pursuant to Art. 10(1) e) of the SoS Regulation. TSOs have drawn up a communication concept for this.

5.1.3 Responsibilities of the authorities

The responsibilities of the authorities pursuant to the SoS Regulation are stipulated in Section 54a of the Energy Industry Act. The competent authority for ensuring the implementation of the measures stipulated in the SoS Regulation is the Federal Ministry for Economic Affairs and Energy. The Federal Ministry for Economic Affairs and Energy is thus responsible for the production of the emergency and preventive action plan and, in the context of this responsibility and the legal framework set out above, stipulates the tasks and responsibilities of the agencies and persons involved in the case of crisis and emergency.

The responsibility for the production of the risk assessment has been assigned to the Federal Network Agency. It also supervises the undertakings and associations of undertakings to ensure that they meet their obligations pursuant to the Energy Industry Act and the ordinances enacted on the basis of the Act and can where necessary issue instructions for measures to be taken to comply with the obligations pursuant to Section 65 of the Act.

In the case of a supply crisis in the context of the Act to Ensure the Supply of Energy and the Ordinance to Ensure the Supply of Gas in a Supply Crisis (emergency level within the meaning of the SoS Regulation), the Federal Network Agency shall be the federal load distributor, to the extent that it is necessary to ensure the supply in the supra-regional public interest, to balance needs and interests of the Länder relating to the electricity and gas industry, or to regulate the use of underground gas storage facilities and other gas supply installations of supra-regional significance. Apart from this the Act to Ensure the Supply of Energy and ordinances enacted on the basis of that act are executed by the competent bodies pursuant to Länder law or the bodies designated by them, unless stipulated otherwise.

5.2 Act to Ensure the Supply of Energy (EnSiG)

The instruments of the Act to Ensure the Supply of Energy shall be applied only in an emergency, in order to ensure coverage of the vital demand for energy in case of direct danger or disruption to the energy supply when this danger or disruption cannot be tackled using market-based measures, or cannot be tackled in time, or there would be a need for disproportionate measures. "Vital demand" is also understood to mean the need to fulfil public tasks and international obligations defined in the Act. The instruments of the Act to Ensure the Supply of Energy take effect when the Federal Government establishes by means of an ordinance that a danger or disruption to the energy supply exists. The approval of the Bundesrat is not required.

In order to attain the above-mentioned targets in an emergency, an ordinance pursuant to Section 1 subsection 1 of the Act to Ensure the Supply of Energy can issue rules on

- *"the production, transport, storage, distribution, sale, purchase, use and maximum prices for (...) gaseous fuels, (...),*
- *accounting, recording and reporting requirements on the commercial transactions cited (...) above, regarding quantities and prices and other market situations affecting these goods"*

Pursuant to subsection 3, the ordinance can particularly provide that

- *"the sale, purchase or use of goods can be restricted in terms of time, place or quantity, or only undertaken for certain priority supply purposes."*

(Cf. also Chapter 8). Such ordinances must not remain in force for longer than six months. Their validity may be extended only with the approval of the Bundesrat.

The Ordinance to Ensure the Supply of Gas in a Supply Crisis was issued on the basis of the Act to Ensure the Supply of Energy.

5.3 Ordinance to Ensure the Supply of Gas in a Supply Crisis (GasSV)

On the basis of the Act to Ensure the Supply of Energy, i.e. only in an emergency, the Ordinance to Ensure the Supply of Gas in a Supply Crisis regulates the transfer of the responsibility for load distribution to the competent state agencies. The Federal Network Agency and the Länder are the competent state agencies (responsibilities: cf. details in 5.1.3). In order to cover the "vital demand" for gas, these competent agencies can issue instructions as load distributors (cf. also Chapter 8).

The load distributors can issue instructions to oblige, for example, the gas undertakings and companies which generate, purchase or supply gas as well as the consumers to alter existing contracts within a certain deadline or to conclude new contracts with this content, to the extent that the desired behaviour cannot be achieved, or not achieved in time, via the application of existing contracts. The instruction must stipulate the customary fee or, should this not exist, an appropriate fee for a service. The same applies *mutatis mutandis* to the other provisions of the contracts. The load distributors may only issue instructions to the extent that these are absolutely necessary in order to remove or alleviate a danger or disruption to the vital supply of gas.

The execution of measures based on the Act to Ensure the Supply of Energy and the Ordinance to Ensure the Supply of Gas in a Supply Crisis means that it is also possible at the emergency level within the meaning of Art. 10(1) l) of the SoS Regulation to prevent undue gas consumption of customers who are connected to a gas distribution or transmission network.

5.4 Liability issues, suspension of service obligations, compensation

If TSOs take measures pursuant to Section 16 subsection 2 of the Energy Industry Act by adapting input, transport and offtake of gas to the needs of a reliable operation of the systems or require this adaptation, pursuant to Section 16 subsection 3 all of the service obligations affected by this shall be suspended until the dangers or disruptions have been removed. Pursuant to Section 16 subsection 3, liability for damage to assets is excluded to the extent that the preconditions pursuant to Section 16 subsection 2 are in place.

If the existence of an emergency is stipulated pursuant to the Act to Ensure the Supply of Energy, the compensation rules pursuant to Section 11 of the Act and the rules on hardship cases pursuant to Section 12 of the Act shall apply.

If an ordinance enacted on the basis of the Act to Ensure the Supply of Energy or a measure taken on the basis of an ordinance enacted on the basis of the Act amounts to expropriation, monetary compensation shall be paid. If the affected party suffers damage to his assets which does not represent expropriation within the meaning of Section 11 of the Act to Ensure the Supply of Energy, monetary compensation shall be paid in accordance with Section 12 of the Act if his economic existence is jeopardised or destroyed due to unavoidable damage, or if this is appropriate in order to prevent or offset an unfair hardship. The Federation shall be obliged to pay compensation if the damage to the assets was incurred due to an ordinance enacted on the basis of the Act to Ensure the Supply of Energy or due to a measure by a federal agency; in the other cases, the respective Land must pay the compensation.

Pursuant to Section 1 subsection 2 of the Ordinance to Ensure the Supply of Gas in a Supply Crisis, the load distributors require undertakings and consumers to amend existing or conclude new gas supply contracts within the meaning of Section 1 subsection 1 number 1 to the extent that the desired behaviour to secure the supply of gas cannot be achieved, or cannot be achieved in time, by the application of existing contracts. The instruction must stipulate the customary fee or, should this not exist, an appropriate fee for a service. The same applies mutatis mutandis to the other provisions of the contracts.

6. Crisis and emergency management pursuant to the SoS Regulation

6.1 Special status of "protected customers"

The ensuring of the supply to certain customers, such as household customers and customers providing essential social services, is of high priority, since these customers are particularly vulnerable to the consequences of a restriction of supply and may need to be protected against the negative effects of disruption to the gas supply. Pursuant to Section 53 a of the Energy Industry Act (EnWG), gas undertakings have a particular responsibility for supplying gas to these "protected customers".

The German definition of "protected customer" is based upon that of Article 2 No. 2 of Regulation No. 994/2010, which has since been changed to the definition set out in Article 2 No. 5 of Regulation 2017/1938. As a result of this, the definition of "protected customer" under German law, which was previously covered by Section 53a Energy Industry Act, will need to be modified. As part of the transposition of Regulation EU 2017/1938, the following definition of the "protected customer" is to be adapted in national law: within the meaning of the German Energy Industry Act, the term "protected customer" means

a) end-users in the gas distribution network that are subject to standardised load profiles, or end users in the gas distribution network delivering gas for heating purposes to households, to the extent that the gas is needed for this purpose.

b) essential social services within the meaning of Article 2(4) of Regulation (EU) No. 2017/1938 within the gas distribution network and the gas transmission network, and

c) district heating systems – to the extent that they are used to deliver heat to customers within the meaning of lit. (a) and (b) and that they are connected to a gas distribution network or a gas transmission network and are unable to switch to a different fuel, and to the extent that this gas is needed for heating purposes.

Pursuant to Section 53a in conjunction with Section 3 no. 22 of the Energy Industry Act, household customers are end consumers who use energy for domestic consumption in the household, or whose annual consumption for professional, agricultural or commercial purposes does not exceed 10,000 kilowatt hours (kWh).

This means that the gas undertakings must also be able to ensure gas supply to these customers in the cases described in Article 6(1) of the SoS Regulation, and are obliged to take appropriate measures to this end.

6.2 Crisis managers and crisis team

6.2.1 Crisis managers

Within their respective responsibilities, the TSOs, MAMs and the Federal Network Agency designate **crisis managers** with responsibility for taking action at crisis level, and communicate this information to the Federal Ministry for Economic Affairs and Energy. The Federal Ministry for Economic Affairs and Energy will maintain a confidential list of contacts. Any changes to responsibilities must be communicated immediately to the Federal Ministry for Economic Affairs and Energy without prior solicitation. The crisis managers are individuals in a position of responsibility within their particular organisations, authorities or business enterprises.

6.2.2 Crisis team

An interdisciplinary crisis team will advise and support the Federal Ministry for Economic Affairs and Energy ahead of and during a crisis.

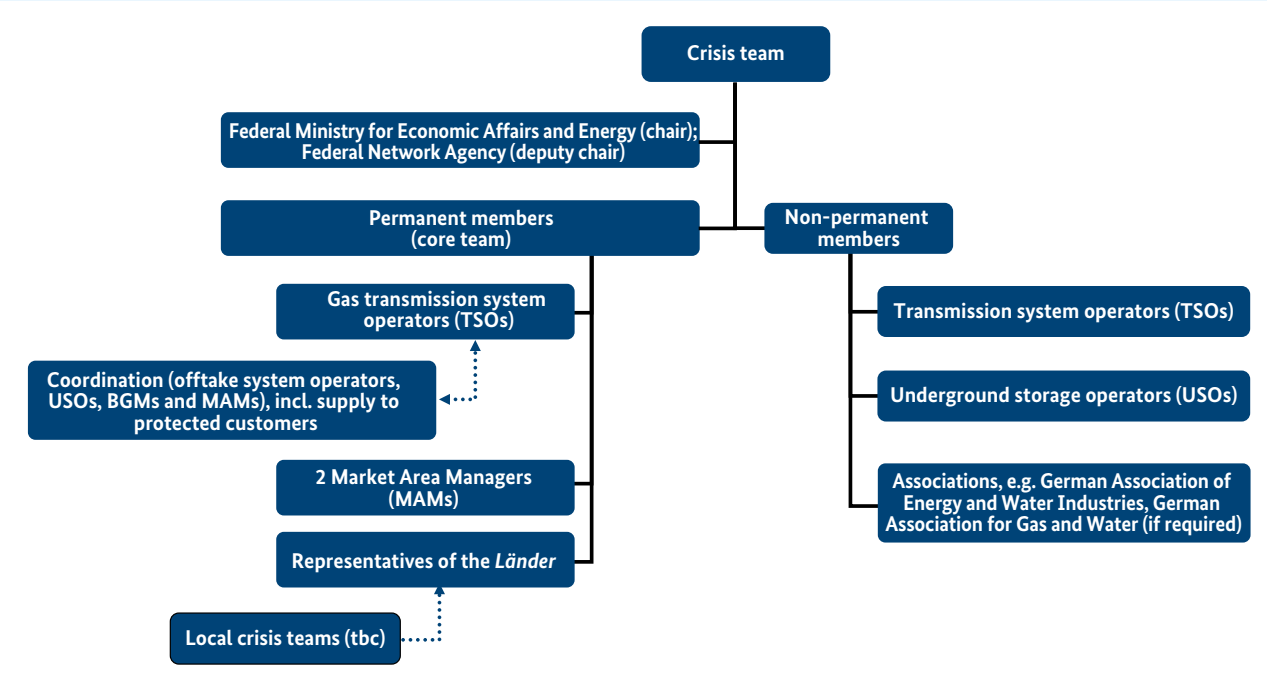
d) **Composition:** The above-mentioned crisis managers of the TSO, MAMs and the Federal Network Agency are required to work together in the crisis team as permanent members. Deputies are permitted. The Länder ministries responsible for energy are represented in the team depending on the degree to which their regions are affected. If regions are severely affected, it can make sense to establish local crisis teams under the management of the respective ministry at Länder level. Where warranted, the Chair will request the support of other market participants (e.g. Balancing Group Managers, USOs, DSOs) or associations (e.g. German Association for Gas and Water (DVGW); German Association of Energy and Water Industries (BDEW); Federation of German Consumer Organisations (vzbv); Association of German Chambers of Commerce and Industry (DIHK)). Internal market rules, antitrust concerns and aspects of data protection will be taken into consideration in the formation and organisation of the crisis team.

e) **Chair:** The position of Chair is filled by the Federal Ministry for Economic Affairs and Energy. The Federal Network Agency acts as the Deputy. The Chair convenes a meeting of the crisis team in an informal manner. The crisis team meeting can also be conducted by videoconference, teleconference or webconference.

f) **Minutes:** Minutes of the crisis meeting are taken. The minutes will detail how the crisis team assesses the situation and the recommended action. This task can be performed by the Federal Ministry for Economic Affairs and Energy or the Federal Network Agency. Minute-taking commences when the crisis team convenes. Minutes are taken for each meeting of the crisis team and should be treated as confidential.

Following the lifting of the emergency level by ordinance from the Federal Government, the team will supervise the orderly return to normal market activity and will assess the lessons learned from the supply disruptions. One of the key tasks of the crisis team is to provide a **consultative mechanism** between the stakeholders involved in tackling the crisis. This aims to ensure across-the-board exchange of essential information.

Figure 1: Organisation of the crisis team



6.3 Three crisis levels

In the event of a supply crisis, three crisis levels are defined in Article 11(1) of the SoS Regulation:

> ***a) Early warning level (early warning):***
> *"where there is concrete, serious and reliable information that an event which is likely to result in significant deterioration of the gas supply situation may occur and is likely to lead to the alert or the emergency level being triggered; the early warning level may be activated by an early warning mechanism;"*
>
> ***b) Alert level (alert):***
> *"where a disruption of gas supply or exceptionally high gas demand which results in significant deterioration of the gas supply situation occurs but the market is still able to manage that disruption or demand without the need to resort to non-market-based measures;"*
>
> ***c) Emergency level (emergency)***
> *"where there is exceptionally high gas demand, significant disruption of gas supply or other significant deterioration of the gas supply situation and all relevant market-based measures have been implemented but the gas supply is insufficient to meet the remaining gas demand so that non-market-based measures have to be additionally introduced with a view, in particular, to safeguarding gas supplies to protected customers in accordance with Article 6."*

The occurrence of the individual crisis levels depends on the severity of the disruption, the anticipated economic and technical implications and the urgency of remedial action at the national level. The levels do not need to be declared in succession. The alert or emergency level can be declared immediately depending on the severity of the disruption, the urgency and the types of measures needed to rectify the situation or remove the risk.

The Federal Ministry for Economic Affairs and Energy has the lead responsibility for decisions to declare an early warning or alert level. The emergency level is established pursuant to Section 3 of the Act to Ensure the Supply of Energy by an ordinance issued by the Federal Government and is made public in the Federal Law Gazette. The crisis levels are announced in a press statement and the European Commission is immediately notified of the situation.

Complementing the general specifications in the SoS Regulation, indicators are assigned to the individual levels to help appraise a specific supply bottleneck. However, the presence of one or more indicators does not necessarily mean that a supply crisis has occurred or that one of the aforementioned crisis levels has been reached. Rather, the Federal Ministry for Economic Affairs and Energy bases its decision on all the information available on the short and long-term supply situation, and particular trends in supply and demand with consideration given to additional factors, such as weather conditions during the winter period. The Federal Network Agency makes available any information it has on the supply situation. If there is specific evidence to suggest the possible need to deploy civil defence and emergency services as a result of a large-scale gas supply crisis, the Federal Ministry for Economic Affairs and Energy notifies the competent authority at the Federal Ministry of the Interior, depending on the specific situation.

The emergency level differs significantly from the early warning and alert levels in terms of the instruments available: At the first two levels the responsible market players act on their own responsibility to overcome the supply bottlenecks with their own particular set of tools, particularly as defined in the Energy Industry Act. In contrast, under the SoS Regulation at an emergency level there is a need to additionally resort to instruments with state intervention to guarantee gas supply to cover vital needs, with particular attention given to protected customers. Such intervention is only permitted in German law if the emergency is declared in line with the rules of procedure of the Act to Ensure the Supply of Energy (EnSiG) and the Ordinance to Ensure the Supply of Gas in a Supply Crisis (GasSV).

Table 1: Overview of measures by crisis level

	Market-based vmeasures pursuant to the Energy Industry Act	State measures as per EnSiG/GasSV
Early warning level	x	
Alert level	x	
Emergency level	x	x

6.3.1 Early warning level: conditions, indicators and implications

The Federal Ministry for Economic Affairs and Energy specifically examines the conditions for declaring the early warning level (cf. 6.3) on the basis of the following indicators (occurring individually or jointly):

- Absence/lack/reduction of gas flow at key physical entry points;
- Long-lasting low storage levels;
- Shutdown of important sources of supply;
- Technical failure of major infrastructure (e.g. pipelines and/or compressor stations) with the possibility of alternative supply;
- Extreme weather conditions coupled with high demand;
- Risk of long-term shortage;
- Declaration of crisis levels in neighbouring countries.

Declaration: The Federal Ministry for Economic Affairs and Energy announces the early warning level in a press statement.

This has the following **implications**:

- European internal market rules continue to apply in full.
- Gas undertakings continue to guarantee the supply of natural gas pursuant to Section 53a of the Energy Industry Act:
  - For this purpose gas undertakings can avail of market-based measures in line with Chapter 7 of this Emergency Plan;
  - Within their respective system responsibilities, transmission system and distribution system operators implement measures as defined in Sections 16 and 16a of the Energy Industry Act.
- The transmission system operators (TSOs)
  - will submit, following consultation with the MAMs, timely situation reports in writing to the Federal Ministry for Economic Affairs and Energy at least once a day;
  - and electricity transmission system operators will exchange important information and coordinate their measures as much as possible with the view to maintaining the stability of their individual networks for as long as possible.
- Obligation on the gas undertakings to fully support the Federal Ministry for Economic Affairs and Energy in assessing the situation, and to actively participate in the crisis team; the MAMs play a key role given their knowledge of the supply situation in the market area.
- The Federal Ministry for Economic Affairs and Energy immediately informs the European Commission and, in particular, provides details of the action it intends to take (Article 11(2) of the SoS Regulation); the Federal Ministry for Economic Affairs and Energy declares an end to the alert level in a press statement when the conditions no longer apply, and notifies the European Commission immediately.

6.3.2 Alert level: conditions, indicators and implications

The Federal Ministry for Economic Affairs and Energy specifically examines the conditions for declaring the alert level (cf. 6.3) on the basis of the following indicators (occurring individually or jointly):

- Absence/lack/serious reduction of gas flow at key physical entry points;
- Long-lasting very low storage levels;
- Shutdown of important sources of supply;
- Lengthy technical failure of major infrastructure (e.g. pipelines and/or compressor stations) with the possibility of alternative supply;
- Extreme weather conditions coupled with very high demand;
- High risk of long-term shortage;
- Request for solidarity to Germany.

Declaration: The Federal Ministry for Economic Affairs and Energy announces the alert level in a press statement.

This has the following **implications**:

- European internal market rules continue to apply in full.
- Gas undertakings continue to guarantee the supply of natural gas pursuant to Section 53a of the Energy Industry Act:
  - For this purpose gas undertakings can avail of market-based measures in line with Chapter 7 of this Emergency Plan;
  - Within their system responsibilities, transmission system and distribution system operators implement measures as defined in Sections 16 and 16a of the Energy Industry Act.
- The transmission system operators (TSOs)
  - will submit, following consultation with the MAMs, timely situation reports in writing to the Federal Ministry for Economic Affairs and Energy at least once a day;
  - and electricity transmission system operators will exchange important information and coordinate their measures as much as possible with the view to maintaining the stability of their individual networks for as long as possible.
- Obligation on the gas undertakings to fully support the Federal Ministry for Economic Affairs and Energy in assessing the situation, and to actively participate in the crisis team; the MAMs play a key role given their knowledge of the supply situation in the market area.
- The Federal Ministry for Economic Affairs and Energy immediately informs the European Commission and, in particular, provides details of the action it intends to take (Article 11(2) of the SoS Regulation); the Federal Ministry for Economic Affairs and Energy declares an end to the alert level in a press statement when the conditions no longer apply, and notifies the European Commission immediately.

6.3.3 Emergency level: conditions, declaration and implications

On the basis of the following indicators, the Federal Ministry for Economic Affairs and Energy specifically examines the conditions for declaring the emergency level within the meaning of the SoS Regulation (cf. 6.3), and in line with Section 1 subsection 1 of the Act to Ensure the Supply of Energy (EnSiG) (occurring individually or jointly):

- Additional, large-scale supply disruptions can be expected over the long term and there is no adequate alternative supply option;
- Measures as defined under Section 16 subsection 1 of the Energy Industry Act are no longer sufficient for system stability;
- Not enough balancing energy is available across the entire market and cannot be procured at short notice, or trade in balancing energy has been suspended;
- Following consultation with TSOs, MAMs declare that all the market-based measures have been exhausted for their market area;
- Deterioration of the supply situation to an extent that gas supply to protected customers and gas to cover vital needs are at risk;

- Technical problem: failure of major pipelines and/or compressor stations without a quick alternative supply option (disaster).

Declaration: The emergency level is established and declared by an ordinance issued by the Federal Government and is announced in the Federal Law Gazette. The Federal Ministry for Economic Affairs and Energy communicates the declaration of an emergency level in a press statement.

This has the following **implications**:

- In addition to the market-based measures defined in Chapter 7 of this Emergency Plan, sovereign measures in line with Annex VIII of the SoS Regulation are now available, i.e. instruments as defined in the Act to Ensure the Supply of Energy (EnSiG) and the Ordinance to Ensure the Supply of Gas in a Supply Crisis (GasSV):
  - the Federal Network Agency, as the federal load distributor, or the Länder as load distributors, undertake sovereign measures in accordance with the Ordinance to Ensure the Supply of Gas in a Supply Crisis (GasSV). Objective: the aim is to ensure grid stability, paying particular attention to protected customers, vital needs, and the minimisation of consequential damage.
- Obligation of the gas undertakings to fully support the Federal Ministry for Economic Affairs and Energy in assessing the situation, and to actively participate in the crisis team;
  - following consultation with the MAMs, the transmission system operators submit timely situation reports in writing to the Federal Ministry for Economic Affairs and Energy at least once a day;
  - the gas undertakings concerned make forecasts and load flow data available on a daily basis pursuant to Article 14(1) of the Security of Supply Regulation (cf. Chapter 9).
- In implementing the Emergency Plan, it is essential to ensure compliance with the requirements under Article 11(6) of the SoS Regulation. This means that:
  1. *no measures are introduced which unduly restrict the flow of gas within the internal market;*
  2. *no measures are introduced that are likely to endanger seriously the gas supply situation in another Member State;*
  3. *cross-border access to infrastructure (...) is maintained as far as technically and safely possible.*
- The Federal Ministry for Economic Affairs and Energy
  - notifies without delay the European Commission in particular about the action it intends to take; guarantees the exchange of information in accordance with Article 14 of the SoS Regulation (cf. Chapter 9); and informs the European Commission without delay about the removal of the emergency level.

6.4 Solidarity between Member States

In accordance with Art. 13 SoS Regulation, Member States are obliged to support other Member States with which they are directly connected or connected via a third country by providing solidarity measures at their request. The Member State providing solidarity shall then take the necessary measures to ensure that in its sovereign territory the gas supply to customers other than solidarity protected customers is curtailed or suspended to the extent necessary and for as long as the gas supply to solidarity protected customers in the requesting party is not safeguarded.

6.4.1 Legal background and definition of terms

Art. 2(6) SoS Regulation defines the “solidarity protected customers” for the supply of whom solidarity obligations exist for other Member States in accordance with Art. 13 SoS Regulation. These are household customers, district heating installations and certain essential social services, as long as these are “protected customers” in the respective Member State.

A solidarity measure should be regarded as a last resort, and according to Art. 13(3) is only applied if the requesting Member State has

a) not been able to cover the deficit in gas supply to its solidarity protected customers despite the application of the measure referred to in Article 11(3),

b) exhausted all market-based measures and all measures provided in its emergency plan,

c) notified an explicit request to the Commission and to the competent authorities of all Member States with which it is connected either directly or pursuant to paragraph 2 via a third country, accompanied by a description of the implemented measures referred to in point (b) of this paragraph;

d) undertaken to pay fair and prompt compensation to the Member State providing solidarity in accordance with paragraph 8.

6.4.2 Negotiation of bilateral solidarity agreements

Art. 13(10) provides that the Member States conclude agreements on the technical, legal and financial arrangements needed to implement solidarity measures in support of the Member States connected to them.

The following are the main pillars of the draft German proposal:

- Solidarity measures are applied as a last resort for the following gas day.
- The Member State requesting solidarity directs its request simultaneously to all neighbouring Member States (burden-sharing principle).
- Solidarity should be ensured by market-based measures for as long as possible.
- The Member State requesting solidarity is obliged to reimburse the Member State providing solidarity and/or the market participants in the Member State providing solidarity with all costs arising in connection with the solidarity measures taken by the Member State providing solidarity.

At present, the various regulatory models are being examined and discussed in the risk group. At this point in time, therefore, it is not yet clear when bilateral agreements can be concluded in accordance with Art. 13 SoS Regulation.

6.5 Gas consumption of the solidarity protected customers in Germany

In accordance with Art. 10(1) n), the Emergency Plan must contain an estimate of the quantities of gas consumed by the solidarity protected customers in Germany covering at least the cases described in Article 6(1). The following calculations are based on the new definition – which has yet to be adapted in national legislation – of protected customers. The difference between the quantities of gas needed by protected customers and solidarity protected customers is negligible as there are only minor discrepancies in terms of an estimate within the meaning of Art. 10(1) n).

Pursuant to Article 6(1) a) of the SoS Regulation, the gas undertakings must ensure supply for protected customers at extreme temperatures during a 7-day peak period occurring with a statistical probability of once in 20 years. In terms of the last 20 years, the relevant period for this (defined at the time when the risk analysis was produced) is from 27 December 1996 until 2 January 1997. In this period, the weighted temperatures were between -7.9C and -3.6C. The total gas consumption of protected customers in Germany for the period cited in Art. 6(1) a) of the SoS Regulation is 2,000 million m^3.

Pursuant to Article 6(1) b) of the SoS Regulation, the gas undertakings must ensure supply for protected customers for a period of at least 30 days of exceptionally high gas demand, occurring with a statistical probability of once in 20 years. The total gas consumption of protected customers in Germany for the period cited in Art. 6(1) b) of the SoS Regulation is 7,478 million m^3. This consumption took place in the period from 8 January - 6 February 2006.

Pursuant to Article 6(1) c) of the SoS Regulation, the gas undertakings must ensure supply for protected customers for a period of at least 30 days in case of the disruption of the single largest gas infrastructure under average winter conditions. The total gas consumption of protected customers in Germany for the period cited in Art. 6(1) c) of the SoS Regulation is 5,768 million m^3, whereby the period of 1 - 30 January 2011 served as a basis for the calculation as an average winter month.

7. Market-based measures and their contribution to coping with a crisis

7.1 Overview of the range of market-based measures within the meaning of the SoS Regulation

To safeguard the supply of natural gas in the event of supply bottlenecks, gas undertakings have recourse to particular operational measures at short notice, and can introduce such measures in line with their individual market roles (cf. Chapter 4), the legal and regulatory framework (cf. Chapter 5) and the requirements of the SoS Regulation (Chapter 6). Following consultation with the gas undertakings, this set of measures is defined here in greater detail, with due consideration to the risk assessment of the Federal Network Agency. This is an indicative and non-exhaustive account of the measures. The following explanations merely represent a listing without implying any sequence of measures. Other possible market-based measures can be found in the Annex.

7.1.1 Measures of the gas traders and suppliers

Gas traders and suppliers (especially producers and importers) make their contribution to security of supply by utilising all the available flexibility on the procurement side to ensure the supply of the customers in the event of bottlenecks. In the event of disruptions to supply, the affected gas traders and suppliers will rapidly endeavour to obtain substitute quantities. In particular, this includes the use of flexibilities in the import sector and the deployment of quantities of gas storage booked by them in the interest of the system. In the same way, use will be made of flexibilities on the national and international sales side.

7.1.2 Measures of the transmission and distribution system operators (TSOs, DSOs)

7.1.2.1 Use of internal balancing energy

Line pack is used in the networks to manage short-term fluctuations in the balance of the system. This approach is applied both within market areas and universally.

7.1.2.2 Optimisation of load flow

Optimisations are made within the gas networks and with other system operators in the market area to make maximum use of transmission capacities available.

7.1.2.3 Request for external balancing energy

To offset deficits in the market area balance arising from insufficient input, MAMs purchase volumes on the wholesale markets.

7.1.2.4 Use of external local balancing energy / balancing energy at specific network points

If the measure cited under 7.1.2.3 has not had the desired effect/ been successful, the MAMs can use balancing energy products with a local impact or an impact at a specific network point to offset deficits in individual areas of the network.

In addition to the quantities of gas produced on a short-term basis, the MAMs also use long-term balancing energy products:

i) The long-term options (LTOs) are contracted on a long-term basis and oblige the provider to maintain the contracted capacity for the duration of the contracting period in case it should be required. As of 1 January 2018, the previously independent long-term balancing energy product to realise demand side management potential (DSM product) was merged with the LTO product. This means that, with the new overall LTO product, bids can be submitted for maintenance of capacity within a balancing energy (sub)zone which, if they are called on, can be fulfilled at all entry and exit points which can be nominated and at RLM exit points in the respective balancing energy (sub) zone. In order to increase the readiness and operative possibility for industrial end-users to participate in the balancing energy market, the number of possible days on which the capacity can be called up within a commissioning period has been restricted, and the possibility opened up for the pooling of different flexibility sources.

ii) The "short-term balancing services" (STBs) to cover short-term local supply shortages. The MAMs can use the STB product at short notice in case of need to achieve balancing energy potential which suppliers cannot offer via the standardised trading products (e.g. industrial customers can offer reductions in consumption in return for payment of a price for their service).

Both the LTOs and STBs are balancing energy products effective both locally and at specific points in the system.

7.1.2.5 Redistribution of volumes of natural gas in collaboration with system operators in Germany and in neighbouring countries

Agreements are reached with neighbouring system operators on possible ways to temporarily redistribute input volumes to other entry points in order to avoid acute transmission bottlenecks and thereby improve the distribution of the volumes available.

7.1.2.6 Load flow commitments

Use of contractually binding commitments between gas undertakings to redistribute or provide gas flows at certain entry or exit point(s) to improve volume distribution.

7.1.2.7 Interruptions on a contractual basis (interruptible contracts)

To reduce the load, system operators use their contractual rights to interrupt outtake at relevant points. In particular relevant points can include border-crossing points, market area boundaries, grid connection points and storage connection points. The interruptible outtake contracts contain commercial arrangements for this purpose. The non-firmly agreed share of the internal order can also be interrupted.

If the interruptibility of the use of gas connections is contractually agreed between network operator and final consumer on the basis of Section 14b of the Energy Industry Act, the DSOs calculate a reduced network fee in return.

In certain situations it might be necessary to waive obligations in interruptible input contracts in order to incentivise the Balancing Group Managers to redistribute input capacity to underserved areas of the network.

In the relationship between DSO and the operator of a gas-fired power plant designated systemically relevant for the electricity supply system, consideration must be given to agreements on fixed capacities in the gas supply network.

7.1.2.8 Other powers and obligations of the TSOs and DSOs

If the individual system operators prove unable to remove the danger or disruption in their system in the context of their own responsibility for the system using the measures cited in 7.1.2.1 – 7.1.2.7, they shall be "entitled and obliged to adapt all gas input, gas transport and gas offtake in their systems to the needs of a secure and reliable operation of the systems or to require this adaptation" in the context of cooperation pursuant to Section 16 subsection 2 in conjunction with Section 15 subsection 1 of the Energy Industry Act (i.e. with other TSOs). As far as possible, "the relevant operators of other transmission and distribution systems and gas traders shall be informed in advance". The same applies pursuant to Section 16a of the Energy Industry Act to the DSOs.

7.2 Implementation of market-based measures to tackle a crisis

Acting on their own responsibility, the gas undertakings decide which measure or group of measures is/are required and appropriate to ensure the functioning of the market and the supply of gas to protected customers for as long as possible, with due regard to the individual emergency and supply situation. In doing so, the natural gas undertakings consider the implications of such measures within the meaning of the SoS Regulation, and within the framework of the legal and technical options open to them. If different measures are deemed to be equally suitable the aim is to give preference to those measures which have the least impact on the environment and the economy.

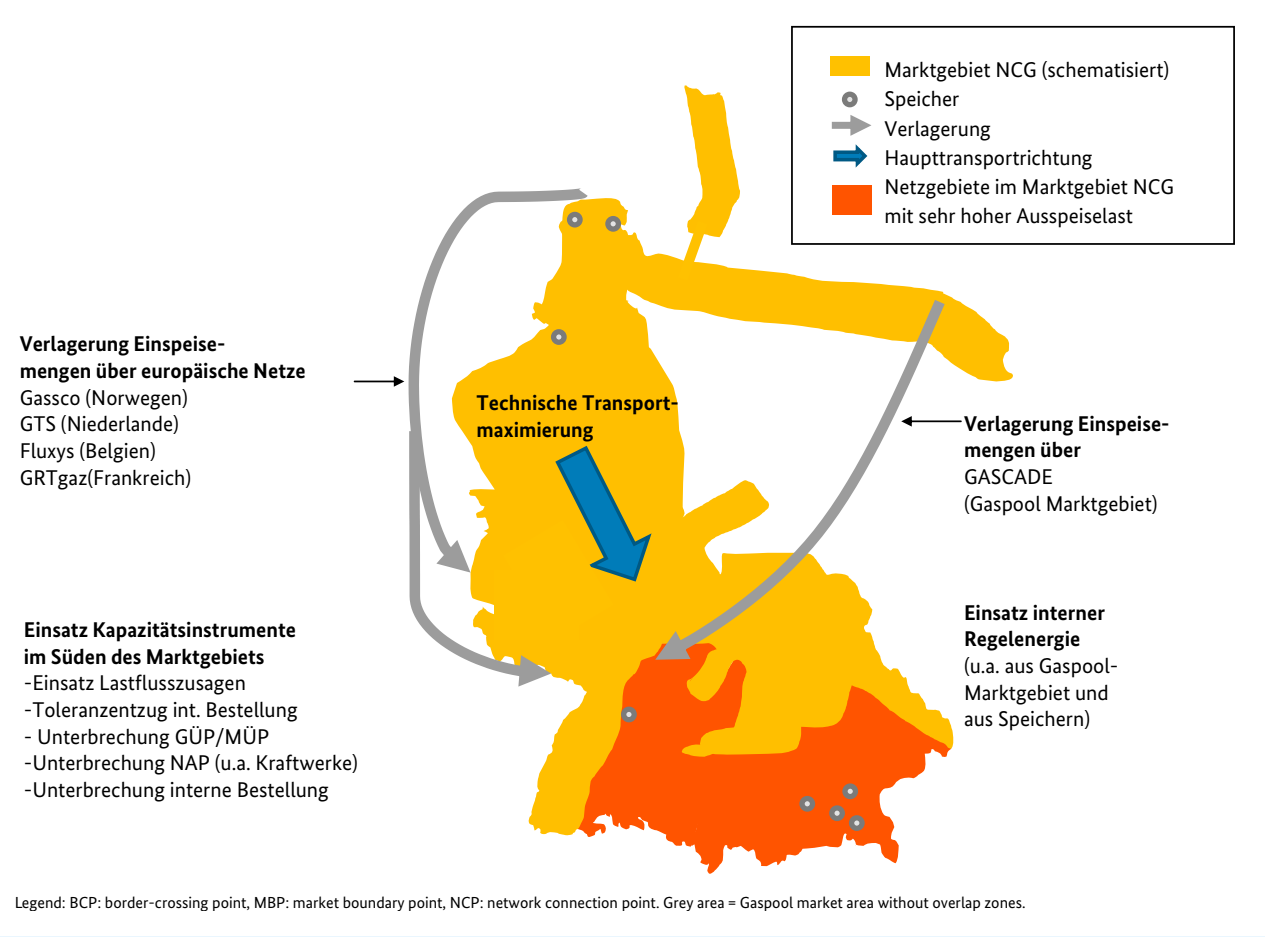
The contribution of market- and system-related measures to crisis management is illustrated in the example of the supply bottleneck experienced in February 2012 (cf. Figure 2). There has not been another bottleneck situation since 2012. Due to a very prolonged cold spell there was an exceptionally high demand for natural gas in much of Europe. At the same time, gas deliveries in south Germany were below importers' expectations with the result that the southern part of the NCG market area was particularly affected.

To guarantee firmly booked capacity at the exit points despite this situation, NCG and the TSOs of the market area introduced network-based and market-based measures. In collaboration with other infrastructure operators within and outside the market area it was therefore possible to use internal balancing energy. Following agreement with national and foreign system operators, entry points were redistributed from the north to the south of the market area and transmission was technically maximized in the north-south direction. The use of capacity instruments in the south of the market area was agreed between the TSOs.

As a result of these measures, it was possible to guarantee gas supply to consumers in Germany and the contractually agreed transit volumes in February 2012.

As a consequence of the experience gained in this situation, the Third Act to Reorganise Statutes governing the Energy Sector was enacted. It contains new rules, in force since 1 January 2013, on security of supply and ensures that an integrated view is taken of the gas and electricity systems. For further information, cf. section 5.1.1.

Figure 2: Measures to ease the situation in February 2012



Legend: BCP: border-crossing point, MBP: market boundary point, NCP: network connection point. Grey area = Gaspool market area without overlap zones.

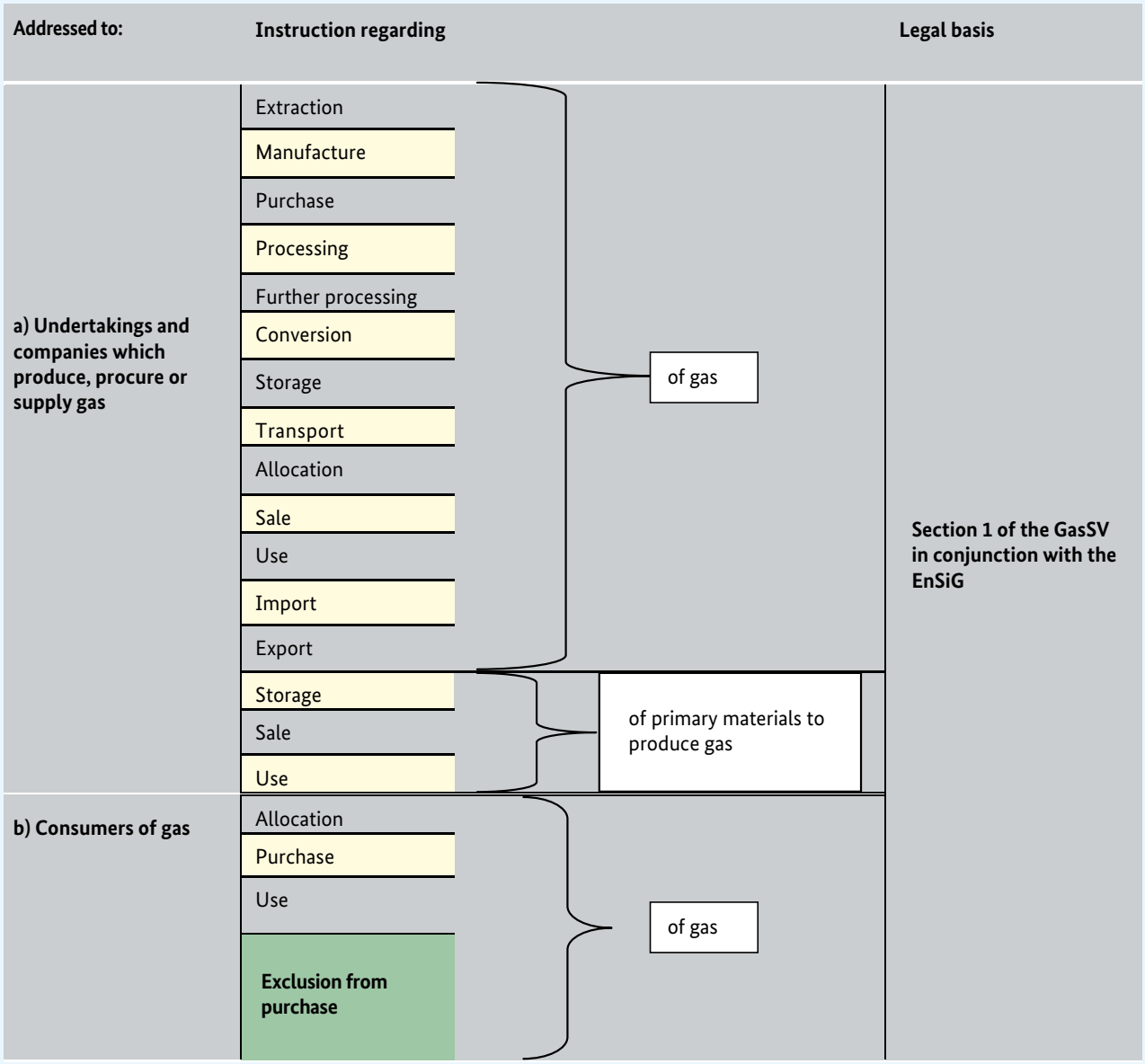
Source: Open Grid Europe (OGE)

8. Sovereign measures for when an emergency situation is confirmed

The instruments of measures by the state, which are available to the competent authorities in the case of an emergency or in the case of the application of a solidarity measure within the meaning of Art. 13 SoS Regulation, are set out here, with consideration given to Annex VIII of the SoS Regulation, which contains a non-exhaustive list of such measures.

When the existence of an emergency situation is confirmed by the enactment of an ordinance by the Federal Government in accordance with the Act to Ensure the Supply of Energy, the Federal Network Agency can issue instructions as a load distributor and intervene in the market if intervention is in the supra-regional interest, if a balance needs to be struck between the interests of the electricity and gas industries, or the use of gas storage facilities and other gas supply facilities of supra-regional significance needs to be regulated. The Länder can issue corresponding instructions if intervention does not have any supra-regional impact. Since a massive supply bottleneck will generally have a supra-regional impact, the Federal Network Agency will play the central role as load distributor in an emergency.

Figure 3: Overview of sovereign measures for the load distributors in an emergency



Source: Open Grid Europe (OGE)

In principle, it is the case that market-based measures can also continue to be used in an emergency alongside the sovereign measures. Reference is made to the presentation of the market-based measures in Chapter 7. The crisis team gives advice to the Federal Network Agency regarding the selection of the measures to be imposed in order to attain the best possible efficiency and to avoid unnecessary burdens.

Section 1 of the Ordinance to Ensure the Supply of Gas in a Supply Crisis authorises the competent state agencies as load distributors to issue instructions a) to enterprises and companies which produce, purchase or sell gas and b) to consumers. Such instructions represent measures by the state which have been stipulated in advance, within the meaning of the SoS Regulation (cf. Figure 3).

This could for example include the following measures:

- Instruction to increase the level of offtake from gas storage
- Instruction to substitute gas with oil
- Instruction to substitute gas with other fuels
- Instruction to use electricity not generated by gas
- Instruction to restrict the generation of electricity in gas-fired power plants
- Instruction to increase the production level of gas
- Instruction regarding the heating of public buildings
- Instruction to final consumers to reduce the consumption of gas
- Instruction to large consumers to reduce the consumption of gas
- Instruction to switch off industrial customers
- Instruction to use the stored stocks of alternative fuels
- Instruction to restrict cross-border flows of gas (in compliance with the provisions of Art. 10(4) and Art. 11(6) SoS Regulation.

9. Reporting obligations and exchange of information

In the event of a significant deterioration of the supply situation, it must be ensured that the competent authorities have all the relevant information to assess the situation and decide on the course of action to be taken.

Reporting and information obligations are defined in Article 11(2) and (4), and Article 14 of the SoS Regulation; furthermore particularly in Section 15 of the Energy Industry Act; and in Section 10 of the Act to Ensure the Supply of Energy and Section 2 of the Ordinance to Ensure the Supply of Gas in a Supply Crisis. With regard to the type and scope of the information and how this information is exchanged, as well as communicated to the European Commission, a distinction must be made as to whether the early warning or alert level has been declared, or whether the emergency level has been established and declared by an ordinance issued by the Federal Government.

Pursuant to Section 15 of the Energy Industry Act, the TSOs and USOs guarantee the exchange of information both among themselves and with other operators of gas supply systems (i.e. all transmission systems, gas distribution systems, storage facilities that are required for access, transmission and distribution) to whom they are connected technically.

Pursuant to Article 14(1) of the SoS Regulation, the gas undertakings concerned must make the following information available to the Federal Ministry for Economic Affairs and Energy on a daily basis during an emergency:

- Daily gas demand and supply forecasts for the following three days;
- Daily flow of gas at all cross-border entry and exit points as well as all points connecting a production facility or a storage facility to the network;
- The period, expressed in days, for which it is expected that gas supply to the protected customers can be ensured.

The TSOs have been automatically transmitting load-flow data to the Federal Network Agency since 2012, as part of the load flow data protocol project with the support of the German Association for Gas and Water. The TSOs transmit hourly figures for each relevant point in the system, particularly on the maximum technical capacities, nominations and load flows, as well as interruptions, to a data platform run by the German Association for Gas and Water ("IT-based collector"). The reports are submitted once a day for the previous gas day. Before further analysis, the raw data are subject to continuous and rigorous plausibility checks by the Federal Network Agency.

This process can help the Federal Network Agency to meet the obligation of the Federal Ministry for Economic Affairs and Energy to exchange information with the European Commission during an emergency pursuant to Art. 14(2) a) in conjunction with Art. 14(1) b) of the SoS Regulation. Furthermore, the nomination figures from the transport clients to the TSOs can provide daily forecasts for capacity demand, which can be used by the European Commission when it considers the supply of and the demand for gas pursuant to Art. 14(1) a) of the SoS Regulation.

Table 2: Information flow at all crisis levels

Reporting agents	I. Early warning and alert level	II. Emergency level
TSO and MAM	• Daily situation reports in writing to the Federal Ministry for Economic Affairs and Energy/Federal Network Agency • Provision of information in the crisis team	• **As under I.** • **Gas flow data pursuant to Article 14(1) of the Security of Supply Regulation (see above)**
Undertakings and companies that extract, produce or import gas *At the request of the Federal Network Agency/Land authorities:* Undertakings and companies that can source gas within the country and dispatch to the public gas grid		• **Reports to the Federal Network Agency and competent Land authorities pursuant to Section 2 of the Ordinance to Ensure the Supply of Gas in a Supply Crisis (GasSV) (cf. Annex 1: GasSV Form, p. 3)**
Federal Ministry for Economic Affairs and Energy (BMWi)	• **Information and situation reports, including planned measures, to the European Commission (Article 11(2) of the Security of Supply Regulation)**	• **As under I. and additionally information pursuant to Article 11(4) of the Security of Supply Regulation** • **Information pursuant to Article 14(2) of the Security of Supply Regulation at the request of the European Commission**

10. Conducting emergency tests

Pursuant to Art. 10(3) SoS Regulation, the measures and procedures contained in the Emergency Plan must be tested at least once between the four-yearly updates of the Emergency Plan.

In order to test the Emergency Plan, the Federal Ministry for Economic Affairs and Energy simulates scenarios with medium and strong effects and reactions in accordance with this plan. The competent authority presents the results of the test to the Gas Coordination Group. On the basis of Section 14 Federal Civil Protection and Disaster Relief Act, the 8th cross-border crisis management exercise LÜKEX 18 took place on 28 and 29 November 2018, and the Emergency Plan for Gas was tested in this context.

10.1 Participating stakeholders in the emergency test in the context of LÜKEX 18

The participants in the exercise were, at federal level, the Federal Ministry for Economic Affairs and Energy with its agency the Federal Network Agency, the Federal Ministry of the Interior, Building and Community and its agency the Federal Office of Civil Protection and Disaster Assistance, as well as other federal ministries affected by the scenario.

Further to this, the competent ministries of 10 participating Länder and "critical infrastructure" companies (TSOs, MAMs) and specialist industry associations took part. The following Länder were involved: Baden-Württemberg, Bavaria, Berlin, Brandenburg, Hesse, Rhineland-Palatinate, Saarland, Saxony, Saxony-Anhalt and Thuringia.

The European Commission participated as an observer. Specific Member States were informed about the exercise.

In the context of LÜKEX 18, the measures and procedures contained in the Emergency Plan for Gas were tested. The basic aim of the series of LÜKEX tests is to review and improve national crisis management at a strategic level; to this end, the supreme crisis staffs and crisis management structures at federal and Länder level are tested, and private-sector critical infrastructure is also included. The exercise covered the issue of a "national gas shortage in southern Germany".

10.2 Scenario of LÜKEX 18

Unlike a power outage, a large-scale gas shortage with direct effects on private households is not an event which occurs abruptly, but one which gradually builds up. Gas pipelines and gas storage facilities initially serve as buffers when supplies to the system fail. A worst-case scenario was developed which is highly unlikely but nevertheless realistic. As each of the three crisis levels was to be mapped in LÜKEX 18 and the related processes and responsibilities practised, the gas shortage had to incrementally worsen in the course of the LÜKEX scenario. Since homeland security was to be practised on the second day of the exercise, the scenario was designed in a way that certain measures taken in line with this Emergency Plan did not have the desired effects and the situation therefore escalated further. In order to enable this scenario to be mapped on two exercise days, several leaps forward in time were required in the exercise design. For this reason, LÜKEX 18 consisted of four exercise sections, including the discussions of the plans, which were separated in the imaginary exercise period by three leaps forward of several days each. The core exercise times were 8 a.m. to 6 p.m. on 28 November and 8 a.m. to 4 p.m. on 29 November 2018.

The scenario was based on a particularly cold and long winter period. Due to this extreme weather and the related high level of gas demand, the volumes held by the storage facilities fell rapidly in the scenario. Also, the TSOs reported that supply bottlenecks were on the horizon. In addition, there were technical, economic and weather-related factors which taken together resulted in a shortage of gas. In the course of the exercise, all three stages of the emergency action plan were identified or declared. When the emergency level was declared, on the afternoon of the first day of the exercise, the Federal Network Agency became the federal load distributor and was tasked with ensuring vital gas deliveries by distributing the load as a sovereign actor. In addition to the industrial customers, which were affected by measures from the start, the escalating situation also increasingly resulted in direct impacts on "protected customers". In the course of the exercise, the switching off of entire supply areas was simulated. This meant that homeland security became increasingly prominent on the second day of the exercise.

10.3 Findings from LÜKEX 18

Basically, the exercise showed that the envisaged emergency measures and information processes work well in the field of crisis management in the gas sector. However, the exercise identified some need for improvements in certain areas. This applies in particular to the need to share information and data and for a common understanding of concepts and the assessment of the situation. Detailed information about the evaluation of the exercise can be found in the LÜKEX 18 evaluation report by the Federal Office of Civil Protection and Disaster Assistance.[1] It evaluates the aspects of crisis communications, the gas shortage situation and homeland security for all the participants in the exercise, and makes corresponding recommendations. One recommendation referred to the definition of "protected customer" covered by Section 53a Energy Industry Act, which was redefined in view of the new SoS Regulation and the findings of the LÜKEX exercise.

1 The report is available online at: https://www.bbk.bund.de/SharedDocs/Kurzmeldungen/BBK/DE/2019/07/LUEKEX18_Auswertungsbericht.html

11. Collaboration with other Member States and the European Commission

The European Commission is responsible for coordinating the flow of information between the Member States at all three crisis levels. The Federal Ministry for Economic Affairs and Energy is the central point of contact for European partner states and the European Commission, and ensures the necessary flow of information.

In the event of incipient bottlenecks, the TSOs will liaise with the TSOs in neighbouring countries. Insofar as possible they will agree the cross-border coordination of measures, including the exchange of information on any necessary market-based measures with cross-border effects.

When the emergency level is declared, the Federal Network Agency – in its capacity as the federal load distributor – will liaise with the competent authorities of affected neighbouring member states and Switzerland. In particular, information will be provided on the expected scale of necessary cross-border restrictions on load flow.

The competent authorities of all neighbouring EU states, Sweden, Slovakia, Italy and Switzerland will be consulted whenever this Emergency Plan is updated. In this context, special mention should be made of the tried-and-tested Pentalateral Forum in which representatives of the governments of Belgium, France, Luxembourg, the Netherlands and Germany – supported by representatives of the regulatory authorities and business representatives – regularly discuss key issues of the gas supply.

12. Regional dimension

Pursuant to Art. 8 of EU Regulation 2017/1938 the emergency plan includes a regional chapter, which specifies appropriate and effective cross-border measures for each crisis level between the Member States of the respective risk groups.

The Baltic Sea risk group comprises Belgium, Czech Republic, Denmark, Germany, France, Luxembourg, the Netherlands, Austria, Slovakia and Sweden (EU Regulation 2017/1938 Annex I). Germany is the coordinator of the Baltic Sea risk group.

As coordinator, Germany was in the lead for the preparation of the regional chapter for the Baltic Sea risk group. The regional chapter was developed jointly by all Member States in the risk group before incorporation in this emergency plan.

12.1 Risk group measures to be adopted per crisis level

In the regional chapter of its preventive action plan, the Baltic Sea risk group has not identified a risk to which it feels particularly exposed and found that supply can be maintained even in the case of extreme scenarios. Nevertheless, risks do of course exist, particularly technical ones which cannot be entirely excluded.

Since crisis situations can take manifold shapes and require well informed responses, the fundamental and most crucial concern of the risk group is to guarantee the flow of information between the Member States and relevant stakeholders of the risk group in a crisis situation.

In a crisis situation, the following information measures enable the Member States belonging to the risk group to coordinate their actions, in order to prevent an expansion of the crisis, to prepare for its expansion and to mitigate its negative effects. This will increase the security of gas supply for all Member States of the risk group. The specifics of measures taken within single Member States as response to a crisis situation or the declaration of a crisis level by another Member State will vary depending on the underlying national provisions.

12.1.1 General measures

When the competent authority of a group Member State declares one of the crisis levels, it will immediately inform the competent authorities of the other group Member States as well as the European Commission.

The Member State will provide information on the crisis level identified, the measures it has implemented and/or intends to take, its procedures being followed and the expected contribution of the measures taken.

12.1.2 Early warning level

The competent authority of the declaring Member State will update the other Member States belonging to the risk group about the early warning situation every three work days or as often as possible communicating all new developments.

No other measures are intended to be taken at this level, since the market is still able to manage the situation.

12.1.3 Alert level

The competent authority of the declaring Member State will update the other Member States belonging to the risk group about the alert situation every two work days or as often as possible communicating all new developments.

The competent authority and TSOs of the declaring Member State as well as the competent authorities and TSOs of the other group Member States may ask shippers and gas consumers to voluntarily increase their inflow of gas or to reduce their consumption of gas.

No other measures are intended to be taken at this level, since the market is still able to manage the situation.

12.1.4 Emergency level

The competent authority of the declaring Member State will update the other Member States belonging to the risk group about the emergency situation at least once a day or as often as possible communicating all new developments.

The measures available at the emergency level within the risk group are fundamentally similar to those listed in the respective national chapter on non-market-based measures, but with the addition of being subject to cross-border coordination within the risk group.

Additionally, the Member State that has declared the emergency may request the European Commission to declare a regional or Union emergency in case an expansion of the crisis is likely to happen, pursuant to Art. 12 of EU Regulation 2017/1938.

12.2 Cooperation mechanisms

The cooperation mechanism within the risk group follows coordinative procedures between Member States, TSOs, regulators and other stakeholders on different levels. The aim is to provide the relevant stakeholders with detailed information about the reason and impact of a crisis situation and to coordinate possible mutually agreed solutions, in order to prevent or mitigate negative effects of a supply crisis.

12.2.1 TSOs

In general, the TSOs shall work in close cooperation with the TSOs in the other group Member States. In case a supply bottleneck is foreseeable, the TSOs will liaise with the TSOs in the other Member States belonging to the risk group. Insofar as possible they will agree on the cross-border coordination of measures, including the exchange of information on any necessary market-based measures with cross-border effects.

In case of a supply crisis, the TSOs shall cooperate and exchange information using the ReCo System for Gas established by ENTSOG, pursuant to Art. 3 of EU Regulation 2017/1938. ENTSOG shall inform the Commission and the competent authorities of the Member States belonging to the risk group. The TSOs may suggest possible response measures.

For the purpose of a smooth application of this mechanism, it is important to note that the composition of the Baltic Sea risk group differs from the composition of the ReCo teams.

12.2.2 Competent authorities and regulators

In case the ReCo System for Gas gets activated for the Baltic Sea risk group, the competent authorities and regulators of the Member States belonging to the risk group will be immediately informed by ENTSOG about the results of the meetings of the ReCo Team East.

When the emergency level has been declared, the load distributors of the Member States belonging to the risk group will be in close contact with each other, in particular, in order to provide information on the expected scale of necessary cross-border restrictions on load flow.

Information provided by natural gas undertakings pursuant to Art. 14 (1) of EU Regulation 2017/1938 shall be shared with the Member States of the risk group.

12.2.3 Chain of Communication

The activation of the ReCo Team will be performed by the 24/7 operational teams of the TSOs and ENTSOG. After the meetings ENSTOG will inform ACER and EU Commission including the crisis management group, which consists of the affected Member States.

12.3 Solidarity among Member States

Pursuant to Art. 13 of EU Regulation 2017/1938, the member states of the Baltic Sea risk group are currently in the process of developing technical, legal and financial arrangements for solidarity measures. As these arrangements are agreed, they will be included in this paragraph.

A first proposal was circulated among group Member States and later discussed at a joint workshop in early 2019. Bilateral consultations are planned to follow.

13. Figures, tables and abbreviations

14. Abbreviations

BDEW	Association of Energy and Water Industries
BGM	Balancing group manager
BMWi	Bundesministerium für Wirtschaft und Energie (Federal Ministry for Economic Affairs and Energy)
BNetzA	Bundesnetzagentur (Federal Network Agency)
DIHK	Association of German Chambers of Commerce and Industry
DSO	Distribution system operator
DVGW	German Association for Gas and Water
EFET	EFET Germany - European Federation of Energy Traders - Germany
ISO	Input systems operator
EnSiG	Act to Ensure the Supply of Energy
EnWG	Energy Industry Act (Act on the supply of electricity and gas)
Gas TSO	Gas transmission system operator
FNB Gas	Association of gas transmission system operators
GasNZV	Gas Network Access Ordinance
GasSV	Ordinance to Ensure the Supply of Gas in a Supply Crisis
INES	Association of natural gas storage operators
KOV	Cooperation agreement between the operators of the gas supply systems located in Germany
kWh	Kilowatt-hour
MAM	Market Area Manager
NCG	NetConnect Germany (one of the two marketing areas)
OSO	Offtake systems operator
SoS Regulation	REGULATION (EU) No 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010
TC	Transport customer
USO	Underground storage operator
VKU	German Association of Municipal Enterprises
vzbv	Federation of German Consumer Organisations

Annex

List of possible market-based measures to ensure a secure gas supply

Supply-side measures

- Increasing flexibility of production
- Increasing flexibility of imports
- Facilitating feed-in of gas from renewable energy sources to the gas grid infrastructure
- Commercial gas storage
- Take-off capacity and stored volume of gas
- Capacity of LNG terminals and maximum take-off capacity
- Diversification of gas supplies and supply routes
- Reverse flow
- Coordinated sale by TSOs
- Use of long-term and short-term contracts
- Investment in infrastructure, including in capacities for flows in both directions
- Contractual agreements to safeguard the security of gas supply

Demand-side measures

- Use of interruptible contracts
- Possibilities to switch fuels, including use of substitute fuels in industrial plants and power stations
- Voluntary curtailment
- Better efficiency
- Increased use of renewables