

National Emergency Plan for Sweden's Natural Gas Supply

- in accordance with Regulation (EU) 2017/1938 of the European Parliament and of the Council

Ref.: 2018-017168

General information

The Swedish competent authority i.e. the Swedish Energy Agency is responsible for the preparation of the Swedish emergency plan. This document constitutes the emergency plan and refers to the Western Swedish natural gas system. Sweden and Denmark are in close cooperation with each other, which will be further integrated with a Joint Balancing Zone set to be implemented in April 2019. This plan is made with regards to these conditions and applies from 15th of April.

Consultation has taken place with Energigas Sverige (Swedish gas association), natural gas undertakings, Svenska kraftnät (Swedish electricity transmission system operator) as well as with the regional risk groups: Denmark, Norway and Baltic Sea.

Please note that this is not a certified translation, and that the original Swedish version of the plan is the binding document for actors on the Swedish gas market.

Contents

1. Definitions of crisis levels	3
2. Measures to be adopted per crisis level	5
2.1. Early Warning	5
2.2. Alert Level.....	6
2.3. Emergency.....	7
3. Specific measures for the electricity and district heating	13
3.1. District heating sector.....	13
3.2. Electricity sector.....	13
4. Crisis manager	14
5. Roles and responsibilities of different actors	15
5.1. Competent authority.....	17
5.2. System balancing operator	20
5.3. Transmission system operator.....	22
5.4. Distribution system operator	24
5.5 Gas suppliers	26
5.6. Balance administrators	28
5.7. Storage system operator	30
5.8. Large-scale customers (>20 GWh/year).....	32
5.9. Evaluation following declaration of a crisis level.....	34
6. Measures regarding undue consumption by customers who are not protected customers	35
7. Emergency tests	36
8. Regional Dimension	37
8.1. Measures to be adopted per crisis level.....	37
8.2. Cooperation mechanisms	37
8.3. Solidarity among Member States	37
Annex 1 – Styrgas	38
Annex 2 – Checklists for reporting	39

1. Definitions of crisis levels

The Swedish Energy Agency is responsible for declaring all crisis levels for the Swedish gas system. The Security of Supply Regulation stipulates that the emergency plan in each Member State should be based on three crisis levels: “early warning”, “alert” and “crisis”. At the different crisis levels, the responsible actors will act to alleviate the effects of the emerging situation. These measures are divided into market-based and non-market-based measures, where non-market-based measures can be used only when market-based mechanisms can no longer secure the supply and crisis-level crisis has been declared. When declaring a crisis level, the Swedish Energy Agency will immediately inform the Swedish Transmission System Operator (TSO), the competent authority in Denmark and within 24 hours the European Commission. The Swedish TSO, in turn, informs balance administrators and distribution system operators (DSOs). Balance administrators are responsible for informing gas suppliers and large customers¹.

The three crisis levels are defined as follow:

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;

alert level (‘alert’): where a disruption of gas supply or exceptionally high gas demand which results in significant deterioration of the gas supply situation, but the market is still able to manage that disruption or demand without the need to resort to non-market-based measures;

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.

Indicators used to assess an event

An indicator used to assess a possible deterioration of the supply situation is a declining pressure in the gas system, especially if the pressure drops below 45 bar. This is to ensure that there is sufficient line pack in order to provide protected customers with gas in case of interruptions according to Article 6.1. Besides this, the Swedish Energy Agency continuously monitors the North West European gas market, especially the Danish market, to identify at an early stage events that may have an impact on gas supply in Sweden. For example, expected

¹ Large customers are consumers using more than 20 GWh net calorific value gas per year

high demand combined with low supply and low inventory levels in Denmark, among other relevant parameters, are being monitored regularly. Each situation is unique and is therefore assessed regarding the current conditions.

2. Measures to be adopted per crisis level

Following table illustrates what measures are applicable at each crisis level.

	Early Warning	Alert	Emergency
Voluntarily measures			
Information measures consumption reduction	X	X	X
Market-based measures			
Market-based consumption reduction ²	X	X	
Non-market-based measures			
Enforced firm load shedding and subsequent connection of consumers ³			X
Enforced storage withdrawal			X
Use of strategic gas storage			X

The measures are described more detailed below, sorted after each crisis level. In cases where the measure may be applicable at different crisis levels, the measure is described below the level where it's first applicable.

2.1. Early Warning

Measure: Information measures consumption reduction

The competent authority conducts general information activities aimed at gas consumers that gas supply will be limited with the appeal for voluntary reduction of gas use. The competent authority informs the TSO and the Swedish Gas Association that such general information will be sent out. The TSO informs DSOs and balance administrators. Balance administrators in turn inform gas suppliers and large customers. This will be done, if possible, by email and/or telephone. The purpose is to reduce the consumption of gas.

Measure: Market-based consumption reduction

Large gas customers in Sweden participate in the Danish system for commercially interruptible customers (Hyper 3), which means that against

² The measure is applicable when crisis level alert is declared in Denmark and is thus applicable regardless crisis level in Sweden.

³ Reconnection of consumers after an enforced firm load shedding. Depending on the situation, the reconnection can be made regardless crisis level.

financial compensation they are prepared to quickly reduce their gas consumption by orders from the Swedish TSO based on instructions from the Danish TSO if crisis level alert is declared in Denmark. This type of agreement is also called interruptible contract. The purpose is to reduce consumption of gas. The measure is applicable when crisis level alert is declared in Denmark and is thus applicable regardless crisis level in Sweden.

2.2. Alert Level

See measures described in chapter 2.1.

Reporting obligations on alert level

In order for responsible organizations to be able to compile, make analyzes and make decisions, a common basic structure for the reporting will be used. By defining the timing, content, sender and recipient, work is facilitated for all those dealing with crisis management. This reporting should not be confused with the other ways of communications and decision-making created to handle the situation.

The reporting is on a daily basis and is based on normal proceedings. The time for when the balance administrators report their forecast regarding consumption and demand for the coming days is at 14.00. The reporting will be done according to the following structure.

Each day not later than	Reporter	Recipient	Content See explanation below the table
10.30	DSO, TSO and Storage System Operator (SSO)	The system balancing operator	3
16.00	The system balancing operator	Competent authority	1, 2, 3, 4

All daily reporting of power and energy data should be done in the higher heating value.

1. Forecasts for daily gas demand for the next three days. Disconnected customers' demand should not be included in the forecast.
2. Forecasts for daily gas supply for the next three days.

3. Daily gas flow at all cross-border entry and exit points as well as at all locations where a production facility, storage facility or LNG terminal connects to the network.

4. The period, expressed in days, for which gas supplies to protected customers are expected to be secured.

2.3. Emergency

There are no further market-based measurements to apply during emergency level than those already described in 2.1 and 2.2. There are no commercial agreements nor compensation mechanisms for natural gas undertakings, besides the on-going process of the solidarity agreement which will be described in chapter 8.3. Following non-market-based measures are applicable at crisis level emergency:

- enforced firm load shedding and subsequent connection of consumers
- enforced storage withdrawal
- use of strategic gas storage

These measures are described in more detail below.

Measure: Enforced firm load shedding and subsequent connection of consumers

When the crisis level applies, the total consumption of gas can be reduced or stopped, after which, when the supply situation has improved, consumption is resumed. Key players are the competent authority, TSO, DSOs and large gas customers.

The need for enforced firm load shedding and subsequent connection of consumers

Non-market-based measures must be used to enable Sweden to meet the supply standards in accordance to the Supply Regulation⁴, when market-based measures are not sufficient. The use of this measure is very difficult to estimate, both in terms of frequency and scope. Historic events with interruptions of gas supplies has been extremely limited. Therefore, a statistical basis for an estimation of future events do not exist.

Detailed Procedure at Enforced firm load shedding and subsequent restart of consumption

The measure of orderly consumption reduction becomes applicable when the effect of market-based measures is insufficient for gas supply to meet the demand for gas. For example, if there is an interruption of gas supply via the Öresund pipeline (from Denmark). The measure for an ordered reduction in consumption involves the system balancing operator ordering the owners of natural gas pipelines to restrict or stop the transmission of natural gas to customers. Each pipeline owner will receive information from the system balancing operator regarding the amount by which consumption is to be reduced (specified as

⁴ Art 6, Gas supply standard

output). The system balancing operator will divide the reduction in consumption proportionally between the pipeline owners based on the consumption at the time when a state of emergency is declared by the competent authority. The purpose of the measure is to reduce the demand for gas.

Execution of a reduction in consumption

When a pipeline owner receives orders from the system balancing operator to reduce consumption, the pipeline owner must use his disconnection plan to make an identification based on the prioritisation of gas customers made using Styrgas⁵ as to which customers must reduce their consumption. Each gas customer is classified according to the following order of priority in Styrgas.

1. Gas customers with an annual consumption of less than 3 GWh;
2. Gas customers that are of considerable importance for life and health;
3. Gas customers that are of considerable importance for the functioning of society;
4. Gas customers that are of considerable importance for the environment;
5. Gas customers that are of considerable importance in terms of social and cultural value;
6. Other gas customers that do not produce electricity;
7. Gas customers using gas to produce electricity.

Protected customers must not be included in the priority classes.

The reduction in consumption must take place through the disconnection of gas customers with the lowest possible priority (gas customers with the highest number in the priority classification). In cases where it is sufficient to limit or disconnect transfers to several gas customers in a priority class, the pipeline owner may determine how the reduction in consumption is to be divided between the gas customers in the priority classification in question.⁶

The pipeline owners must then implement the reduction in consumption within the times specified in the following table. The table illustrates the size of the respective customer category's total reduction in consumption that must have been implemented within no more than 3, 6, 12, 24, 48, 120 and 240 hours respectively.

⁵ See Annex 1 for more information on Styrgas.

⁶ *Example:* If a specific situation in a network means that it is sufficient to disconnect all gas customers in priority class 7 and some of the gas customers in priority class 6, all gas customers in class 7 must be disconnected and the pipeline owner may himself generally determine how the reduction in consumption is to be divided among the gas customers in class 6 (a small amount of gas to all customers, more gas to specific customers, or no gas to anyone, etc.), such that the requirement for the total reduction in consumption in the network is fulfilled.

Table 1. Time requirement for the execution of a reduction in consumption according to gas customer category.

Category of gas customer	Magnitude of the respective category's total reduction in consumption to be achieved as a minimum within a specific period of time [hours] following an order from the system balancing operator						
	≤ 3	≤6	≤ 12	≤24	≤48	≤120	≤240
<i>A. Cogeneration and heat plants</i>	100 %						
<i>B. Other gas customers > 20 GWh/year</i>	25 %	50 %	100 %				
<i>C. Other gas customers 3–20 GWh/year</i>	0 %	25 %	50 %	100 %			
<i>D. Other gas customers < 3 GWh/year</i>	0 %	0 %	0 %	0 %	35 %	75 %	100 %

Therefore, the priority under Styrgas is to determine the gas customers that must be disconnected in order to achieve a specific reduction in consumption. The purpose of the prioritisation is to minimize the social consequences, but taking into consideration prevailing technical and market factors.

The requirement for the disconnection period is based on what is possible, regardless of the way in which the prioritisation has been made.

Reconnection of gas customers – restart of consumption

The assumption behind the method described below is that a shortage of gas has been so severe that protected customers have also been disconnected. Therefore, certain aspects of the method may be applicable depending on the actual situation, i.e. the groups of customers that have been disconnected.

Pipeline owners must reconnect customers as a matter of urgency in accordance with the following method.

- Protected customers must be reconnected when the system balancing operator has determined that this is technically possible. The system balancing operator will then issue instructions to the pipeline owners that protected customers must be reconnected;
- Once it is technically possible, the system balancing operator will then give the signal that all pipeline owners may reconnect gas customers identified as being important for society. Gas customers identified as being important for society refers to gas customers in priority classes two and three;
- Once the system balancing operator has determined it is technically possible, and by no later than the time when the transmission system

operator has filled his line fill⁷, the system balancing operator will give the signal for all pipeline owners to reconnect other customers.

Expected contribution to mitigating the crisis-level situation as a complement to market-based measures

Enforced firm load shedding is expected to restore balance between supply of gas and the consumption of gas. This means that the transmission system function is ensured, and a time-consuming and risky restart of the system is avoided. The prioritization of consumers means that disconnection will minimize societal consequences but taking into account the technical and market conditions prevailing. Enforced firm load shedding is a more powerful measure than the market-based consumption reduction that is also available.

A systematic connection of consumers, as mentioned above, means the possibility of a technically safe connection based on how different customer groups have been prioritized.

Assessment of other effects of the measure

In case of an enforced firm load shedding there will be customers who will suffer from production losses and other economical values. Sectors who will be affected is for example the district heating sector, the electricity sector and the transportation sector. To what extent the sectors will be affected depends on the amount of gas which will have to be reduced as well as the sector's redundancy. More on the district heating- and electricity sector are described in chapter 3.

There is no gas production of significance and Sweden is not a transit country, which results in no effect on other Member States' gas supply.

Measure: Enforced storage withdrawal

In Sweden there is one gas storage, Skallen. When there is gas in the storage, there is the possibility of applying the measure requested injection and enforced withdrawal of storage. The measure is then used as a complement to the market-based measures available and orderly consumption reduction. Competent authority in this case instructs the system balancing operator to increase or decrease the injection or withdrawal of gas from the storage. At the requested withdrawal, the TSO informs the actor who has booked storage-capacity.

The purpose is to increase the amount of available gas for, if necessary and possible, delivery to protected customers at crisis level emergency.

Measure: Use of strategic gas storage

The System balancing operator ensures that, in accordance with a decision of the competent authority, there is sufficient gas available in the gas storage. This is achieved by the System balancing operator purchasing storage services and storing gas so that, together with other measures, there is sufficient amount of gas to ensure that protected customers can be supplied with gas under 30 days at

⁷ The quantity of gas required for the transmission system to be operative (average pressure of 55 bar).

normal winter conditions in case no gas is supplied to the Swedish gas system via the Öresund line.

The purpose with the measure is to be able to deliver gas to protected customers, by selling gas to balance administrators.

Reporting obligations on crisis level

The reporting obligations imposed on natural gas undertakings on emergency level build upon the reporting structure described under alert level. The additional reporting applies upon a decision from the competent authority or the commission.

Each day not later than	Reporter	Recipient	Content See explanation below the table
10.30	TSO, DSO and SSO	The system balancing operator	3
16.00	The system balancing operator	Competent authority	1, 2, 3, 4
17.00	<i>Competent authority</i>	<i>EU-commission</i>	<i>1, 2, 3, 4, 5</i>
17.00	<i>Competent authority</i>	<i>For information to:</i> <i>- Swedish Civil Contingencies Agency</i> <i>- Government Offices of Sweden</i> <i>- TSO</i>	<i>1, 2, 3, 4, 5</i>
17.30	The system balancing operator	<i>-TSO</i> <i>-DSO</i> <i>-Balance administrator</i>	<i>1, 2, 3, 4, 5</i>

All daily reporting of power and energy data should be done in the higher heating value.

1. Forecasts for daily gas demand for the next three days. Disconnected customers' demand should not be included in the forecast.

2. Forecasts for daily gas supply for the next three days.
3. Daily gas flow at all cross-border entry and exit points as well as at all locations where a production facility, storage facility or LNG terminal connects to the network.
4. The period, expressed in days, for which gas supplies to protected customers are expected to be secured.
5. Measures taken and forthcoming, as well as requirements from and to other competent authorities.
 - a. Information on actions that the competent authority has planned to take and has already been implemented to mitigate the crisis and information on their effectiveness,
 - b. The requirements imposed on other competent authorities to take additional measures,
 - c. Information on the actions taken at the request of other competent authorities.

3. Specific measures for the electricity and district heating

3.1. District heating sector

There are a few CHP that use natural gas in their production, but they have the possibility to switch to another fuel in case of a short disruption of natural gas supplies. In areas where large gas customers in the industry are significant contributors to the local district heating system, a disruption of natural gas supplies may have an effect on district heating supplies. There are large gas customers in the industry who can switch to another fuel, but for many of these companies a fuel switch would lead to increased costs for the companies. Examples of increased costs this potentially could lead to are loss of production, increased storage capacity, technical adjustments and/or rebuilding. If the replacing fuel is oil-based products, this also must be harmonizing with Swedish law regarding permissible emissions.

The Swedish Energy Agency intends to further deepen the knowledge about the potential effects on the district heating supplies in case of disruptions in natural gas supplies to Sweden and have therefor initiated a dialogue with concerned actors. This dialogue is set to continue after the establishment of the Emergency plan, in order to identify potential effects and reasonable measures to mitigate the potential effects.

3.2. Electricity sector

There are a few CHP that use natural gas in their production, but they have the possibility to switch to another fuel in case of a short disruption of natural gas supplies. Öresundsverkets ineligibility since 2016⁸, however, have had a negative impact on the short term effect balance in southern Sweden.

Svenska kraftnät (the authority responsible for ensuring that Sweden's short term effect balance is in order) have ensured access to a back-up in southern Sweden through a number of long term contracts with installed effect of 1358 MW⁹. The back-up is a solution to temporary balancing the effect.

The Swedish Energy Agency and Svenska kraftnät shall exchange information and coordinate their response, including before as well as, in the event of a disruption in natural gas supplies which may have an effect on the electricity sector.

⁸ <https://www.uniper.energy/sverige/reservkraft/oresundsverket>

⁹ Svenska kraftnät. *Systemutvecklingsplan 2018-2027* (2017:43)

4. Crisis manager

The competent authority, the Swedish Energy Agency, is responsible for declaring crisis levels in the Swedish natural gas system. In addition, the competent authority is responsible for the contacts with the EU Commission and the competent authorities of other Member States pursuant to the Supply Regulation.

The Swedish Energy Agency have a point of contact which is available 24/7. In case of a potential disruption of gas supply or disruption of gas supply, a crisis manager is appointed at the Swedish Energy Agency, who is responsible for the crisis management and has the mandate to decide on crisis levels. If needed, the crisis manager may call upon a support team.

5. Roles and responsibilities of different actors

In order to deal with disruptions and interruptions in the gas supply, each actor must have an ability to act together during a disturbance as well as an individual ability. Collaboration means, for example, to create a common situational picture¹⁰ of the situation or, if necessary, to coordinate and prioritize. The purpose is to prevent - or alleviate - the potential societal consequences of the disorder. This requires that every actor should be able to activate a crisis organization that can work with other actors. Since the conditions are different for different actors, this plan does not specify any detailed description of the crisis organizations' design for each player. Therefore, a simplified model is described below with the most important abilities that a crisis organization should have.



Figure 1 model of important abilities in crisis management

Lead in crisis (Red) includes the ability to lead the execution of the planned measures according to this plan. The measures are carried out in cooperation with other actors. The crisis management plans, implements and monitors the measures. A clear mandate to make decisions about how one's own organization should handle the situation is of particular importance.

Reporting and analyzing (Blue) are important for making the right decision. Crisis organizations should have the ability to compile and send reports according to reporting routines and be able to analyze the situation within their own area of responsibility in the short term (days) and long term (weeks, months).

¹⁰ A situational picture is a selection of particularly important aspects from available information, for example descriptions and assessments of an ongoing event. Creating position images means that an actor, or several together, systematically follows, describes and analyzes an event development. The purpose is to facilitate assessments of the event and its consequences in order to be able to take appropriate and coordinated actions, either individually or in the actor-group.

Crisis communication (Green) is important in order give an overall picture of the event to the public and the media. It is important that the actors in the industry cooperate so that the messages do not diverge between different actors.

Collaboration with relevant actors (Brown) takes place, inter alia, through collaboration conferences led by the competent authority or the county administrative board concerned, where representatives from the industry discuss the situation. There must be an ability to lead / attend such conferences and handle other contacts with actors in society. Each actor is responsible for implementing the collaboration required to solve their own tasks in a crisis situation.

The national crisis management structure and the abilities required by each actor for joint crisis management are presented in the figure below:

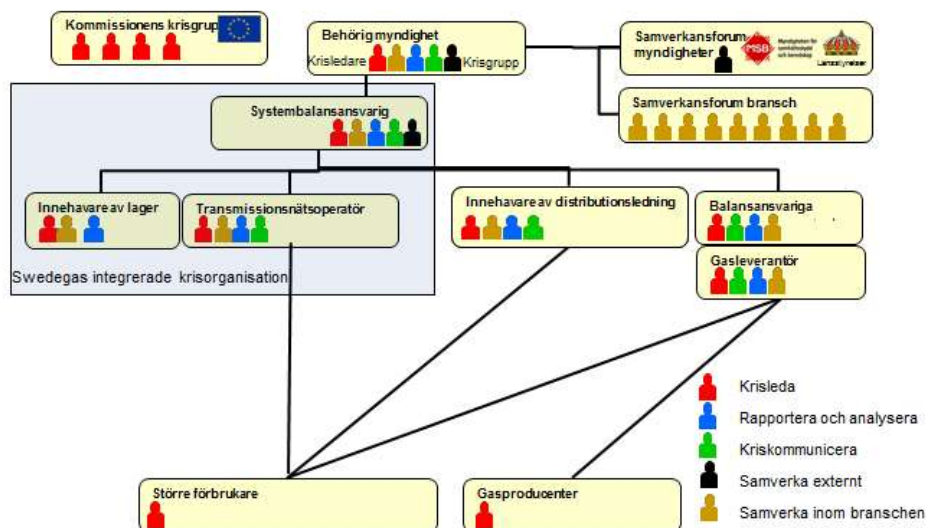


Figure 2 Overview of the crisis organizations' cooperation structure

The picture also shows how the actors mainly relate to each other when it comes to communication and management as well as what abilities (the colored silhouettes) that should exist according to this plan. It does not prevent actors from acquiring more abilities than what the picture indicates.

According to the regulation, the crisis plan must establish roles and responsibilities for each level of crisis. This section below describes what the respective actor is responsible for preparing and what measures should be taken at the different crisis levels.

5.1. Competent authority

The Swedish Energy Agency is the competent authority in Sweden. The competent authority is responsible for declaring crisis levels in the Western Swedish natural gas system. Furthermore, the competent authority is responsible for the contact with the EU Commission and the competent authorities of other Member States resulting from the Supply Regulation.

Competent authority is operationally responsible for:

1. Declaring any of the crisis levels described in section one.
2. Providing a contingency function that can activate a crisis manager, which in turn can report to the Commission no later than 24 hours after the declaration of any crisis level.
3. Competent authority's crisis manager:
 - a. Is able to participate in the EU Commission's crisis group
 - b. Has a decision mandate for issues concerning the management of the crisis situation, including declaring a crisis level.
4. Is able to activate a crisis organization according to section 5.
5. Is able to conduct a collaborative conference where the competent authority leads and coordinates the work by, among other things, recurring calls to meetings with other relevant actors in the natural gas industry. At the meetings, the following should be addressed:
 - a. Measures taken and its effects and plan future actions
 - b. Conclusions from analyzes made
 - c. Create and implement plans for communication with the media and the public
 - d. Create and implement plans for how collaboration should take place with other local, regional and national actors
6. Be able to keep the government informed.
7. Be able to participate in external parties' collaboration forums at national level (the Swedish Civil Contingencies Agency) and at the regional level (county administrative boards).
8. Be able to maintain contact with the EU Commission and competent authority in Denmark and Germany.

9. Be able to provide the EU Commission's monitoring and information center for civil protection with information on possible help needs.

10. Decide on changing the crisis level.

11. Decide on return to normal operation.

When crisis levels are declared, it must be possible for the following measures to be taken:

<p>At all crisis levels</p>	<p>General measures</p> <ul style="list-style-type: none"> - Inform about the crisis level declared - Collaborate with industry and other stakeholders - Follow up and analyze the effects of measures taken - If necessary, correct measures taken - If necessary, decide on measures that deviate from the crisis plan - Implement general information consumption reduction
<p>Early warning</p>	<p>General measures</p> <ul style="list-style-type: none"> - Prepare activation of crisis organization
<p>Aler</p>	<p>General measures</p> <ul style="list-style-type: none"> - Activate the crisis organization and lead the crisis work together with other actors
	<p>Market-based measures</p> <ul style="list-style-type: none"> -
<p>Crisis</p>	<p>General measures</p> <ul style="list-style-type: none"> - Activate the crisis group and lead the crisis work together with other actors - Decisions on daily reporting shall be made in accordance with 2.3
	<p>Market-based measures</p> <ul style="list-style-type: none"> -
	<p>Non- market-based measures</p> <ul style="list-style-type: none"> -

5.2. System balancing operator

The system balancing operator has the overall responsibility for ensuring that the balance between input and withdrawal of gas is maintained in the short term. This is done, for example, by balancing area management (in the case of joint balancing with Denmark) or system balancing operator (in the case of national balancing), monitoring the pressure in the transmission network and taking any measures in the event of imbalances. Through agreements with the balance administrators, the imbalances that arise if the planned entry does not correspond to actual withdrawals are regulated.

The system balancing operator's task is to compile incoming reports and assess the supply situation. The system balancing operator must, with given mandates, execute the market-based and non-market-based measures according to this plan. The operating organization is available around the clock and it manages the balance in the natural gas system both during normal operation and during a supply disruption.

The system balancing manager is operationally responsible for:

1. Inform the market according to template in appendix two.
2. Give recommendation to the competent authority on the level of crisis that should be declared with justification for this or if no crisis level should apply at all.
3. Be able to report to competent authority according to 2.2
4. Be able to activate a crisis organization according to section 5 with the least ability to crisis management, report and analyze, crisis communication, collaborate externally and collaborate within the industry
5. Have ongoing contacts with TSO in Denmark, among other things to get updates on what is happening in Denmark.
6. Following a decision by the competent authority, instruct the DSO to connect consumers according to the described action in section 2.

When crisis levels are declared, it must be possible for the following measures to be taken:

At all crisis levels	General measures - When any crisis level is declared, inform the stakeholders - Implement targeted consumption reduction information measures
Early Warning	General measures - Prepare activation of the crisis organization.
Alert	General measures - Activate crisis organization. - Report according to 2.2
Crisis	General measures - Activate crisis organization
	Market-based measures -

5.3. Transmission system operator

The transmission system operator (TSO) is responsible for the transmission of natural gas in the transmission system. The TSO responds that its pipeline system is secure, reliable and efficient. It is a key player when it comes to exchanging information in the gas market. The TSO measures and reports the amounts of energy in the entry points, outlet points and boundaries of the transmission network, and provides the system balancer with the information required to be able to settle deliveries and regulate the balance in the natural gas system.

The TSO shall establish and follow a preventive action plan and a crisis plan.

The transmission system operator is operationally responsible for:

1. Have a plan for how a consumption reduction should be implemented if one is ordered from the system balancing operator and able to implement this.
2. Identify serious deviations in the function of the transmission system infrastructure and inform the system balancing operator about these according to the template in appendix two.
3. Be able to keep in touch with TSO in Denmark regarding issues concerning the infrastructure.
4. Be able to activate a crisis organization according to section 5 with the least ability to crisis management, report and analyze, crisis communication and collaborate within the industry.
5. Connect customers according to instructions from the system balancing operator.

When crisis levels are declared, it must be possible for the following measures to be taken:

At all crisis levels	General measures - Cooperate with industry and other stakeholders.
	Market-based measures - In the case of instruction from Danish TSO, order market-based consumption reduction
Early warning	General measures Prepare activation of crisis organization
Alert	General measures - Activate crisis organization. - Report according to 2.2
	Market-based measures -
Crisis	General measures - Activate crisis organization. - Report according to 2.2
	Market-based measures -
	Non-market-based measures - In accordance with instructions from the system balancing operator, limit or interrupt the transfer of natural gas to customers or order customers to limit or discontinue gas consumption

5.4. Distribution system operator

Distribution system operators (DSO) are responsible for the gas being transferred through the distribution network to the gas consumers. The DSO responds that its pipeline system is secure, reliable and efficient. DSOs are a key player in the information exchange that takes place on the gas market. The holder measures and reports measured amounts of energy in input and output points and provides the system balancing operator with the information required to be able to settle deliveries and regulate the balance in the natural gas system.

The DSO must establish and follow a preventive action plan and crisis plan.

DSO are operationally responsible for:

1. In the event of serious events that may adversely affect the national natural gas supply, inform the system balancing operator about deviations according to the template in Appendix 2.
2. Have a plan for how a consumption reduction should be implemented if this is ordered from the system balancer and able to technically implement this.
3. Be able to activate a crisis organization according to section 5 with the least ability to crisis management, report and analyze, crisis communication and collaborate within the industry.
4. Connection of consumers according to instructions from the system balancing operator.

When crisis levels are declared, it must be possible for the following measures to be taken:

At all crisis levels	<p>General measures</p> <ul style="list-style-type: none"> - Cooperate with industry and other stakeholders - Implement targeted consumption reduction information measures
Tidig varning	<p>General measures</p> <ul style="list-style-type: none"> - Prepare activation of crisis organization
Beredskap	<p>General measures</p> <ul style="list-style-type: none"> - Activate crisis organization. - Report according to 2.2
	<p>Market-based measures</p> <ul style="list-style-type: none"> -
Kris	<p>General measures</p> <ul style="list-style-type: none"> - Activate crisis organization. - Report according to 2.2
	<p>Market-based measures</p> <ul style="list-style-type: none"> -
	<p>Non-market-based measures</p> <ul style="list-style-type: none"> - In accordance with instructions from the system balancing operator, limit or cancel the transfer of natural gas to customers or order customers to limit or discontinue gas consumption.

5.5 Gas suppliers

Gas suppliers are the market actors that trade in gas. Gas suppliers sell and deliver gas to consumers. According to the Swedish natural gas act a gas supplier may only deliver gas through a network exit point that someone has taken the balance responsibility for. The gas supplier can choose to assume this responsibility or to assign it to another company.

Gas suppliers shall establish and follow an emergency plan.

Gas suppliers have the operational responsibility for:

1. Informing the system balancing operator about deviations according to the template in annex 2 in case of serious incidents that may have a negative effect on the national supplies of natural gas.
2. Being able to activate an emergency response team in accordance with section 5 capable, at least, of crisis management, reporting and analyzing and cooperating within the industry.
3. Having a plan for how protected customers can be supplied with gas in cases where deliveries of gas through the Öresund pipeline are fully or partially unavailable.
4. Having a plan for how gas can be delivered to customers that are reconnected.

When crisis levels are declared, it must be possible for the following measures to be taken:

At all crisis levels	General measures - Cooperate with industry and other relevant actors.
Early warning	General measures - Prepare to activate emergency response team.
Alert	General measures - Activate emergency response team.
	Market-based measures -
Emergency	General measures - Activate emergency response team. - Procure gas at least for protected customers.
	Market-based measures -
	Non-market-based measures -

5.6. Balance administrators

The balance administrators bear the economic responsibility for ensuring that the balance is maintained between supplied and consumed gas in the entry and exit points that are covered by the balance responsibility. The actor that assumes the balance responsibility signs an agreement on balance responsibility with the system balancing operator.

Balance administrators shall establish and follow an emergency plan.

Balance administrators have the operational responsibility for:

1. Informing the system balancing operator about deviations according to the template in annex 2 in case of serious incidents that may have a negative effect on the national supplies of natural gas.
2. Being able to activate an emergency response team in accordance with section 5 capable, at least, of crisis management, reporting and analysing and cooperating within the industry.
3. Having a plan for how gas can be delivered to gas suppliers with protected customers.
4. Having a plan for how gas can be delivered to customers that are reconnected.

When crisis levels are declared, it must be possible for the following measures to be taken:

At all crisis levels	<p>General measures</p> <ul style="list-style-type: none"> - Cooperate with the industry and other relevant actors. - Maintaining the system balance according to responsibility
Early warning	<p>General measures</p> <ul style="list-style-type: none"> - Prepare to activate emergency response team.
Alert	<p>General measures</p> <ul style="list-style-type: none"> - Activate emergency response team. - Reporting in accordance with section 2.2.
	<p>Market-based measures</p> <ul style="list-style-type: none"> -
Emergency	<p>General measures</p> <ul style="list-style-type: none"> - Activate emergency response team. - Reporting in accordance with section 2.2.
	<p>Market-based measures</p> <ul style="list-style-type: none"> -
	<p>Non-market-based measures</p> <ul style="list-style-type: none"> -

5.7. Storage system operator

Storage system operator (SSO) store natural gas for the actors on the market. There is one storage facility in Sweden, Skallen.

The SSO shall establish and maintain a preventative action plan and an emergency plan.

SSO have the operational responsibility for:

1. Informing the system balancing operator about deviations in the functioning of the storage facility according to the template in annex 2.
2. Being able to report in accordance with section 2.2.
3. Being able to activate an emergency response team in accordance with section 5 capable, at least, of crisis management, reporting and analyzing and cooperating within the industry.

When crisis levels are declared, it must be possible for the following measures to be taken:

At all crisis levels	General measures - Cooperate with the industry and other relevant actors.
Early warning	General measures - Prepare to activate emergency response team.
Alert	General measures - Activate emergency response team - Reporting in accordance with section 2.2.
	Marknadsbaserade åtgärder -
Emergency	General measures - Activate emergency response team - Reporting in accordance with section 2.2.
	Market-based measures -
	Non-market-based measures - Inject or extract gas from the storage facility in accordance with instructions from the system balancing operator.

5.8. Large-scale customers (>20 GWh/year)

Large-scale customers are those that consume more than 20 GWh gas per year, e.g. industries, heat plants and power plants. All gas customers must have an agreement with a gas supplier to be able to buy gas, as well as a network agreement with the network owner who is responsible for the pipeline to the customer.

Large-scale customers shall establish and follow an emergency plan.

Large-scale customers are responsible for:

1. Having plans in place to be able to reduce or stop their consumption of gas following an instruction from the owner of the pipeline;
2. Being able to activate an emergency response team in accordance with section 5 capable, at least, of crisis management;
3. Providing gas suppliers with a forecast of their gas consumption following reconnection.

When crisis levels are declared, it must be possible for the following measures to be taken:

At all crisis levels	General measures - Cooperate with the industry and other relevant actors.
	Market-based measures - Customers that have entered into hyper 3 agreements must reduce their consumption in accordance with system balancing operator instructions ¹¹ .
Early warning	General measures - Prepare for activation of emergency response team.
Alert	General measures - Activate emergency response team.
	Market-based measures -
Emergency	General measures - Activate emergency response team.
	Market-based measures -
	Non-market-based measures - Reduce or stop consumption of gas following an instruction from the DSO.

¹¹ Applicable when crisis level alert is declared in Denmark.

5.9. Evaluation following declaration of a crisis level

The declaration of a crisis level should always be evaluated by, at least, the system balancing operator and the competent authority. Suitable areas of focus are points of decisions, societal consequences, the effects of measures taken and how well different actors were able to cooperate.

After an emergency, the competent authority shall, as soon as possible and at the latest six weeks after the lifting of the emergency, provide the Commission with a detailed assessment of the emergency and the effectiveness of the measures implemented, including an assessment of the economic impact of the emergency, the impact on the electricity sector and the assistance provided to or received from, the Union and its Member States.

Such assessment shall be made available to the Gas Coordination Group and shall be reflected in the updates of the preventive action plans and the emergency plans so that all affected actors can take part of the result. Affected actors shall, if needed, participate or support the competent authority in the evaluation.

6. Measures regarding undue consumption by customers who are not protected customers

When emergency has been declared, the total consumption of gas can be reduced, or if necessary, stopped. Key players are the competent authority, TSO, DSOs and large gas customers. Large gas customers are then ordered by the DSO to limit or interrupt the consumption of gas. If any large customer fails to follow the instructions, DSO will physically restrict or interrupt the transmission of gas to the customer. In the event of a gas shortage situation that requires other consumers, besides protected customers, to interrupt their consumption, this is physically ensured by the relevant pipeline owner.

In addition to this, the competent authority exercises proactive supervision of natural gas undertakings and large customers to ensure that they know what measures can be applied in a crisis situation. Also, to ensure that there is a plan for a safe disconnection and connection of consumers, from a technical point of view.

7. Emergency tests

For those Swedish customers that participate in the Danish system of commercial interruptible customers (Hyper 3), data and communication tests are carried out yearly in October/November by the Danish TSO. For new commercially interruptible customers, a full-scale reduction test is required.

During year 2020-2021, The Swedish Energy Agency is planning on perform at least one exercise with natural gas undertakings, based on a scenario with disruption of natural gas supplies to Sweden.

8. Regional Dimension

8.1. Measures to be adopted per crisis level

Measures to be adopted per crisis level by the Swedish Energy Agency are described in chapter 2. Since Sweden doesn't transfer natural gas to any other country, there are no further measures with a regional effect to apply.

8.2. Cooperation mechanisms

Sweden is member of three regional risk groups:

- Risk group Denmark

Denmark, Germany, Luxembourg, Netherlands and Sweden

- Risk group Norway

Belgium, Denmark, Germany, Ireland, Spain, France, Italy, Luxembourg, Netherlands, Portugal, Sweden and United Kingdom

- Risk group Baltic Sea

Belgium, Czech Republic, Denmark, Germany, France, Luxembourg, Netherlands, Austria, Slovakia and Sweden

Sweden and Denmark are in close cooperation with each other, during normal operation as well as when a situation with disruption of natural gas supplies occurs. The competent authority in Sweden is assessing the situation in dialogue with the competent authority in Denmark and other relevant actors, from a Swedish security of gas supply-perspective. Each situation is unique and will therefore have to be assessed based on the current conditions.

8.3. Solidarity among Member States

Sweden are currently in the process of implementing the solidarity agreement in accordance with those standards set on a receiving country. This agreement is expected to be in place later this year and will therefore be described in more detail at that time.

Annex 1 – Styrgas

The Swedish Energy Agency has prepared a method for the planning and prioritization of gas customers important to society in the case of a situation requiring the system balancing manager to order the owners of natural gas pipelines to restrict or stop the transfer of natural gas to customers. This method is referred to as Styrgas. Styrgas forms part of the emergency planning, and, amongst other things, aims to mitigate the impact on society in the situation of a gas shortage. The first planning round for Styrgas was performed in 2011, and a second planning round was performed in 2015. A third round is planned in 2019.

Styrgas may be summarized as the planning process in which county administrative boards, municipal authorities TSO and DSO work together to prioritize gas customers. The result of the Styrgas planning forms the basis used in the TSO and DSO disconnection plans. These disconnection plans must be used in a situation requiring the system balancing manager to order the TSO and the DSO to restrict or stop the transfer of natural gas to customers. This may only be done after the responsible authority has declared emergency level.

The purpose of the Styrgas planning is to enable Sweden to fulfil the requirements of the Security of Supply Regulation with regard to so-called protected customers, and to mitigate the impact on society and ensure that the gas system does not become depressurized.

During the planning, participating organizations may have or gain access to information that may be sensitive in terms of information security. Therefore, organizations responsible for and participating in the Styrgas planning must pay particular attention to issues of security protection and confidentiality in the same way as for other emergency planning work.

Annex 2 – Checklists for reporting

This annex contains checklists to simplify and clarify the reporting described in 2.2 for actors on the Swedish market, and is therefore not included in the English version.