

# **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.: 2020-002010

Version 1.3 (16 February 2022)

## General information

The Swedish Energy Agency is the competent authority according to Regulation (EU) 2017/1938<sup>1</sup> and 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 cooperate closely on security of supply and the natural gas markets are since April 2019 parts of a joint balancing zone. Version 1.0 of this plan was valid as of 15 April 2019.

The plan has been updated with revised methods for load shedding. A consultation on this update has been conducted with all natural gas undertakings, large customers, relevant regional administrations as well as with the industry association Energigas Sverige.

*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.*

Eskilstuna, 16 February 2022

Robert Andrén

Gustav Boëthius

Director General

Project Manager

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<sup>1</sup> 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

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# 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 *emergency*. 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 *emergency* has been declared. When declaring a crisis level, the Swedish Energy Agency will immediately inform the Swedish system balance administrator, the competent authority in Denmark and the European Commission. The Swedish system balance administrator, in turn, informs distribution system operators, balance administrators and gas suppliers. Distribution system operators are responsible for informing large customers<sup>2</sup>.

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 in Regulation (EU) 2017/1938.

Besides this, the Swedish Energy Agency continuously monitors the European gas market to proactively identify events that may have an impact on gas supplies

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<sup>2</sup> Large customers are consumers using more than 20 GWh net calorific value gas per year

to Sweden. For example, forecasts on 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. The assessment is carried out in close dialogue with the Swedish system balance administrator as well as with the competent authority, system balance administrator and transmission system operator in Denmark.

In accordance with article 10.1 of Regulation (EU) 2017/1938, this national emergency plan outlines the procedures and measures undertaken during the three crisis levels.

## 2. Measures to be adopted per crisis level

The following table outlines what measures are applicable at each crisis level.

	Early Warning	Alert	Emergency
<b>Voluntarily measures</b>			
Information measures	X	X	X
Collaboration conference	X	X	X
<b>Market-based measures</b>			
Market-based consumption reduction		X <sup>3</sup>	
<b>Non-market-based measures</b>			
Manual firm load shedding			X
Planned firm load shedding			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 at the level where it's first applicable.

### 2.1. Early Warning

#### **Measure: Information measures**

The competent authority, system balancing operator and relevant distribution system operators, as needed and in collaboration, inform gas consumers that gas supplies may or will be reduced, in combination a plea for a voluntary reduction of gas consumption.

The system balance administrator informs the distribution system operators and balance administrators that such general information has been sent out. The distribution system operators inform relevant gas consumers. This will be done,

<sup>3</sup> The measure is applicable when crisis level alert is declared in Denmark and is thus applicable regardless crisis level in Sweden.

if possible, by email and/or telephone. The purpose is to reduce the consumption of gas and to make gas available for prioritized groups.

***Measure: Collaboration conference***

The competent authority and system balance administrator conduct a joint collaboration conference together with distribution system operators, balance administrators, gas consumers and relevant regional administrations. The collaboration conference aims at informing market actors about the supply situation and at gathering specific information for preparing any firm load shedding. The information gathering can take place during the collaboration conference or via email.

## **2.2. Alert**

***Measure: Market-based consumption reduction***

Large gas customers in Sweden can participate in the Danish system for commercially interruptible customers (Hyper 3), which means that against financial compensation they are prepared to quickly reduce their gas consumption by orders from the Swedish transmission system operator based on instructions from the Danish transmission system operator. This type of agreement is also called interruptible contracts. The purpose is to reduce the consumption of gas to make more gas available in the system. The measure is applicable when crisis level *alert* is declared in Denmark and is thus applicable regardless crisis level in Sweden.

***Reporting obligations during the alert crisis level***

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 daily reporting will be done according to the following structure:

Each day not later than	Reporter	Recipient	Content See explanation below the table
10.30	Distribution system operator, transmission system operator and storage system operator	System balance administrator	3
14.00	Balance administrator	System balance administrator	1, 2
16.00	System balance administrator	Competent authority	1, 2, 3, 4

All daily reporting of power and energy data should be done in gross calorific values.

1. Forecasts for daily gas demand for the next three days.
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 gas system.
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 sections 2.1 and 2.2 above. 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 section 8.3 below. The following non-market-based measures are applicable at crisis level *emergency*:

- Manual firm load shedding
- Planned firm load shedding
- Enforced storage withdrawal
- Use of strategic gas storage

These measures are described in more detail below.

### About firm load shedding

A firm load shedding can be carried out when the crisis level *emergency* has been declared by the competent authority. A customer's consumption of gas is reduced or stopped entirely and can be resumed when the supply situation improves. The most important actors within the context of this measure are the competent authority, the system balance administrator, the transmission and distribution system operators, and the large customers.

Non-market-based measures must be used in Sweden to meet the supply standard<sup>4</sup>, when market-based measures are not sufficient. In Sweden firm load shedding is the main measure that can be taken to secure deliveries to protected customers<sup>5</sup> and to limit the effects of a severe supply disruption.

A firm load shedding is executed within the timeframes outlined in Table 1 below. The table shows how large a consumption reduction each category of gas customer must achieve within 3, 6, 12, 24, 48, 120 and 240 hours.

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

<b>Category of gas customer</b>	<b>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 balance administrator</b>						
	<b>≤ 3</b>	<b>≤6</b>	<b>≤ 12</b>	<b>≤24</b>	<b>≤48</b>	<b>≤120</b>	<b>≤240</b>
<i>A. Cogeneration and heat plants</i>	100 %						
<i>B. Other gas customers &gt; 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 &lt; 3 GWh/year</i>	0 %	0 %	0 %	0 %	35 %	75 %	100 %

The requirement for the disconnection period is based on what is technically possible, regardless of the way in which the prioritisation has been made (see *Styrgas*).

<sup>4</sup> See article 6.1 in Regulation 2017/1938: Gas supply standard.

<sup>5</sup> See article 2.5 in Regulation 2017/1938: Definitions. In Sweden protected customers are household customers. They constitute around 2% of national gas consumption. In Sweden household customers are also solidarity protected customers in accordance with article 2.6 in Regulation 2017/1938.

### Results of a firm load shedding

A firm load shedding is expected to re-establish the balance between the supply and the consumption of gas in the Western Swedish natural gas system. The overall customer prioritization ensure that the firm load shedding minimizes the societal impacts, while also taking into consideration technical and market-based limitations.

### Assessment of other effects of the measure

Customers will suffer losses if a firm load shedding is carried out. These losses include costs for alternative fuels, lost production and in damages to facilities in the worst case. All sectors that consume gas can be affected, including district heating, electricity generation, the transport sector and other economic and essential social services. The extent of the impact on these sectors depends on the extent on the firm load shedding in combination with the existing redundancy within the sectors. The consequences for electricity and district heating are described in more detail in section 3 below.

There is today no significant gas production in Sweden and Sweden is not a transit country. This means that the measures that are taken in Sweden will not have consequences for another EU member state's security of supply.

### **Measure: Manual firm load shedding**

#### The need for manual firm load shedding

Manual firm load shedding should be used to distribute small to medium-sized load sheddings on the market where there is sufficient time for the competent authority to make decisions in specific cases. Within the framework of this measure the competent authority decides how the firm load shedding will be distributed.

#### Procedure for manual firm load shedding

The competent authority distributes the firm load shedding by making decisions on specific consumption limitations or sales restrictions<sup>6</sup>. The decisions are based on the general disconnection plans (see *Styrgas*), information that has come forth through the crisis management, information that the competent authority has obtained through supervision activities (Swedish: *tillsyn*<sup>7</sup>), as well as current operational information on the natural gas system. The decision is executed by the transmission system operator and the distribution system operators.

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<sup>6</sup> Decisions on sales restrictions are aimed at market actors that extracts gas from the Western Swedish natural gas system and sells it to customers. This mainly concerns companies that sell gas to vehicles. In these cases, the competent authority and the system balance administrator have no information on the gas volumes that are sold to customers who provide essential social services. The competent authority therefore decides to restrict the sales of the gas that is extracted from the Western Swedish natural gas system only to customers that provide essential social services.

<sup>7</sup> The competent authority carries out inspection (*tillsyn*) in accordance with 5-7 §§ *lagen (2012:273) om trygg naturgasförsörjning* (the Swedish national security of supply law)

### ***Measure: Planned firm load shedding***

#### The need for planned firm load shedding

In the majority of cases the system balance administrator acts independently through planned firm load shedding. Planned firm load shedding shall therefore be applied except where there are specific reasons and where it is possible to use manual firm load shedding.

#### Procedure for planned firm load shedding

Planned firm load shedding distributes a firm load shedding according to the general disconnection plans (see *Styrgas*). Each system operator gets information on a demand reduction from the system balance administrator. The firm load shedding is distributed between the system operators according to the system balance administrator's own general disconnection plan.

#### Styrgas

Styrgas is a process for prioritizing gas consumers. It is a part of the national crisis preparedness and aims to minimize the impact on society of a gas supply incident.

The competent authority, regional administrations, local councils and system operators cooperate to prioritize gas customers. The result of this work is the information that is used to establish the system balance administrator's general disconnection plan and the distribution system operators' regional disconnection plans. The disconnection plans should be used when carrying out a planned firm load shedding and are also an important source of information when carrying out a manual load shedding. Participants shall observe security of information aspects of this work.

In the Styrgas planning process, gas customer are ranked according to the following order of priority:

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 and the gas consumption that is necessary to maintain system operations 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, and if nothing else is stated by the general disconnection plan or by any decisions by the competent authority, the distribution system operators may determine how the reduction in consumption is to be divided between the gas customers in the priority classification in question.

### Reconnection of gas customers

The competent authority shall adapt the crisis level when the supply situation improves, and disconnected gas customers must be reconnected as quickly as possible. The system balance administrator gives the system operators instructions on reconnections in accordance with the following method:

- In case protected customers have been disconnected, these must be reconnected first.
- Thereafter, once it is technically possible, essential social services will be reconnected. This refers to gas customers in priority classes two and three in Styrgas.
- Once it is technically possible, and no later than when the transmission system operator has filled the line pack, all other gas customers will be reconnected.

### **Measure: Enforced storage withdrawal**

In Sweden there is one gas storage, Skallen. The measure enforced storage withdrawal is used as a complement to the measures that are used during crisis level *emergency*. The competent authority in this case instructs the system balance administrator to increase or decrease the injection or withdrawal of gas from the storage. At the requested withdrawal, the transmission system operator 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 balance administrator 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 balance administrator 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 normal winter conditions in case no gas is supplied to the Western Swedish gas system via the Öresund pipeline.

The purpose with the measure is to make available stored gas for protected customers during crisis level *emergency*.

### **Reporting obligations on crisis level**

The reporting obligations imposed on natural gas undertakings on emergency level build upon the reporting structure described under the crisis level *alert*. The additional reporting obligations in italics in the table below applies upon a decision from the competent authority or the European Commission.

Each day not later than	Reporter	Recipient	Content See explanation below the table
10.30	Transmission system operator, distribution system operator and storage system operator	System balance administrator	3
14.00	Balance administrator	System balance administrator	1, 2
16.00	The system balance administrator	Competent authority	1, 2, 3, 4
<i>17.00</i>	<i>Competent authority</i>	<i>European Commission</i>	<i>1, 2, 3, 4, 5</i>
<i>17.00</i>	<i>Competent authority</i>	<i>For information to: - Swedish Civil Contingencies Agency - Government Offices of Sweden - Transmission system operator</i>	<i>1, 2, 3, 4, 5</i>
<i>17.30</i>	The system balance administrator	<i>- Transmission system operator - Distribution system operators - Balance administrators</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

The dependence of district heating in western Sweden on natural gas is normally assessed to be limited, and the impact of a disruption of gas supply in the district heating sector is therefore assessed to be small. There are seven local councils with a varying dependence on waste heat from industrial processes that use gas. There is a redundancy at the concerned energy companies and there is a possibility to switch to alternative fuels. A fuel switch is dependent on the storage of alternative fuels.

For this reason, no specific measure or action will be taken by the Swedish Energy Agency for now to mitigate the potential impact of a disruption of gas supply on the district heating sector

### 3.2. Electricity sector

A disruption in the western Swedish natural gas system will normally have a limited impact on the electricity sector.

For this reason, no measure or action will be taken by the Swedish Energy Agency to mitigate the potential impact of a disruption of gas supply on the electricity sector.

The Swedish Energy Agency and Svenska kraftnät cooperate, coordinate and exchange information at all crisis levels as necessary in order to prevent and address potential electricity supply situations that may arise due to disruptions in natural gas supply.

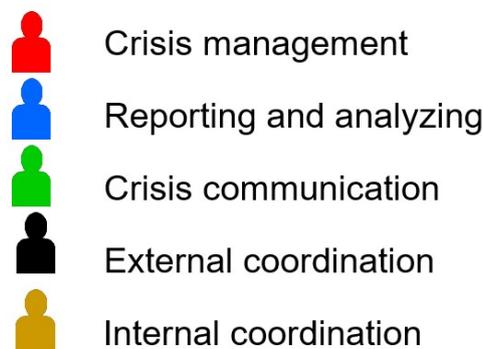
## 4. Crisis manager

The competent authority, the Swedish Energy Agency, is responsible for declaring crisis levels in the Western Swedish natural gas system. In addition, the competent authority is responsible for the contacts with the European Commission and the competent authorities of other Member States pursuant to Regulation (EU) 2017/1938.

As the competent authority the Swedish Energy Agency have a point of contact which is available at all times, as well as a civil servant who is a stand-by crisis manager. 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 picture<sup>8</sup> 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*

**Crisis management (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).

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<sup>8</sup> 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.

**Coordination with relevant actors (Black and Brown)** takes place, inter alia, through collaboration conferences (see measure *Collaboration conference* in section 2.1 above ) led by the competent authority and the system balance administrator (internal industry coordination) or the competent authority and the relevant regional administrations (external coordination with state actors), where representatives from the industry discuss the situation. There must be an ability to lead or attend such conferences and manage other contacts with actors in society. Each actor is responsible collaborating as required to solve their own tasks in a crisis situation.

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

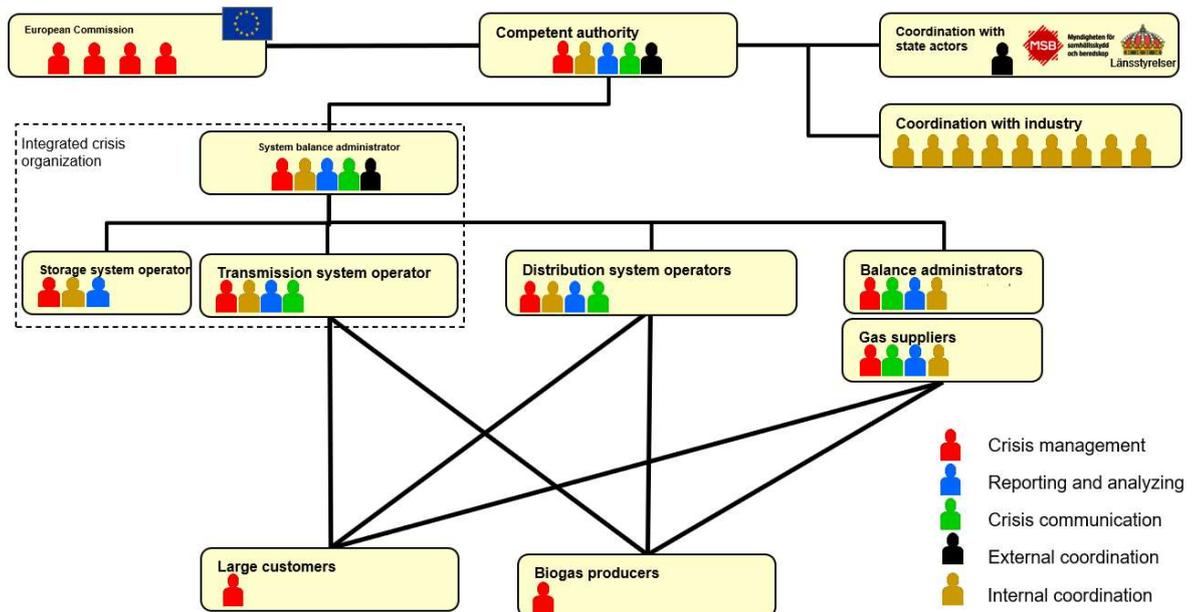


Figure 2. Overview of the crisis management structure

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 and is responsible for implementing the measures described in regulation (EU) 2017/1938 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 European Commission and the competent authorities of other Member States.

Competent authority is operationally responsible for:

1. Declaring any of the crisis levels described in section 1 above.
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 European Commission's crisis group
  - b. Has a decision mandate for issues concerning the management of the crisis situation.
4. Is able to activate a crisis organization according to section 5 above.
5. Is able to conduct a collaboration 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. Make and implement plans for how collaboration should take place with other local, regional and national actors
  - e. Gathering specific information for preparing any firm load shedding
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 (regional administrations).

8. Be able to maintain contact with the European Commission and the competent authorities in Denmark and Germany.
9. Be able to provide the European Commission's monitoring and information center for civil protection with information on possible help needs.
10. Decide on changing the crisis level, and to repeal any such decision.
11. Decide on consumption limitations or sales restrictions, and to repeal any such decision.

When crisis levels are declared, the competent authority must be able to undertake the measures:

<b>At all crisis levels</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Inform about the crisis level declared</li> <li>- Collaborate with industry and other stakeholders</li> <li>- Follow up and analyze the effects of measures taken</li> <li>- If necessary, correct measures taken</li> <li>- If necessary, decide on measures that deviate from the crisis plan</li> <li>- Implement general information measures</li> <li>- Conduct coordination conferences</li> </ul>
<b>Early warning</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- If needed, activation of crisis organization</li> </ul>
<b>Alert</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Activate the crisis organization and lead the crisis work together with other actors</li> </ul>
	<p><b>Market-based measures</b></p> <ul style="list-style-type: none"> <li>-</li> </ul>
<b>Emergency</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Activate the crisis group and lead the crisis work together with other actors</li> <li>- Decisions on daily reporting shall be made in accordance with section 2.3 above</li> </ul>
	<p><b>Market-based measures</b></p> <ul style="list-style-type: none"> <li>-</li> </ul>
	<p><b>Non market-based measures</b></p> <ul style="list-style-type: none"> <li>- Decide on consumption limitations or sales restrictions</li> </ul>

## **5.2. System balance administrator**

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

The system balance administrator is operationally responsible for:

1. Inform the market according to template in appendix 1.
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 section 2.2 above.
4. Be able to activate a crisis organization according to section 5 above with the least ability to crisis management, report and analyze, crisis communication, collaborate externally and collaborate within the industry
5. Have ongoing contacts with transmission system operator in Denmark, among other things to get situational updates.
6. Be able to instruct the distribution system operator to disconnect or reconnect consumers according to the measures in section 2 above.

When crisis levels are declared, the system balance administrator must be able to undertake the following measures:

<b>At all crisis levels</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- When any crisis level is declared, inform the stakeholders</li> <li>- Implement general information measures</li> <li>- Conduct coordination conferences</li> </ul>
<b>Early Warning</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Prepare activation of the crisis organization.</li> </ul>
<b>Alert</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Activate crisis organization.</li> </ul>
	<ul style="list-style-type: none"> <li>- Report according to section 2.2 above</li> </ul>
<b>Emergency</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Activate crisis organization</li> </ul>
	<p><b>Market-based measures</b></p> <ul style="list-style-type: none"> <li>-</li> </ul>
	<p><b>Non market-based measures</b></p> <ul style="list-style-type: none"> <li>- Instruct storage system operator to increase or decrease the injection or release of stored gas</li> <li>- Sell gas from the strategic gas storage to balance administrators for protected customers</li> <li>- Instruct system operators to reduce or stop the transfer of gas to customers, and verify that a firm load shedding have been executed</li> <li>- Report according to section 2.3 above.</li> </ul>

### **5.3. Transmission system operator**

The transmission system operator is responsible for the transmission of natural gas in the transmission system. The transmission system operator 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 transmission system operator 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 transmission system operator 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 firm load shedding should be implemented if one is decided by the competent authority and able to execute it.
2. Identify serious deviations in the function of the transmission system infrastructure and inform the system balance administrator about these according to the template in appendix two.
3. Be able to keep in touch with the transmission system operator in Denmark regarding issues concerning the infrastructure.
4. Be able to activate a crisis organization according to section 5 above with the least ability to crisis management, report and analyze, crisis communication and collaborate within the industry.
5. Disconnect and reconnect customers according to instructions from the system balance administrator.

When crisis levels are declared, the transmission system operator must be able to undertake the following measures:

<b>At all crisis levels</b>	<b>General measures</b> - Cooperate with industry and other stakeholders.  - Participate in a collaboration conferences
	<b>Market-based measures</b> - In the case of instruction from Danish transmission system operator, order market-based consumption reduction
<b>Early warning</b>	<b>General measures</b> Prepare activation of crisis organization
<b>Alert</b>	<b>General measures</b> - Activate crisis organization.  - Report according to section to 2.2 above
	<b>Market-based measures</b> -
<b>Emergency</b>	<b>General measures</b> - Activate crisis organization.  - Report according to section 2.2 above
	<b>Market-based measures</b> -
	<b>Non-market-based measures</b> - In accordance with instructions from the system balance administrator, limit or interrupt the transfer of gas to customers or order customers to limit or interrupt gas consumption

#### **5.4. Distribution system operator**

Distribution system operators are responsible for the gas being transferred through the distribution network to the gas consumers. The distribution system operators are responsible for that the pipeline system is secure, reliable and efficient. Distribution system operators 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 balance administrator with the information required to be able to settle deliveries and regulate the balance in the natural gas system.

The distribution system operators must establish and follow a preventive action plan and crisis plan.

The distribution system operators are operationally responsible for:

1. In the event of serious events that may adversely affect the national natural gas supply, inform the system balance administrator about deviations according to the template in Annex 1.
2. Have a plan for how a firm load shedding in case of instructions from the system balance administrator and able to execute it.
3. Be able to activate a crisis organization according to section 5 above with at least the ability to crisis management, report and analyze, crisis communication and collaborate within the industry.
4. Connection of consumers according to instructions from the system balance administrator.

When crisis levels are declared, the distribution system operators must be able to undertake the following measures:

<b>At all crisis levels</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Cooperate with industry and other stakeholders</li> <li>- Implement general information measures</li> <li>- Participate in collaboration conferences</li> </ul>
<b>Early warning</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Prepare activation of crisis organization</li> </ul>
<b>Alert</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Activate crisis organization.</li> <li>- Report according to section 2.2 above</li> </ul>
	<p><b>Market-based measures</b></p> <ul style="list-style-type: none"> <li>-</li> </ul>
<b>Emergency</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Activate crisis organization.</li> <li>- Report according to section 2.2 above</li> </ul>
	<p><b>Market-based measures</b></p> <ul style="list-style-type: none"> <li>-</li> </ul>
	<p><b>Non-market-based measures</b></p> <ul style="list-style-type: none"> <li>- In accordance with instructions from the system balance administrator, limit or interrupt the transfer of gas to customers or order customers to limit or discontinue gas consumption.</li> </ul>

## **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 (2005:403) 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 balance administrator about deviations according to the template in Annex 1 in case of serious incidents that may have a negative effect on the national supplies of natural gas.
2. Being able to activate a crisis organization in accordance with section 5 above that is 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, gas suppliers must be able to undertake the following measures:

<b>At all crisis levels</b>	<b>General measures</b> - Cooperate with industry and other relevant actors.  - Implement general information measures  - Participate in collaboration conferences
<b>Early warning</b>	<b>General measures</b> - Prepare to activate crisis organization
<b>Alert</b>	<b>General measures</b> - Activate crisis organization
	<b>Market-based measures</b> -
<b>Emergency</b>	<b>General measures</b> - Activate crisis organization  - Procure gas for at least protected customers.
	<b>Market-based measures</b> -
	<b>Non-market-based measures</b> -

## **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 balance administrator.

Balance administrators shall establish and follow an emergency plan.

Balance administrators have the operational responsibility for:

1. Informing the system balance administrator about deviations according to the template in Annex 1 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 above that is 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, balance administrators must be able to undertake the following measures:

<b>At all crisis levels</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Cooperate with the industry and other relevant actors.</li> <li>- Maintaining system balance</li> <li>- Implement general information measures</li> <li>- Participate in collaboration conferences</li> </ul>
<b>Early warning</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Prepare to activate crisis organization</li> </ul>
<b>Alert</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Activate crisis organization</li> <li>- Reporting in accordance with section 2.2 above</li> </ul>
	<p><b>Market-based measures</b></p> <ul style="list-style-type: none"> <li>-</li> </ul>
<b>Emergency</b>	<p><b>General measures</b></p> <ul style="list-style-type: none"> <li>- Activate crisis organization</li> <li>- Reporting in accordance with section 2.2 above</li> </ul>
	<p><b>Market-based measures</b></p> <ul style="list-style-type: none"> <li>-</li> </ul>
	<p><b>Non-market-based measures</b></p> <ul style="list-style-type: none"> <li>-</li> </ul>

### **5.7. Storage system operator**

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

The storage system operator shall establish and maintain a preventative action plan and an emergency plan.

Storage system operator have the operational responsibility for:

1. Informing the system balance administrator 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 above.
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, the storage system operator must be able to undertake the following measures:

<b>At all crisis levels</b>	<b>General measures</b> - Cooperate with the industry and other relevant actors.
<b>Early warning</b>	<b>General measures</b> - Prepare to activate crisis organization
<b>Alert</b>	<b>General measures</b> - Activate crisis organization  - Reporting in accordance with section 2.2 above
	<b>Marknadsbaserade åtgärder</b> -
<b>Emergency</b>	<b>General measures</b> - Activate crisis organization  - Reporting in accordance with section 2.2 above
	<b>Market-based measures</b> -
	<b>Non-market-based measures</b> - Inject or release gas from the storage facility in accordance with instructions from the system balance administrator

### **5.8. Large customers (>20 GWh/year)**

Large customers are customers 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 customers shall establish and follow an emergency plan.

Large customers have the operational responsibility 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 above that is capable, at least, of crisis management.
3. Being able to participate in a collaboration conference
4. Providing gas suppliers with a forecast of their gas consumption following reconnection.

When crisis levels are declared, large customers must be able to undertake the following measures:

<b>At all crisis levels</b>	<b>General measures</b> - Cooperate with the industry and other relevant actors.  - Participate in collaboration conferences
	<b>Market-based measures</b> - Customers that have entered into hyper 3 agreements must reduce their consumption in accordance with system balance administrator instructions <sup>9</sup> .
<b>Early warning</b>	<b>General measures</b> - Prepare for activation of crisis organization
<b>Alert</b>	<b>General measures</b> - Activate crisis organization
	<b>Market-based measures</b> -
<b>Emergency</b>	<b>General measures</b> - Activate crisis organization
	<b>Market-based measures</b> -
	<b>Non-market-based measures</b> - Reduce or interrupt consumption of gas following instructions from the distribution system operator, in accordance with Table 1

<sup>9</sup> 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 balance administrator 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 *emergency* has been declared, the competent authority shall, as soon as possible and at the latest six weeks after the lifting of the emergency, provide the European 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, transmission system operator, distribution system operators and large customers. Customers are then instructed by the distribution system operator to limit or interrupt the consumption of gas. If any large customer fails to follow the instructions, distribution system operator 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 the year 2021, a smaller exercise was conducted where the system balance administration, the transmission system operator and the competent authority participated to handle a fictitious supply disruption. During the year 2022 the emergency plan will be tested during an industry exercise in accordance with article 10.3 of Regulation (EU) 2017/1938.

## 8. Regional Dimension

### 8.1. Measures to be adopted per crisis level

Measures to be adopted per crisis level by the competent authority are described in section 2 above. 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

At a general level, cooperation on security of supply on the regional level originates from the risk groups<sup>10</sup>. Sweden is a member of six regional risk groups:

- Risk group Denmark

*Denmark, Germany, Luxembourg, Netherlands, Poland and Sweden*

- Risk group Norway

*Belgium, Denmark, Germany, Ireland, Spain, France, Italy, Luxembourg, the Netherlands, Portugal, Poland and Sweden*

- Risk group Baltic Sea

*Belgium, Czechia, Denmark, Germany, France, Luxembourg, Netherlands, Austria, Slovakia and Sweden*

- Risk group Ukraine

*Bulgaria, Czechia, Denmark, Germany, Greece, Croatia, Italy, Luxembourg, Hungary, Austria, Poland, Romania, Slovenia, Slovakia and Sweden*

- Risk group Belarus

*Belgium, Czechia, Denmark, Germany, Estonia, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Slovakia, Finland and Sweden*

- Risk group North East

*Czechia, Denmark, Germany, Estonia, Latvia, Lithuania, Poland, Slovakia, Finland and Sweden*

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<sup>10</sup> See Article 3.7 in Regulation (EU) 2017/1938: Responsibility for the security of gas supply

### ***Cooperation with Denmark***

Since 2019, the natural gas markets in Denmark and Sweden belong to a joint balancing zone. Sweden has a close cooperation with Denmark, and exchanges information during normal operation as well as during situations that may impact of the gas deliveries. 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 is currently in the process of implementing the solidarity agreement with Denmark. Once in place, this agreement will be described in more detail in the emergency plan. This is expected to happen in the near future.

## Annex 1 – Checklists for reporting

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