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[DRAFT for market hearing]

Submission of Methodology for Approval of the Joint Balancing Zone

Pursuant to section 40 (1) of the Danish Act on Natural Gas Supply, Energinet must submit the methods that are used to calculate or establish terms and conditions for access to the transmission grid, for the approval by the Danish Energy Regulatory Authority.

This Submission of Methodology for Approval concerns submission of:

- Market Model
- Balancing Model
- Tariffs

It is the opinion of Energinet that the submitted methods can be set for approval because they comply with the requirements in the Act Danish on Natural Gas Supply and applicable EU Regulations.

The submitted methods will be applicable at the time of approval from the Danish Energy Regulatory Authority.

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- Appendix 1: Market Q&A
- Appendix 2: Comments from public hearing

1. The submission obligation

Energinet must as transmission system operator submit the methods that are used to calculate or establish terms or conditions for access to the transmission system, cf. section 40 (1) of the Danish Act on Natural Gas Supply.

The method for Market Model concerns the introduction of a Virtual Exit Zone (VEZ), the method for Balancing Model concerns the extension of the current balancing model to also cover the Swedish transmission system in the Joint Balancing Zone (JBZ), and the choice of method is not specified in applicable law, including the Act Danish on Natural Gas Supply. Thus, the method requires Submission of Methodology for Approval (hereinafter the "Submission") to the Danish Energy Regulatory Authority (DERA).

2. The background for the Submission

The goal of EU is an integrated EU energy market as it is believed to be the most cost-effective way to ensure secure and affordable supplies to EU citizens. The EU has introduced rules on the use of energy networks, including regulations and network codes.

A European Gas Target Model Self-Evaluation Report was written by the DERA and Swedish Energy Markets Inspectorate (EI), and published in June 2017. Here the national regulatory authorities in Sweden and in Denmark have market reform recommendations. They state "One way to reduce market concentration is to increase the market area in order to increase the number of market participants and traded gas volumes. The DERA and Ei support the Danish and Swedish TSO's work of analysing the costs and benefits of creating a joint balancing zone."

Today, Swedegas and Energinet have two different balancing models. The Swedish balancing model is not in compliance with the EU network code on balance (NC BAL). Swedegas therefore needs to create a change and has proposed to make a Joint Balancing Zone (JBZ) between Sweden and Denmark. In one step, the Swedish market is able to be both compliant with the EU network code and bring the Swedish and Danish gas markets closer. Such market integration is one of the targets of both the EU and the regulators. Energinet has implemented a balancing model which is in accordance with the EU network code on balance (NC BAL). The pragmatic and most cost-effective solution has therefore been to include the Swedish transmission system in the current Danish Balancing Model. This requires some adjustments in the current methodologies, clarifications of some topics and analyses of the consequences from these changes in order to establish JBZ.

2.1 Legal framework

National legal framework

According to Section 11(1) of the Danish Act on Natural Gas Supply, and as the gas transmission system operator (TSO) in Denmark, Energinet shall ensure a sufficient and an efficient

transport of natural gas, including the task of preserving and maintaining of the physical balance in the gas network.

As TSO in Denmark, Energinet shall contribute to ensure best possible conditions for competition on markets for natural gas trade, cf. Section 12 a(1).

Energinet can include necessary costs in the prices for its activities under Act on Energinet Section 2(2) and (3), including gas transmission activities, cf. Section 37 d of the Danish Act on Natural Gas Supply and Section 2 of Executive Order No 816 of 27 June 2016.

European legal framework

According to Regulation No 715/2009 and in particular Article 6(11) and Article 8(6)(j) thereof, the European Commission may adopt network codes concerning balancing rules. On this basis, Regulation No 312/2014 is issued to establish the network code on gas balancing of transmission networks.

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3. Submission of methods

The aim is to create a Joint Balancing Zone (JBZ) between Sweden and Denmark. This requires some changes in the current Danish market model, which are described in 3.1.

The creation a JBZ also requires some changes in the current Danish balancing model, which are described in 3.2. However, most features in the Danish balancing model will be as today.

This document contains four new concepts, which are referred to throughout the document:

- Balance Administrator or BA, a concept which is used in Sweden for the task of being responsible of balancing the deliveries and offtakes of gas, a task that a Shipper has in Denmark. In this document the term Shipper/BA is used to cover the term in both Denmark and Sweden
- Balancing Area Manager or BAM, is - on behalf of the two TSOs Swedegas and Energinet - handling the commercial balancing tasks with the Shipper/BA active in Denmark and/or Sweden.
- Joint Balancing Zone or JBZ is covering the balancing area of Swedegas and Energinet.
- Virtual Exit Zone or VEZ is the term used for the current Dragør and Exit Zone Denmark.

3.1 Market model

Dragør and Exit Zone Denmark will be merged into a Virtual Exit Zone (VEZ). An overview of proposed changes in the Danish market model can be seen in Figure 1. These proposed changes are described in further detail in this section 3.1. The impacts from these changes are described in section 4.1.

Overview of proposed changes in the Danish market model

1. Creating a Virtual Exit Zone (VEZ) covering the current Exit Zone Denmark and Dragør
 - Current benefits in Exit Zone Denmark will continue for the VEZ:
 - ✓ Overrun charges (automatic delivery of capacity allocations, when needed)
 - ✓ Flexible deadlines for booking capacities will be as for Exit Zone Denmark today
 - Pooling of capacities for gas used in Sweden and Denmark
2. A consequence is that allocations for gas to Sweden will not be equal to nominations, but to the net Swedish consumption (Consumption – production ± storage)

Figure 1, Overview of proposed changes in the Danish market model

Introduction to the current Danish market model

Energinet's market model for the Danish gas transmission system is based on a simple entry-exit model that allows market players to commercially move gas in and out of Denmark. Energinet's single exit zone – exit zone Denmark – delivers gas to all Danish consumers. This supports a high level of flexibility in the Danish gas market because a single customer may be supplied gas from several points.

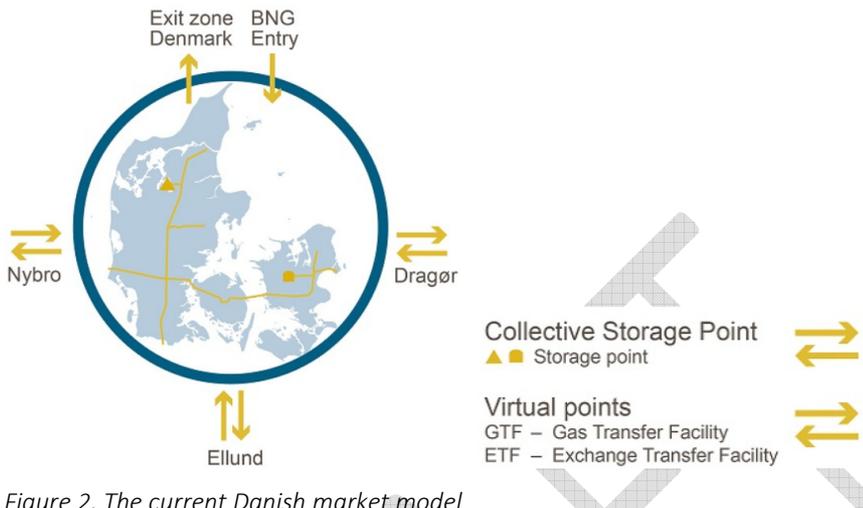


Figure 2, The current Danish market model

Energinet has the following entry points:

- Three entry points at Nybro, Ellund and Dragør, where the natural gas enters Denmark
- One entry point (BNG Entry) for biomethane, aka bio-natural gas. This allows shippers to virtually upload biomethane to the transmission system.

The exit points are:

- Exit zone Denmark, which makes it possible for gas suppliers to deliver gas to all Danish consumers through the gas distribution network. Exit zone Denmark covers a total of six distribution areas. Exit Zone Denmark also covers three power stations that are connected directly to the transmission system.
- Three transit exit points at Nybro, Ellund and Dragør for export of natural gas.

There is one storage point that covers the gas storage facilities at Stenlille and Lille Torup. Storage customers use this point to inject gas into the gas storage facility or with-draw gas from it.

The Danish gas market model offers shippers two ways of buying and selling gas via Virtual Transfer Points:

- ETF (Exchange Transfer Facility) is the virtual point for trades made on the Danish gas exchange, Gaspoint Nordic.
- GTF (Gas Transfer Facility) is the virtual point for bilateral trades on the secondary market.

Changes in the Danish market model

The current market model in Denmark, as briefly described in the previous chapter, will continue, but some changes are needed in order to support the JBZ.

3.1.1.1 Change 1: Creation of a Virtual Exit Zone (VEZ)

Dragør will be merged with the Exit Zone Denmark and termed Virtual Exit Zone (VEZ). The current rules for Exit Zone Denmark will apply for the VEZ.

The creation of the VEZ means that, if a shipper wishes to transport gas for consumption in Sweden or Denmark, he will need to book capacity in the VEZ. In other words, the capacity required for gas consumption in Sweden and Denmark can be pooled and booked at the VEZ.

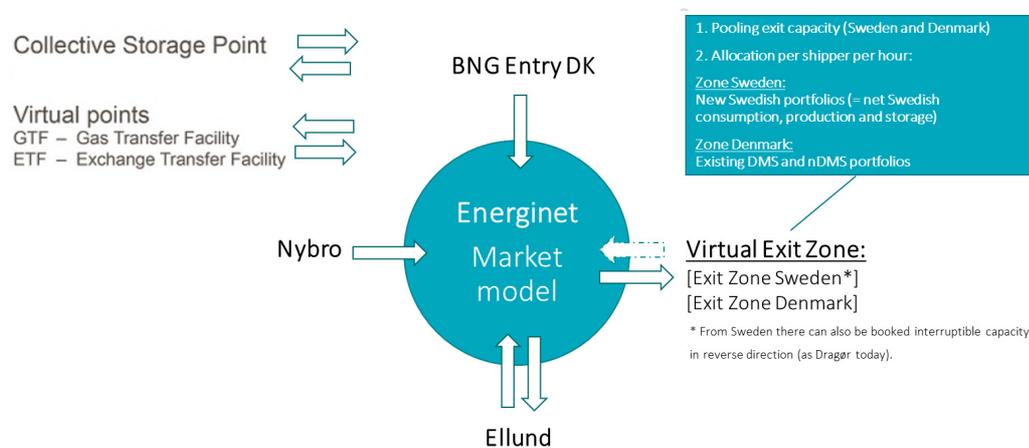


Figure 3, The new Danish market model with a Virtual Exit Zone (VEZ)

Today, it is possible to buy interruptible capacity from Sweden for Denmark at Dragør. In future, it will also be possible to buy interruptible capacity in this direction (Virtual Exit Zone, reverse flow). However, historically the demand has been almost non-existent.

3.1.2 Change 2: The current rules for Exit Zone Denmark will apply for the VEZ

By creating the VEZ and applying the current rules for Exit Zone Denmark for the VEZ, the current users of Dragør will experience more benefits in the shape of flexibility, for three reasons.

3.1.2.1 Change 2A: Booking deadlines

The future deadline for booking capacity in the VEZ will follow the current deadlines for the Exit Zone Denmark. It means that the capacity will be sold as First-Come-First-Served via Energinet's platform, Energinet Online. The deadlines for capacity orders at the VEZ (fully described in chapter 5.3.4 of RfG, Version 17.0) will be:

- a) Annual, Quarterly and Monthly Capacities can be submitted between 3 months before and up to 17.00 on the Gas Day before the commencement of the Capacity Period
- b) Daily Capacities can be submitted between 5 gas days before and up to 17.00 on the Gas Day before the commencement of the Capacity Period

- c) Within-day Capacities for up to 24 (twenty-four) consecutive hours can be submitted between 19.00 on the Gas Day before and not later than at 03.00 on the Gas Day.

3.1.2.2 Change 2B: Increased flexibility for capacity bookings in the VEZ (overrun charge)

Secondly, the current overrun charge relating to the Danish Exit Zone will be applied to the VEZ. This means that if a shipper does not book capacity in the VEZ, or if he has not booked a sufficient capacity, he will be allocated a capacity in the VEZ, equivalent to his actual allocation in VEZ (in Denmark and Sweden in total). The shipper's nomination will not be reduced, as is the case today, at the Dragør point if the nomination exceeds the amount of capacity booked by the shipper. In other words, if the Shipper's allocation in the VEZ in one or more hours during the gas day exceeds the shipper's total capacity according to the monthly validated data, the shipper must pay the capacity charge for daily capacity (Firm Capacity) based on the overrun quantities for the hour with the highest overrun during the relevant gas day. Currently, the daily capacities are priced 1.4 compared to yearly capacity of 1.0. This leaves the shipper/BAs with a higher flexibility and new ways of optimising their operations and capacity bookings.

3.1.2.3 Change 2C: Pooling capacities

Thirdly, capacity will only be sold at the VEZ (not separately for VEZ Sweden and VEZ Denmark). The shippers can therefore pool their capacity needs for the gas consumed in Sweden and the gas consumed in Denmark when booking capacity at the VEZ. Hence, instead of booking capacity twice, a shipper can book the capacity at once at the VEZ, provided that the shipper and BA operate with the same legal entity in both Denmark and Sweden.

3.1.3 Change 3: Allocations ensure correct capacity bookings at shipper level

Allocations are important in order to define the shippers' level of capacity required and the total tariff payments.

For gas going to Sweden today, the nomination in Dragør becomes the allocation. This will change under JBZ. Due to the introduction of VEZ, it will be the allocation at the VEZ that will be used in future. Figure 4 below illustrates the method that will be used to allocate the gas flow from Denmark for consumption in Sweden to the shipper/BA. The allocation will be for each of the 24 hours in the gas day, as for all other points in the Danish market model.

$$\begin{array}{l}
 \text{All gas consumption in Sweden} \\
 \pm \text{Storage (Sweden)} \\
 - \text{All gas production in Sweden (e.g. Biogas, LNG)} \\
 \hline
 = \text{Allocation at VEZ Sweden, for each shipper/BA, by the hour}
 \end{array}$$

Figure 4, Method of allocating the net gas flow to Sweden for each Shipper/BA, by the hour (calculation for each hour)

The gas consumption in Sweden delivered by the Swedish Gas Suppliers must be balanced by the relevant BA. The same goes for the storage activities and the production of biogas in Sweden. These figures are added up, and this net allocation for the VEZ Sweden replaces the current allocation for Dragør. Under the JBZ, VEZ Sweden replaces Dragør in the tariff methodology.

A positive figure represents a flow to Sweden, and a negative flow is a virtual flow to Denmark. Allocations are on the shipper/BA, by the hour. For the individual shipper/BA, the allocation will only be in one direction for any specific hour. This is also the case today.

The net allocation at VEZ Sweden for each Shipper/BA, by the hour, will be used for checking against the individual shipper's/BA's capacity bookings. The allocation will be the basis for both the capacity charge and the variable commodity charge.

Example: Tariff payments for gas delivered to Sweden

A shipper/BA is allocated consumption in Sweden, during one hour, of 10 MWh/h. The shipper/BA has a withdrawal from a Swedish gas storage facility of 1 MWh/h and has deliveries from biogas production of 2 MWh/h. The shipper/BA will be allocated 7 MWh/h (10-1-2) in VEZ Sweden (currently Dragør) for that hour. This means that the shipper/BA in Sweden will be responsible for paying the tariff in the VEZ Sweden (Dragør today) for the allocation of 7 MWh/h to Energinet. This also means that a shipper/BA in Sweden needs to become a shipper with Energinet and must comply with the terms stipulated in RfG.

Today, if the nomination in Dragør to Sweden is higher than the capacity booking, the nomination will be reduced to the capacity booking. This will change. Under the JBZ, a shipper/BA that is active at the new VEZ and has not booked capacity or sufficient capacity will be given a daily capacity based on the maximum hour allocation for the VEZ (meaning allocation for VEZ Denmark + VEZ Sweden per hour) as in Exit Zone Denmark today.

3.2 Balancing model

The main change in the Danish balancing model is that, under the JBZ, the current Danish balancing model will be extended to also cover the Swedish transmission system. An overview of proposed change in the Danish balancing model can be seen in Figure 5. This proposed change is described in further detail in this section 3.2. The impacts from this change are described in section 4.2.

Overview of proposed changes in the Danish balancing model

3. Under the JBZ, the current Danish balancing model will be extended to also cover the Swedish transmission system

Figure 5, Overview of proposed changes in the Danish balancing model

3.2.1 Change 4: Extending the balancing model

Swedegas and Energinet currently have two different balancing models. Energinet has implemented a balancing model, which is in accordance with the European network code on balance (NC BAL), Swedegas has not. For the future of JBZ it has been decided to continue to use the current Danish balancing model and to extend it to also cover the Swedish transmission system.

One of the implications of this is that the Swedish and Danish gas systems will commercially be operated as one joint gas system.

The two TSOs Swedegas and Energinet will continue to be responsible for the physical balancing and system integrity of their respective transmission system. The two TSOs will create a Balancing Area Manager (BAM), which on behalf of the two TSOs will be handling the commercial balancing tasks with the Shipper/BA active in Denmark and/or Sweden. The Shippers/BA will continue to be responsible for balancing their deliveries and offtakes in order to minimize the need for the TSOs to undertake balancing actions.

The JBZ will cover the markets of both Swedegas and Energinet. Both TSOs therefore need to cooperate in all respects in the future development of JBZ going forward.

3.2.2 Clarification 1: Direct balancing cost for the shippers/BA

The original aim when developing the current balancing model in Denmark was to create an attractive balancing market for the Shippers/BA via small cash-out margins of $\pm 0,5\%$ and $\pm 3,0\%$. It is therefore proposed to have no changes and to continue with the current setup and these low direct costs of commercial balancing. A separate and transparent account for commercial energy balancing in JBZ will be established and this balancing economy will be cost-neutral over time. See section 3.2.2.1, "Neutrality arrangement", on how any income or loss with regard to balancing will be handled. This is a simple and transparent setup with no inter-TSO payments.

3.2.2.1 Neutrality arrangement

According to the BAL NC (Articles 29-31), a TSO is not allowed to neither gain nor lose in respect of its balancing tasks, meaning that the balancing economy of a TSO must be cost-neutral, over a defined period of time. In case of any income or loss with regard to balancing, this must be either paid back or collected from the market, based on, for instance, the shippers' flows in the system, and in the same order as the balancing payments are invoiced. The exact method must be approved by the regulator.

When Energinet introduced the new balancing regime in 2014, DERA approved that Energinet would not to introduce a separate fee to neutralise the balancing economy, due to the following main arguments:

- It was expected that the balancing economy would in total be very close to zero in itself
- Energinet's total gas economy is neutral, meaning that any gain or loss coming from balancing would be collected via the normal tariffs
- As any direct gain or loss coming from balancing will be given back or collected via the normal tariffs in Energinet, Energinet follows the actual principle of collecting the deficit from users, based on their activity in the system. Thus, if a separate fee was introduced, the result would be close to what it is today.

Based on these previous arguments, it was approved that it would be “overkill” to introduce a separate fee. However, it was also agreed that the principle described above should be reconsidered, in case of Energinet experiencing big surpluses or deficits. This has not yet been the case and is not expected to be the case.

It is therefore the intention to continue according to this same principle in the JBZ. All direct economic energy gains and costs will be added up and must be balanced over time. This means that any direct gain or loss coming from balancing will be given back or collected via the normal tariffs in Energinet. The main gas consumption in Sweden is transported through Denmark and hereby pays Danish tariffs. This means that any gain or loss coming from balancing will have a positive or negative impact on the cost level of the gas transported to Sweden.

3.2.3 Clarification 2: Introduction of a Balancing Area Manager (BAM)

Swedegas and Energinet in their function as TSOs have been given the task of operating their national gas systems. Swedegas and Energinet have, as TSOs, the agreements with the Shippers/BA. The two TSOs agree on creating a Joint Balancing Zone, where the Balancing Market is operated by a common Balancing Area Manager (BAM). Figure 6 illustrates this setup. The main idea behind this model is to keep the setup as simple as possible. Therefore, no formalized company will be established to perform the BAM services, but an inter-TSO agreement will ensure that synergies are realised by focusing on using existing IT systems and infrastructure.

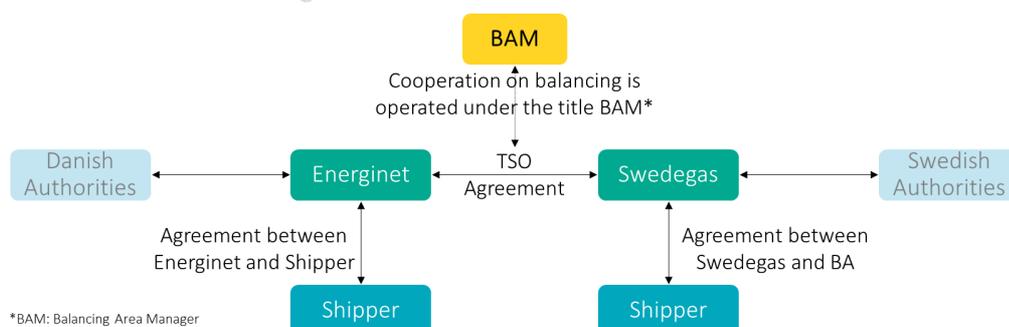


Figure 6, The BAM setup

On behalf of the two TSOs, the BAM will handle the commercial balancing tasks with the Shipper/BA active in Denmark and/or Sweden. The BAM will be operated by the employees of both TSOs.

3.2.4 Clarification 3: Crisis level principles in the Joint Balancing Zone

In the JBZ, the Swedish and Danish markets will be closely interconnected. It is therefore necessary to clarify how the JBZ will be impacted on if one of the three crisis levels Early Warning, Alert or Emergency is declared in Sweden or Denmark. Figure 7 provides an overview of the general principles for the JBZ if a crisis level is declared.

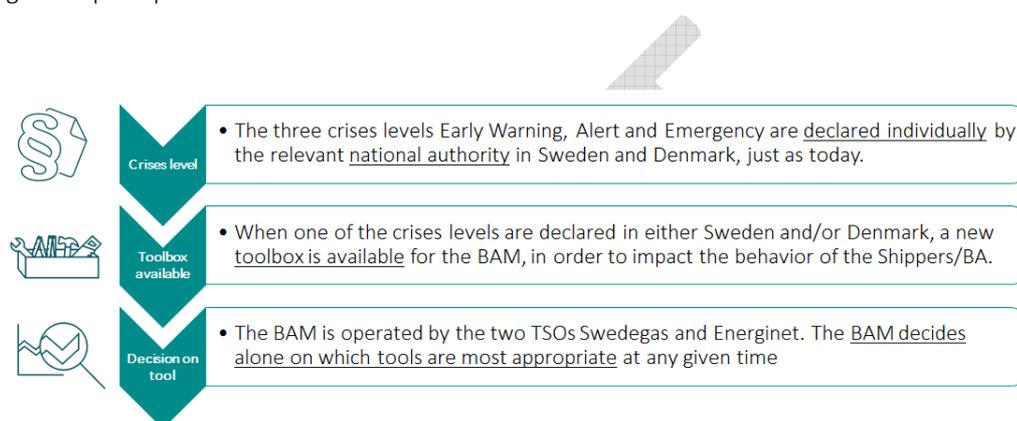


Figure 7, General principles for JBZ in crisis levels

Crisis level

If there is a need to go from normal operation to one of the three crisis levels Early Warning, Alert or Emergency, this will be declared individually by the relevant national authority in Sweden and Denmark, just as today. In other words, the current system, where Sweden and Denmark go from normal operation to one of the crisis levels, can continue without any change.

Toolbox available

In the event that Sweden, Denmark or both countries declare one of the crisis levels, a new toolbox is available for the BAM. It is important to note that the declaration of one of the crisis levels only opens a toolbox for the BAM. In other words, the tools in the toolbox are not automatically activated. The BAM positively needs to activate the tools. The contents of the toolbox are explained in chapter 3.2.4.1 below.

Decision on tool

If one of the crisis levels are declared, and the toolbox hereby is made available, the BAM needs to make its analyses of the situation and then positively needs to activate the relevant tools. The BAM is operated by the two TSOs Swedegas and Energinet. The BAM decides single-handedly which tools are most appropriate at any given time. The BAM tools are only commer-

cial balancing tools that create incentives for the Shipper/BA to be in balance by increasing the imbalance payments. When the BAM has activated an instrument, it is applied to the entire JBZ, i.e. the entire balancing area and not only Sweden or Denmark. The BAM decisions include:

- Which of the available tools should be used
- To what degree the selected tools should be used
- The timing of the start and the termination of the use of tools

The BAM operates the commercial balancing on behalf of the two TSOs. The two TSOs – Swedegas and Energinet – are responsible for their own physical balancing and system integrity in both normal situations and at crisis levels; there are no changes compared to today. Therefore, should the need arise to apply extraordinary tools for physical balancing which may be expected to impact the BAM operation, the two TSOs are obliged to inform the BAM. The BAM needs to take into account the new situation in his commercial balancing operations.

The BAM handles the commercial balancing on behalf of the two TSOs, and the BAM solves this task for as long as possible. If a situation occurs, for instance where parts of the pipeline system is disconnected, or there is a sudden pressure drop, and the BAM can no longer solve the commercial balancing task in the disconnected downstream part of the system, it will no longer be the responsibility of the BAM, but of the relevant TSO.

The difference between BAM instruments and TSO instruments is detailed in chapter 3.2.4.2 below.

3.2.4.1 The BAM toolbox

The current BAM toolbox, under the crisis levels, is described in RfG and includes:

1. Increases imbalance charges
2. Removal of the price cap of 10 per cent
3. Removal of the price cap of 35 per cent

There is currently a process underway to change these instruments. Energinet intend to put forward to the Danish Energy Regulatory Authority (DERA) a new method, which introduces change to the current method for commercial balancing. The toolbox of the BAM will be based on the at any time approved method.

As described in Energinets Market Consultation document on measures in regards to the Tyra shut-down 2019-2022 which was forwarded to the market on 30 May 2018, Energinet suggests to permanently remove both price caps.

3.2.4.2 Clarification between BAM instruments and TSO instruments

The BAM handles the commercial balancing on behalf of the two TSOs in normal operation and under the three crises levels Early Warning, Alert and Emergency. The BAM hereby activates

increased imbalance payments if this is expected to be the right measure to relieve the supply situation. All other instruments that might be applied under the three crisis levels are handled by the two TSOs. Figure 8 summarises the tools and responsibilities under the various crisis levels.



Figure 8, JBZ Crisis levels & tools

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3.3 Tariffs

3.3.1 Change 5: Tariffs and costs

3.3.1.1 Indirect balancing costs for the shippers/BA

The indirect balancing costs are the costs necessary to establish a system that enables the TSO to follow the individual shippers/BA balance in JBZ. These costs mainly consist of IT-systems and the employees necessary to develop and operate the commercial balancing market. These costs are today covered by the variable commodity charge, which is paid at the exit Zone and exit points – not at entry.

Energinet suggests continuing this same principle, with minor changes in order to increase transparency. The proposal is that Energinet separate the commercial balancing costs from the rest of the Gas TSO costs in Denmark. This means that it will be transparent to the shippers/BA what the yearly indirect balancing costs are.

In the same manner it is proposed that Energinet separate the revenue needed to cover the commercial balancing costs from the rest of the Gas TSO revenue in Denmark. In the same way will it be transparent to the shippers/BA what their contributions to the indirect balancing costs are.

Energinet therefore suggests that a new Balancing Charge is introduced to cover the indirect balancing costs.

This means that the costs for indirect balancing, which today are covered by the variable commodity charge and are paid at the exit Zone and exit points – not at entry, will in the future be covered by a Balancing Charge to be paid at the exit Zone and exit points – not at entry.

3.3.1.2 Project costs

The JBZ operation of the balancing market will be automated. Therefore, Energinet does not foresee additional yearly operating costs and therefore Energinet anticipates no need for inter-TSO compensation.

There will be an initial implementation cost for the JBZ project predominantly driven by modifying the existing IT setup in both Energinet and Swedegas. This is necessary in order to have an automated operation of the JBZ. This one-off cost will be divided between the two TSOs according to the proportion of annual gas consumption in their respective markets.

4. Consequences of the methods

4.1 Consequences from the changes in the market model

4.1.1 Impact on the Swedish market model

The current market model in Sweden will stay as it is, with some minor changes. First, the virtual trading point in Sweden will be merged with the virtual trading point in Denmark in order to have one virtual trading point in the JBZ. Secondly, a BA in Sweden also needs to become a shipper in Denmark (if not already a shipper) in order to ensure the capacity payments to Energinet.

4.1.2 Impact on Biomethane trade

It has been analysed whether the proposed changes, due to the planned JBZ, will create any form of barriers for trade of biomethane, aka bio-natural gas, between Denmark and Sweden. The conclusion of the analyses is that no barriers for biomethane trades were identified. For further information on the process, see section 5.1.1.

4.1.3 Impact on allocation in the VEZ under JBZ

As explained in chapter 3.1.3, there will be a change in the way allocations are made in the VEZ. Shippers/BAs are to book capacity in the VEZ instead of Dragør. Under the current system, for the gas that is transported to Sweden, the allocation in Dragør is equal to the matched nomination if the shipper has the necessary capacity. Under the JBZ, the allocation for gas to Sweden is not based on the nomination but on the calculation as explained by the illustration in Figure 4.

Today, the shippers can optimise their capacity at Dragør by buying Yearly, Quarterly, Monthly, Daily and Within-day capacity.

Even though the changes to the market model are relatively small, they will lead to new ways for shippers/BAs to optimise their operations. With the proposed changes, the shipper/BA can continue to optimise his capacity by using Yearly, Quarterly, Monthly, Daily and Within-day capacity, as today. However, by the introduction of the overrun charge, the shipper will automatically be allocated the required daily capacity and does not have to invest time and effort in the daily capacity optimisation.

A shipper who is already good at optimising his Yearly, Quarterly and Monthly capacities will also benefit from these skills in future as the cost of these capacity products will be lower than the overrun charge. Furthermore, all shippers will benefit from the new overrun charge as all shippers may choose to skip the daily optimisation.

A shipper who does not want to spend time and effort booking any capacities at all may stop doing so and will automatically be allocated daily capacities.

Shippers will benefit from the pooling of Danish and Swedish capacity and only buying capacity in one joint VEZ.

4.1.4 Practical information to shippers and BAs

Appendix 1 contains a list of questions asked by the market participants during this process and the answers given by the project.

4.1.4.1 Capacity contracts at Dragør will be converted to VEZ

Shippers holding capacity contracts at Dragør relating to the period when it will be replaced by the VEZ will have their existing Dragør capacities transferred to the VEZ. Shippers therefore run no risk with regard to their booked capacity at Dragør. Note that current Exit Zone Denmark contracts will be transferred to VEZ as well. Hence, a more level playing field for shippers with retail customers in either Denmark or Sweden is obtained – and the access to sell supply gas simultaneously to Danish and Swedish retail markets is improved.

4.1.4.2 Trades at Dragør

Today, gas can be delivered to Sweden from a shipper in Denmark to a BA in Sweden via the Dragør border point. It is done by indicating the shipper code pair in the nomination. This will change in the JBZ. The transfer of gas will instead need to take place at other suitable transfer points in the market model, such as the common virtual point Gas Transfer Facility (GTF).

4.1.4.3 BA tariff payments to Energinet

In the future, the BA in Sweden will be responsible for paying the tariff in Denmark for gas transported from Denmark to Sweden. If the shipper in the Danish system owns the capacity contracts at the point in time, these contracts can be transferred to the BA in Sweden via Energinet's online CTF facility, or via Assignment. This specific transfer is only relevant in relation to the transition from the current market model to the JBZ as all future bookings will be made by the BA himself.

4.1.5 Impact on tariffs in Denmark

The revenues currently collected by Energinet from transporting gas via Dragør will in future be collected using a new method reflecting the current level of revenues to Energinet.

Methods implemented in other markets have not been considered viable under the JBZ. Socialising the revenue from Dragør to the other tariff points in the Danish system is not an option as this will increase the tariff at all other tariff points. Neither is an inter-TSO compensation from Swedegas to Energinet. Therefore the current method of selling capacity in the VEZ has been chosen.

As previously explained, Energinet will no longer sell capacity at Dragør. Instead Energinet creates and sells capacity in a new Virtual Exit Zone (VEZ) – covering both the current Exit Zone Denmark and Dragør, the gas consumption in Sweden and Denmark.

4.1.5.1 Neutral tariff impact and closer integration

This solution is in line with the EU NC TAR, which requires that the revenue generated is mainly based on a capacity charge. Furthermore, it also ensures that the gas needed for the Swedish and Danish gas consumers is treated evenly as the shipper needs to book capacity for both the Swedish and Danish market.

By using a VEZ, there will be no revenue loss for Energinet, and there will be no cross-subsidisation to other IPs or the Danish exit zone.

Furthermore, it can also be argued that this is a step in the right direction in integrating the two markets since a shipper can pool his capacity requirements for gas consumption in Sweden and Denmark.

4.1.5.2 The same tariff level for the gas to Sweden

Energinet has currently applied differentiated tariffs. However, under the current setup, the capacity tariff is the same for the Danish Exit Zone and Dragør. The tariff is 14.23 DKK/kWh/hour/year (effective as of 1 October 2017). There is also a variable commodity charge of currently 0.00381 DKK/kWh payable at the Exit Zone and the exit points – not at entry. The variable tariffs will continue under the JBZ, applied on all exit volumes including the volumes for the Virtual Exit Zone.

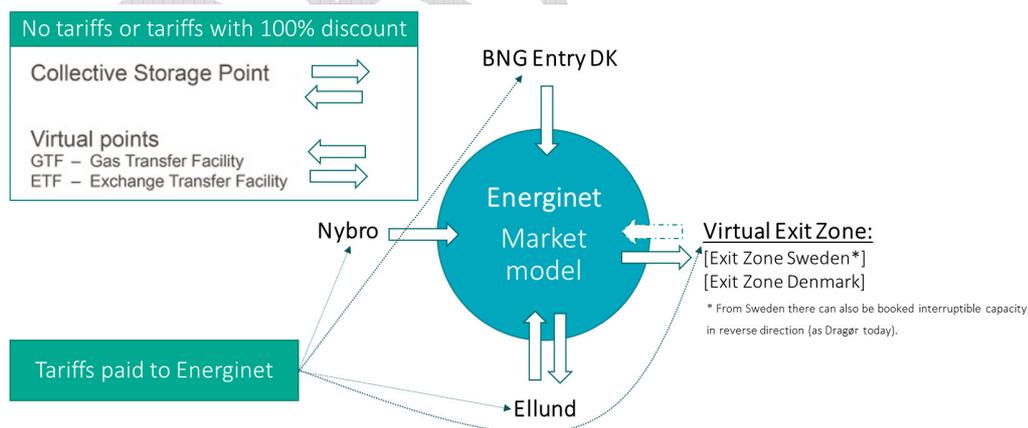


Figure 9, The Energinet tariff points

As of October 2019, Energinet expects to have uniform tariffs, which means that the tariffs will be the same in all entry points and in all exit points in the Danish gas system. Furthermore, it is expected that entry and exit point will have the same tariff.

This means that there is no tariff issue in having one tariff for the VEZ that covers the consumption in both the Swedish and Danish markets.

National security of supply or other tariffs will not be applied on the VEZ, but direct on the gas consumers at the distribution level in Denmark.

4.1.5.3 Impact from pooling capacities

Shippers/BA that are active in both Sweden and Denmark might benefit from introducing a VEZ as they can pool their portfolios in Sweden and Denmark. The benefit may materialise, for instance, if shippers/BA book capacity for their Swedish portfolio (Swedish gas consumption) that has its peak consumption in other periods than the Danish portfolio (Danish gas consumption).

Energinet has made an analysis of shippers active in both the Danish and the Swedish market and cannot find any significant capacity pooling benefits for the present shippers active in both markets. This means that the present shippers active in both markets do not have any benefits based on capacity optimisation and will therefore not hinder new entrance of shippers.

This also means that the level of capacity bookings in the future VEZ is not expected to change significantly due to pooling, compared to the current capacity bookings in the Danish Exit Zone and Dragør.

4.1.6 Impacts on shippers - will some shippers benefit more than others?

Impact on: Big shippers vs. small shippers & current shippers vs. new shippers

When it comes to the market model, the main change is that a shipper who transports gas to Sweden no longer has to book capacity at Dragør, but should book capacity at the VEZ.

There will be some benefits from the changes in the market model for the shippers that transport gas to Sweden, such as:

- a) the deadlines for booking capacities will be closer to the delivery period. This will hopefully benefit the shipper as the forecast of capacity requirements and booking will be more precise.
- b) overrun charges ensure that the shipper will always have the necessary capacity, even when it has not been booked. The shippers will benefit from no longer having to make daily capacity optimisation.
- c) the gas destined for consumption in Sweden and the gas destined for consumption in Denmark are both to be booked at the VEZ.

The analyses of the impact from these changes, in the Danish Market model, in order to create the new JBZ have not identified any issue that will significantly change the competition between big and small shippers or between current shippers and new shippers.

The benefits listed above will make it easier to be an active shipper in both Denmark and Sweden. It might be argued that these benefits will have a bigger positive impact on a small shipper with few resources than on a big shipper with more specialised resources. But, in all, it will be a simple setup to navigate in, and it is expected to benefit everyone.

It can be argued that these benefits will also make it slightly easier for new shippers, for instance currently only active in the Danish market, to become active in Sweden.

Thus, the changes are considered to have a generally positive impact on the market and promote market integration.

4.2 Consequences from the changes in the balancing model

4.2.1 Impact on the Swedish balancing model

Below, the major impacts on the current Swedish balancing model are explained. There will be changes to the Swedish balancing model for two reasons, firstly demands from the European network code on balancing and secondly due to the JBZ.

The NC BAL imposes the following changes to the current Swedish balancing model:

- Daily settlement of imbalances in the joint market where the current Swedish balancing account will be removed
- Balancing actions will be performed with short-term standardised products

Today, the Balance Administrators (BAs) in Sweden have a balance account (a linepack flexibility service), and the BA is only cashed out for imbalance exceeding the upper or the lower limit of the balance account. This is not in line with the European network code on balancing, and the balance account will therefore no longer exist under the JBZ. The balancing actions will be performed using short-term standardised products as in Denmark today.

The JBZ will impose the following changes to the current Swedish balancing model:

- Reporting of iDMS consumption data from the DSOs will be increased from two to five times a day
- nDMS portfolios will receive a forecast before the gas day and five updated forecasts during the day.

iDMS is a subcategory of DMS. The remainder of the DMS customers are not included in the Network Code, and hence Energinet will not receive data for these but will receive a forecast.

In order for the shipper/BA to be able to balance the deliveries and offtakes, the shipper/BA needs to have information on the position. Under the JBZ, the shippers must have data five times during the gas day, just as in Denmark today and as listed below:

- Before 13.45 on the Gas Day, covering the interval from 06.00 to 12.00
- Before 16.45 on the Gas Day, covering the interval from 06.00 to 15.00
- Before 19.45 on the Gas Day, covering the interval from 06.00 to 18.00
- Before 22.45 on the Gas Day, covering the interval from 06.00 to 21.00
- Before 01.45 on the Gas Day, covering the interval from 06.00 to 24.00

This means that, under the JBZ, the data deliveries in the Swedish system will be increased to five times during the gas day.

4.2.2 Impact on the Danish balancing model

4.2.2.1 Balance points

Today, for each Gas Day the Shipper must deliver to Energinet at the Storage, BNG Entry, GTF, ETF and Entry (Nybro, Ellund and Dragør) Point(s) a daily quantity that corresponds to the total quantity offtake by the Shipper at the Storage, GTF, ETF, Exit Zone and Exit (Ellund and Dragør) Point(s) on the same Gas Day. This is illustrated in Figure 10. The figure also illustrates the balancing points in Sweden.

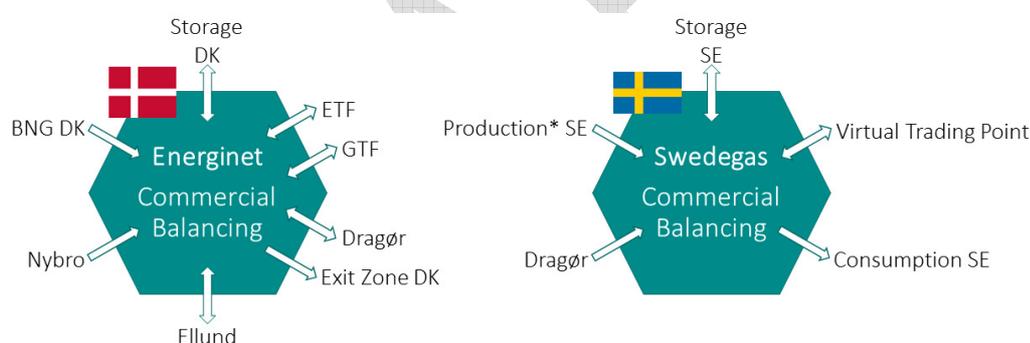


Figure 10, Current balancing points in Denmark and Sweden

Under the JBZ, the balancing points in the two models are combined to create the new combined balancing points for the entire JBZ.

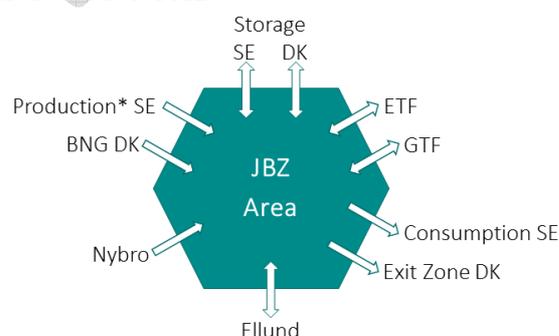


Figure 11, The new balancing points for the JBZ covering both Denmark and Sweden

4.2.2.2 The green band

The green band, which is a predefined area for each gas day, is based on a calculation of flexible gas in the Danish transmission system today. For the JBZ, the calculations will be defined in the same way as in the current Danish model.

The change is that the green band in the JBZ will combine the flexibility of the Danish and the Swedish transmission systems.

4.2.2.3 The System Commercial Balance Chart

Based on the aggregated entry and exit of gas for all shippers, Energinet today creates the aggregated System Commercial Balance Chart, which is updated every hour, as seen in Figure 12.

Energinet estimates the System Commercial Balance E(SCB) 21 times during the gas day. This is Energinet's estimation of how the gas day's aggregated commercial balance will end. These are the green and yellow dots. The final System Commercial Balance (SCB), the black dot, is published later. This is Energinet's calculation of how the gas day's commercial balance ended.

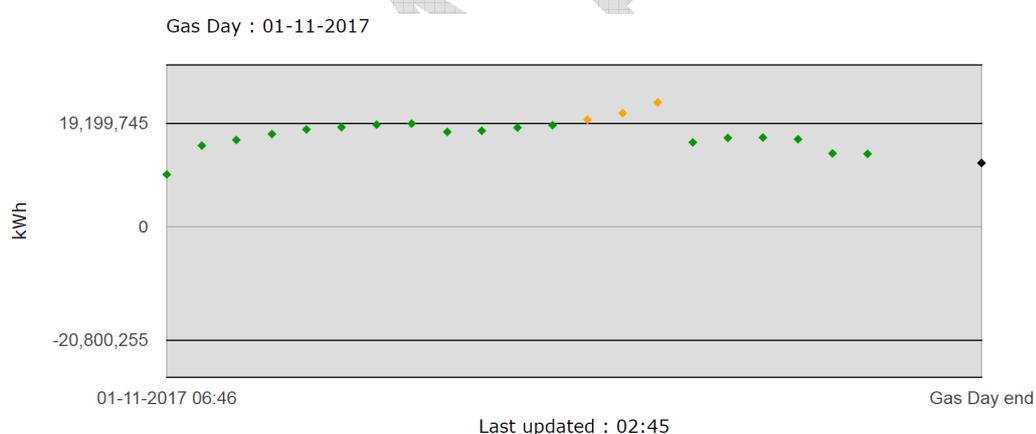


Figure 12, The current Danish System Commercial Balance Chart, example of 1 Nov. 2017

Under the JBZ, the aggregated System Commercial Balance Chart including the estimated System Commercial Balance E(SCB) and the final System Commercial Balance (SCB) will continue but now with data from the entire JBZ, which means it will also include data from Sweden.

4.2.3 Impact on shippers

Impact on: Big shippers vs. small shippers & current shippers vs. new shippers

When it comes to the balancing model, the main change is that a shipper who transports gas to Sweden no longer has to balance two systems, but shall only be in balance in one system, the JBZ.

The analyses of the impact from these changes in the Danish balancing model, in order to create the new JBZ, have not identified any issue that will significantly change the competition between big and small shippers or between current shippers and new shippers.

The main benefit arising from going from two to one balancing model is that the complexity of the shipper/BA operations is reduced. The shipper/BA will therefore have a simpler and less costly operation. This will make it easier to be an active shipper/BA in both Denmark and Sweden. It might be argued that these benefits will have a bigger positive impact on a small shipper with few resources than on a big shipper with more specialised resources. But, in all, it will be a simple setup to navigate in, and it is expected to benefit everyone.

It can be argued that these benefits will also make it easier for new shippers/BAs that currently are only active in one market to become active in both Sweden and Denmark.

Thus, the changes are considered to have a generally positive impact on the markets in the JBZ.

4.3 Consequences from changes in the tariffs and costs

Energinet proposes to introduce a new Balancing Charge to cover the indirect balancing costs.

The consequence is that the costs for indirect balancing, which today are covered by the variable commodity charge paid at the exit Zone and exit points – not at entry, in the future will be covered by the Balancing Charge, which also is paid at the exit Zone and exit points – not at entry, just as today.

The variable commodity charge will no longer include the indirect balancing costs. The new Balancing Charge has therefore no impact on Shippers/BA, the market in general, the revenues of Energinet or the tariff level.

The only real consequence is an increased transparency in the indirect balancing costs. This is inspired by the transparency that is given in Sweden on the balancing costs.

5. Public hearing

Energinet has subjected this Submission to a public hearing for four weeks from 8 June to 6 July.

The current suggestion for JBZ between Sweden and Denmark has been developed in a close cooperation between Swedegas and Energinet and with input from the market participants. There has been an extensive dialogue with the market's participants through:

- Shippers' forums
- User Group on the JBZ
- Shippers' Taskforce on tariffs
- Gasmarknadsrådet (arranged by Swedegas)
- Bilateral meetings with markets participants

Market participants and other stakeholders are able to follow the JBZ project via the dedicated JBZ website:

<https://en.energinet.dk/Gas/Shippers/Swedegas-Joint-Balancing-Zone>

The website contains further JBZ material including:

- Q&A based on the questions raised at the bilateral meetings or received via email (also attached as Appendix 1: Q&A)
- Examples of how to use the capacity model and the balancing model
- JBZ presentations from various forums listed above

5.1.1 Traceability of biomethane

During Energinet's forums on 7 December 2017, the Shippers' forum, the User Group on the JBZ and the Shippers' Taskforce on tariffs, serious concern was voiced as to whether the introduction of the JBZ would create potential barriers for trading biomethane, aka bio-natural gas, between Sweden and Denmark.

Energinet and Swedegas are both committed to supporting a positive development of bio-methane. It is therefore important to both TSOs and the market participants that the JBZ does not create any barriers for trading biomethane. Swedegas and Energinet have collaborated on analysing the matter.

The Danish/Swedish analysis of potential barriers for biomethane trade, due to the planned JBZ, included a dialogue with the following market participants:

- Accountants of biogas certifications (two different accounting firms)
- BAs in Sweden (all BAs)
- Shippers in the Danish system (a few Shippers)
- Swedish tax authorities

None of the listed participants could identify any barriers for biomethane trade.

6. Time schedule

The JBZ project plan is developed with the purpose of meeting the deadline 1st April 2019, when Swedegas will no longer be exempt from meeting the requirement from the European NC BAL. During the course of 2017 and Q1 2018, a thorough analysis of the basis for implementing a joint Danish and Swedish balancing zone – the JBZ - has been conducted.

Based on the analysis, a method description has been developed during Q1 & Q2 of 2018. The market hearing of the changes in the Danish method, which needs to be approved by DERA, is planned for June 2018.

The market hearing of the changes in the Swedish balancing rules is planned for August 2018.

Following the market hearing, potential comments from the market are planned to be implemented, and a revised version is planned to be sent to the DERA in August 2018. It is expected that the DERA will reply not later than 31 March 2019. It is expected that the Swedish regulator will reply by March 2018.

The implementation project will start up mid-June 2018. This is necessary as the project will affect a number of systems on the IT-platforms of both Energinet and Swedegas, and therefore there is a need for sufficient time to test and validate whether the system is operational. Finally, Energinet and Swedegas will also make the systems available for the market participants in Sweden and Denmark for testing in January and February 2019. Figure 13 contains the guiding project plan.

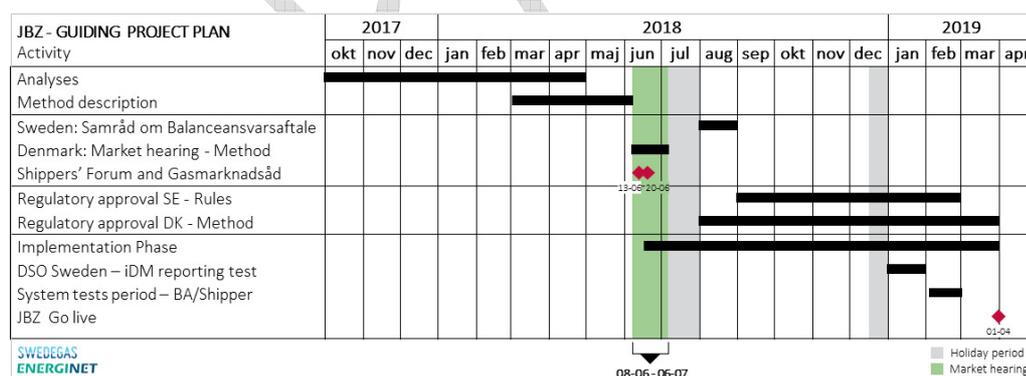


Figure 13, JBZ guiding project plan

Appendix 1 – Market Q&A

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JBZ Q&A

Please note that the answers are not legally binding

1. BAM (Balancing Area Manager) Administration

<p><i>1.1 Who will manage the BAM?</i></p>	<p>The BAM consists of Energinet and Swedegas. It is not a separate legal entity but is staffed by people from Swedegas and Energinet. Energinet has existing systems for the operation of the BAM role, and these will be used.</p>
<p><i>1.2 If a shipper/BA has more than one company active in the Danish and Swedish market, how is this handled in the JBZ?</i></p>	<ul style="list-style-type: none"> • Each legal entity (company) active in the JBZ has its own balance responsibility. Therefore, it is not possible to pool the balances from two legal entities. • Each legal entity active in the JBZ is responsible for booking its own capacities in the Danish market model. Please also note that capacity for the Virtual Exit Zone (Swedish part) is based on the Swedish net consumption. • The Shippers/BAs must be registered with the national TSO where they are active. However, all Shippers/BAs need to be registered with Energinet as the systems used by the BAM belong to Energinet, and therefore Energinet must know every player in the JBZ.

2. Capacity booking in the Virtual Exit Zone (VEZ)

<p><i>2.1 The first Monday in July 2018, yearly capacity at Dragør will be sold via auctions at PRISMA. What will happen to the capacity contracts if we purchase long-term capacity?</i></p>	<p>Long-term capacity contracts (yearly and quarterly) for Dragør concluded at PRISMA with duration after 1 April 2019 (GO-live) will be converted to Virtual Exit Zone Capacity. The price of the capacity contracts will remain the same. There will be no extra cost in relation to the conversion.</p>
<p><i>2.2 Where can we purchase Virtual Exit Zone capacity, and how?</i></p>	<p>Virtual Exit Zone capacity can be purchased via Energinet's self-service portal, 'Energinet Online', according to the principle FCFS (First-come-first-served). The deadline for capacity booking is the same as for Energinet's existing capacity point Exit Zone. The shipper/BA must have registered one or more capacity users by completing an Online Access Agreement. Click here to learn more about the registration process.</p>
<p><i>2.3 What does capacity in the Virtual Exit Zone consist of?</i></p>	<p>Purchase of capacity in the Virtual Exit Zone covers hourly consumption in the Danish Exit Zone and hourly net consumption for the Swedish Exit Zone.</p>
<p><i>2.4 What happens if we do not have sufficient capacity in the Virtual Exit Zone?</i></p>	<p>Today, if the nomination at Dragør to Sweden is higher than the capacity booking, the nomination will be reduced to the capacity booking. This will change. Under the JBZ, a shipper/BA who is active at the new VEZ and has not booked capacity or sufficient capacity will be assigned a daily capacity based on the maximum hour allocation for the VEZ (meaning allocation for VEZ Denmark + VEZ Sweden per hour) as in Exit Zone Denmark today. This is referred to as overrun charge.</p>
<p><i>2.5 What is overrun charge and how is it charged?</i></p>	<p>If the Shipper's allocation in the VEZ in one or more hours during the gas day exceeds the shipper's total capacity according to the monthly validated data, the shipper must pay the capacity charge for daily capacity (Firm Capacity) based on the overrun quantities for the hour with the highest overrun during the relevant gas day.</p>
<p><i>2.6 Today we can book capacity at Dragør Entry. Where</i></p>	<p>For the Swedish part of the VEZ, capacity can be booked in the reverse direction to</p>

<p><i>and how can we book capacity if we transport gas from Sweden towards Denmark?</i></p>	<p>accommodate the need for export. Allocation will, however, still be on net consumption.</p>
<p><i>2.7 How is net consumption in the Virtual Exit Zone calculated?</i></p>	<p>The net consumption in Sweden is calculated as the sum of each BA's/shipper's Production SE - Total Consumption SE ± Storage SE = Net consumption. If this sum is positive, an entry is allocated instead of an exit.</p>
<h3>3. Nomination in JBZ</h3>	
<p><i>3.1 To whom do we send our nomination?</i></p>	<p>Below is an overview showing to whom the nomination should be sent. A further description on data procedure will be provided at a later stage.</p> <ul style="list-style-type: none"> • ETF nominations are automatically received by the BAM from Gaspoint Nordic A/S • GTF nominations must be sent to Energinet • BNG DK nominations must be sent to Energinet • Ellund/Nybro nominations must be sent to Energinet • Storage DK nominations must be sent to Energinet • Exit Zone DK nominations must be sent to Energinet • Consumption SE (forbrukningsplan) nominations must be sent to Swedegas • Production SE (produktionsplan) nominations must be sent to Swedegas • Storage SE nominations must be sent to Swedegas. <p><i>Swedegas will send the net nomination (consumption SE – Production SE + Storage SE) for Sweden to the BAM who uses it to calculate the E(SCB).</i></p>
<p><i>3.2 In the VEZ, should we nominate an average per day or should we nominate differently for each hour and portfolio in the gas day?</i></p>	<p>The shipper/BA must send the nominations as they do it today. So the nominations must be sent by the hour, and the total daily sum must be as correct as possible.</p> <p>The nominations in Sweden are used for forecast (Swedegas).</p> <p>Swedegas will send the (nomination) sum of production, consumption and storage to the BAM.</p>
<p><i>3.3 Will there be a change in how to nominate to the Danish Exit zone (to NDMS and DMS portfolios)?</i></p>	<p>No major changes are expected in relation to how shippers are to nominate for the Danish Exit Zone. Nominations will still be on portfolio level. Nominations must still be on NDMS or DMS in the Danish Exit Zone.</p>
<h3>4. Allocation</h3>	
<p><i>4.1 At which points will the shipper/BA be allocated? And will shippers receive the allocation from Energinet or Swedegas?</i></p>	<p>After each gas day, the shipper/BA receives an Energy Balance from the BAM (using Energinet's IT systems), according to which they will be allocated on every point for every hour in the joint balancing zone based on allocation data from Energinet and Swedegas.</p> <p>The total end-of-day balance will also appear from the Energy Balance.</p> <p>The current allocation reporting in Sweden between Swedish DSO's and the shipper/BA will continue as today.</p>
<h3>5. Balancing model</h3>	
<p><i>5.1 What is E(SCB)?</i></p>	<p>E(SCB) stands for 'Estimated System Commercial Balance', which is a forecast of</p>

	the aggregated system commercial balance position at the end of the gas day. E(SCB) is published every hour starting at 06:45 a.m.
<i>5.2 Will Energinet continue to do the yellow-zone trades at Gaspoint Nordic, or will it be Swedegas?</i>	The BAM will act on ETF (Gaspoint Nordic).
<i>5.3 Can you give an estimation of how much a Danish shipper will pay on average for imbalance during a gas year?</i>	Historically, the active shippers have paid, on average, less than 1% of the gas price of their respective imbalance volumes.
<i>5.4 Does the existing Danish balancing model consist of a helper/causer system?</i>	All shippers/BAs will be cashed out if they have an imbalance at the end of the day. We do not reward shippers who help the system. But the shippers causing an inconvenience in the system may have a greater penalty depending on yellow-zone trades during the gas day.
<i>5.5 Will the daily green band (System Commercial Balance) be published on Swedegas' webpage?</i>	A link to Energinet Online (Energinet's self-service portal) will be published on Swedegas' webpage. The System Commercial Balance is public data and does not require any user access. It is more efficient that the data are only available in one place since mismatching data could cause confusion. Link to Energinet Online (System Commercial Balance)
<i>5.6 Will the flexibility of the green band increase in JBZ?</i>	Yes, the flexibility of the green band will have a proportional increase compared to the increase in the total linepack.
6. Trade in biomethane	
<i>6.1 Will JBZ have any impact on the traceability of trade in biomethane?</i>	The issue has been analysed. Energinet and Swedegas had interviews with two independent auditors of biomethane. No barriers have been identified, and no Shipper/BA has reported any specific problems. Biogas that today is transported via Dragør will in future be transported via the VEZ.
7. Data exchange	
<i>7.1 Who will exchange data with whom?</i>	Currently, only minor changes are expected in the data flow between the TSO/BAM and the Shipper/BA. A detailed document will be published at a later stage.
<i>7.2 Will the shippers/BA have time to test before GO-LIVE on 1 April 2019?</i>	Yes, we will publish a time slot in which testing is possible, before Go-LIVE.
<i>7.3 What format will the data communication be in?</i>	Further information will be published later. However, Energinet is in the process of converting into XML 5.1 (and support 4.0) and will stop using flat files. Swedegas will offer BAs the option to convert the data flow from BA into XML 5.1 and to pass it on to the BAM. Please note that the decision on XML 5.1 depends on the JBZ project.
8. Cost of implementation	
<i>8.1 Have the external IT-costs been quantified yet?</i>	The total costs have not been quantified. Swedish distribution companies will have IT-costs in order to increase the information to the market from 2 to 5 times a day.

<p><i>Will the Swedish "Energiförbrukningsavgift" disappear in JBZ?</i></p>	<p>No, not from day one, but it is our aim to reduce it by increasing efficiency in the settlement process.</p>
<p>9. Other</p>	
<p><i>9.1 Today, shipper A in Denmark delivers gas to shipper B in Sweden by sending nominations to Swedegas and Energinet including the shipper codes for the counterparty at Dragør. How will this be handled in JBZ?</i></p>	<p>In the JBZ, the shipper/BA will not be able to exchange gas at the Dragør border as this point will no longer exist, and there will be no matching process coordinated between Swedegas and Energinet. Instead, shippers/BAs may exchange gas at the virtual trading point, GTF (Gas Transfer Facility).</p>
<p><i>9.2 How will it affect JBZ if a crisis situation occurs and one of the three crisis levels (Early warning, Alert and Emergency) is activated?</i></p>	<p>Further information will be published later.</p>

Appendix 2 – Public hearing comments

Energinet has received the attached public hearing comments from the following market players:

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