

# **(Survey) Future development of market model for Frequency Containment Reserves (FCR) and Fast Frequency Reserve (FFR)**

Stakeholder early engagement survey  
February 2021



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## 1 Introduction and instructions

At present, the Nordic Transmission System Operators (TSOs) arrange markets for the procurement of Frequency Containment Reserves for Normal and Disturbance (FCR-N and FCR-D) and Fast Frequency Reserves (FFR). The purpose of these reserves is to increase or decrease the electric power infeed or offtake to maintain electricity supply and high quality of frequency in the electricity system. Some exchange of reserves takes place between the TSOs of the Nordic synchronous system as well as with TSOs outside of the Nordics. Even though there are many similarities in the market design in the Nordic countries, there are nevertheless important differences.

In order to attain a more holistic view on the future market design of FCR and FFR reserves, we are conducting an early stakeholder engagement. This early stakeholder engagement includes FCR-N, FCR-D up, FCR-D down and FFR products. The primary objective and goal with the engagement is to ensure that all relevant aspects are identified and documented, in order to ensure an efficient market design both short- and long-term for all network users and existing and potential future reserve providers. In other words, achieving a market model that enhances both market efficiency and a more robust security of supply.

As this is an early stakeholder engagement, no actual proposal on future market design is made by the TSOs. The rationale behind not proposing an actual solution is that the provided input from stakeholders should be kept as unbiased as possible. As expected, one or several stakeholder consultations will be held in the near- and mid-term future before an updated market model is agreed upon, regulatory approved and commissioned. The primary time horizon of the updated market model is long-term, so little/no consideration to the current market setup necessarily needs to be made in the stakeholder proposed material on the future market model(s). However, if possible, elaboration on preferred immediate development steps and/or compliance to the relevant legal framework is naturally of interest to us.

This document's purpose is to give some guidance to engaged stakeholders, in order to achieve some structure on provided input while still respecting the aim to not bias any stakeholder view and input. Please note that technical requirements of reserves are out of scope in this engagement and therefore there will be no direct question on that area. Feedback related to technical requirements of reserves should be directed to the Nordic TSOs under the consultations under "FCP"-project (Revision of the Frequency Containment Process) during 2021. However, if a market design feature heavily depends on certain technical requirement feature, please state so. General remarks can be given in the end. This stakeholder engagement does not hold legal status, but its only purpose is to give stakeholders an opportunity to give early input in the design of the future FCR and FFR markets. All feedback is highly appreciated.

It should also be emphasized that should the scope of any of the topics be unclear, feel free to contact the provided contacts for further elaboration.

(SURVEY) FUTURE DEVELOPMENT OF MARKET MODEL FOR FREQUENCY  
CONTAINMENT RESERVES (FCR) AND FAST FREQUENCY RESERVE (FFR)

**Confidentiality/privacy and publication**

Please note, that any stakeholder suggestion/input is considered non-binding. Furthermore, please note that any input/suggestion can be made anonymously. If anonymity is required, please state so in the response. The received material will be shared with the other Nordic TSOs, on an anonymous basis if requested. The results from this stakeholder engagement are expected to get published during Q2-2021.

**Contact information**

**TSO**

For further questions regarding this early stakeholder engagement – don't hesitate contacting:

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Answers can be delivered by preferably using this word-template or in free-form. In case of using the template please state your input in the blue-boxes:

"Example question":

*Insert text here*

Please provide your answers by e-mail no later than 7th of March, 2021

to Fingrid: [FCR@fingrid.fi](mailto:FCR@fingrid.fi) with the subject "Comments on Nordic reserve market model development 2021"

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**Stakeholder**

Please provide the following information:

Do you accept making your response public among the other Nordic TSO:s (yes/no)?:	<input type="text" value="Insert text here"/>
Full name:	<input type="text" value="Insert text here"/>
Contact information:	<input type="text" value="Insert text here"/>
Role at company:	<input type="text" value="Insert text here"/>
Company:	<input type="text" value="Insert text here"/>
What type of organization/company do you represent?:	<input type="text" value="Insert text here"/>
If you represent a current or potential provider – what technologies does your portfolio consist of e.g. consumption, thermal, batteries, wind or hydro.	<input type="text" value="Insert text here"/>
Other info:	<input type="text" value="Insert text here"/>

## 2 Pillars of the future market model for FCR-N, FCR-D, FFR

*Below follow several subsections which include of one subject per topic. Each subsection includes one or several aspects and are briefly elaborated upon in order to provide a better understanding of the subject matter and some guidance on the material included. Should there be other positions/views that you consider relevant, feel free to elaborate under section 2.16.*

*For further background material please refer to:*

- [https://www.fingrid.fi/en/electricity-market/reserves\\_and\\_balancing/](https://www.fingrid.fi/en/electricity-market/reserves_and_balancing/)
- <https://www.svk.se/aktorsportalen/elmarknad/information-om-stodtjanster/>

(SURVEY) FUTURE DEVELOPMENT OF MARKET MODEL FOR FREQUENCY CONTAINMENT RESERVES (FCR) AND FAST FREQUENCY RESERVE (FFR)

## 2.1 Auctions, Gate times and clearing methodology

This section refers to when in time reserve capacity should be offered and how it is procured. Gate opening refers to the start of bid submission. Gate closure refers to the latest point in time at which bids must be submitted to a clearing procedure (auction). Currently, Nordic TSOs procure reserves as far ahead as a year in advance to the day before delivery. Table 1 and 2 shows the current procurement timescales for FCR and FFR in Sweden and Finland, in relation to the day D of delivery.

**Table 1. Current FCR-N, FCR-D and FFR reserve markets gate opening times (times in CET)**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
FCR-N	D-2 for D-2 auction. D-1 for D-1 auction.	<b>Yearly market</b> annually announced. <b>Hourly market</b> 31 days before (D-31)
FCR-D	D-2 for D-2 auction. D-1 for D-1 auction.	<b>Yearly market</b> annually announced. <b>Hourly market</b> 31 days before (D-31)
FFR	Yearly market annually announced	<b>Hourly market</b> 31 days before (D-31)

**Table 2. Current FCR-N, FCR-D and FFR reserve markets gate closure times (times in CET)**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
FCR-N	D-2 auction at 15:00 D-1 auction at 18:00	<b>Yearly market</b> auction at fall with hourly reserve plans D-1 at 17:00. <b>Hourly market</b> D-1 auction at 17:30 (D-2 market if needed.)
FCR-D	D-2 auction at 15:00 D-1 auction at 18:00	<b>Yearly market</b> auction at fall with hourly reserve plans D-1 at 17:00. <b>Hourly market</b> D-1 auction at 17:30 (D-2 market if needed.)
FFR	Yearly procurement with D-3/D-4 auctions of procured resources	<b>Hourly market</b> D-1 auction at 17:00

Question A: Please indicate your preferred clearing methodology (including type of auction) and/or other, and provide an explanation for your choice.

I.	FCR-N	Insert text here
II.	FCR-D up/down	Insert text here
III.	FFR	Insert text here
IV.	General/Other remarks	Insert text here

Question B: how can one or several auctions complement one another? Please indicate if you prefer a single or multiple auctions and why.

I.	FCR-N	Insert text here
II.	FCR-D up/down	Insert text here
III.	FFR	Insert text here
IV.	General/Other remarks	Insert text here



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*Question C: Please indicate your preferred gate opening and gate closure time(s), and explain why. Also, please comment on the possibility of reserve procurement before and/or after the day-ahead market trading timeframe.*

I.	FCR-N	<i>Insert text here</i>
II.	FCR-D up/down	<i>Insert text here</i>
III.	FFR	<i>Insert text here</i>
IV.	General/Other remarks	<i>Insert text here</i>

(SURVEY) FUTURE DEVELOPMENT OF MARKET MODEL FOR FREQUENCY CONTAINMENT RESERVES (FCR) AND FAST FREQUENCY RESERVE (FFR)

## 2.2 Notification of market results

*This section refers to the latest point in time when reserve providers should be informed about their capacity bids having been accepted or rejected.*

**Table 3. Current FCR-N, FCR-D and FFR reserve ordering times (times in CET)**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
FCR-N	<i>D-2 auction at 16:00 D-1 auction at 20:00 BSPs deliver bids either through designated web-application or EDIEL. Results will be electronically communicated to market participants.</i>	<i><b>Yearly market</b> providers can fully deliver the capacity of the reserve plan <b>Hourly market</b> D-1 auction results at 21:00 latest. BSPs which deliver bids via ECP will receive results immediately after clearing. Others receive results scheduled results later via EDIEL.</i>
FCR-D	<i>Same as for FCR-N above</i>	<i><b>Yearly market</b> providers can fully deliver the capacity of the reserve plan <b>Hourly market</b> D-1 auction results at 21:00 latest. BSPs which deliver bids via ECP will receive results immediately after clearing. Others receive results scheduled results later via EDIEL.</i>
FFR	<i>Yearly procurement with D-3/D-4 auctions of procured resources</i>	<i><b>Hourly market</b> D-1 auction results at 21:00 latest. BSPs which deliver bids via ECP will receive results immediately after clearing. Others receive results scheduled results later via EDIEL.</i>

*Question A: Please indicate your preferred time of notification of the market results, and explain why.*

<i>I.</i>	<i>FCR-N</i>	<i>Insert text here</i>
<i>II.</i>	<i>FCR-D up/down</i>	<i>Insert text here</i>
<i>III.</i>	<i>FFR</i>	<i>Insert text here</i>
<i>IV.</i>	<i>General/Other remarks</i>	<i>Insert text here</i>

(SURVEY) FUTURE DEVELOPMENT OF MARKET MODEL FOR FREQUENCY CONTAINMENT RESERVES (FCR) AND FAST FREQUENCY RESERVE (FFR)

## 2.3 Market time unit

Market time unit (MTU) refers to the duration of product delivery, in reserve markets to the frequency control service delivered by the reserve provider. The imbalance settlement period (ISP) is currently 60 min, but is going to be changed to 15 min in the future, [link](#) for more information. The MTU for FCR-N, FCR-D and FFR could be the same as the ISP timeframe, or potentially multiple(s) of this. Different MTUs for reserve products are currently in place in Europe.

**Table 4. Current FCR-N, FCR-D and FFR market time units**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
FCR-N	One hour	one hour (yearly market consists of hourly deliveries)
FCR-D	One hour	one hour (yearly market consists of hourly deliveries)
FFR	One hour	one hour

Please note section 2.5: “bid formats” to include possible comments about conditional and linked bids between multiple MTU’s.

Question A: Please provide input on which market time units are preferred under both 15- and 60 min ISP, and explain why.

I.	FCR-N	<i>Insert text here</i>
II.	FCR-D up/down	<i>Insert text here</i>
III.	FFR	<i>Insert text here</i>
IV.	General/Other remarks	<i>Insert text here</i>

## 2.4 Remuneration

*This section refers to what kind of remuneration mechanisms should be in place when selected reserve providers are compensated for the availability of their capacity. Currently both pay-as-bid and pay-as-cleared (marginal pricing) formats are in use in the Nordics for FCR and FFR capacity provision.*

**Table 5. Current FCR-N, FCR-D and FFR reserve market remuneration rules**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
FCR-N	<i>pay-as-bid</i>	<i>pay-as-cleared</i>
FCR-D	<i>pay-as-bid</i>	<i>pay-as-cleared</i>
FFR	<i>pay-as-cleared</i>	<i>pay-as-cleared</i>

*Question A: Which auction format do you prefer; pay-as-bid, pay-as-cleared or other, and explain why.*

<i>I.</i>	<i>FCR-N</i>	<i>Insert text here</i>
<i>II.</i>	<i>FCR-D up/down</i>	<i>Insert text here</i>
<i>III.</i>	<i>FFR</i>	<i>Insert text here</i>
<i>IV.</i>	<i>General/Other remarks</i>	<i>Insert text here</i>

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## 2.5 Bid formats

*This section refers to preferred bid format(s) in the clearing process. Example of bid formats include single bids, block bids, pre-determined hourly blocks, linked/conditional bids, limited capacity bids, divisibility/indivisibility etc. It is also of interest to define which bid formats should not be supported, if any. In addition, we welcome input on min/max number of hours with blocks, whether pre-defined block time period is acceptable or not, etc.*

**Table 6. Current FCR-N, FCR-D and FFR bid formats**

	<b><i>Svenska kraftnät</i></b>	<b><i>Fingrid</i></b>
FCR-N	-Single bids -Block bids	-Single bids, fully divisible -Yearly bids (with hourly reserve plans)
FCR-D	-Single bids -Block bids	-Single bids, fully divisible -Yearly bids (with hourly reserve plans)
FFR	-Yearly single bids	-Single bids, with possibility to forward non-selected bids to FCR-D market. Bids are indivisible.

*Question A: Please provide input on preferred bid formats or on which formats should not be supported, and explain why. Comments related to preferred bid formats under different market time units are preferably noted here, see section 2.3 for further information.*

I. FCR-N

*Insert text here*

II. FCR-D up/down

*Insert text here*

III. FFR

*Insert text here*

IV. General/Other remarks

*Insert text here*

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## 2.6 Volume limits

*This section refers to minimum and maximum bid size volume per bid in the different markets.*

**Table 7. Current FCR-N, FCR-D and FFR market volume limits per bid. Other technical limitations on volumes like maximum volume behind a single connection point.**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
FCR-N	Min: 0,1 MW Max:	Min: 0,1 MW Max: 5 MW
FCR-D	Min: 0,1 MW Max:	Min: 1 MW Max: 10 MW
FFR	Min: 0,1 MW Max:	Min: 1 MW Max: 10 MW

*Question A: Which are your preferred minimum and maximum bid sizes? Please explain why.*

- |      |                       |                  |
|------|-----------------------|------------------|
| I.   | FCR-N                 | Insert text here |
| II.  | FCR-D up/down         | Insert text here |
| III. | FFR                   | Insert text here |
| IV.  | General/Other remarks | Insert text here |

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2.7 Reserve market procurement symmetry

*Technical requirements are out of scope for this early-stage engagement. However, in order to capture some input on an adjacent matter related to market function, please provide your view on whether FFR, FCR-D, FCR-N should be symmetric or asymmetric. An asymmetric reserve product results in a separate provision and procurement of up and down regulating capacity. Symmetric products result in a combined up and down regulating capacity provision and procurement.*

**Table 8. Current FCR-N, FCR-D and FFR symmetry**

<i>Nordic TSOs</i>	
FCR-N	<i>Symmetric product.</i>
FCR-D	<i>Asymmetric product. Currently up regulating procurement, down procurement to be started in 2022.</i>
FFR	<i>Asymmetric product. Currently up regulating procurement.</i>

*Question A: Please provide input on your position regarding asymmetry/symmetry and on the rationale behind your position. Comments related to FCR-N are of particular interest.*

I.	<i>FCR-N</i>	<i>Insert text here</i>
II.	<i>FCR-D up/down</i>	<i>Insert text here</i>
III.	<i>FFR</i>	<i>Insert text here</i>
IV.	<i>General/Other remarks</i>	<i>Insert text here</i>

## 2.8 Exchange of reserves within the Nordic synchronous system

Currently Nordic TSOs exchange FCR-D and FCR-N capacity. No cross-border exchange of FFR takes place at this time. The current System Operations Agreement (SOA) allows Nordic TSOs to procure a maximum of 1/3 of the national obligation to be procured from the Nordic system outside of the own national border each hour. Procurement and valuation are currently done independently per country. This reserve capacity exchange could be potentially changed if e.g. different cross-zonal capacity valuation mechanisms were to be introduced.

Question A: Please provide input on the exchange of reserve capacity, valuation of cross border reserve capacities and cross-border capacity allocation within the Nordics?

- |      |                       |   |
|------|-----------------------|---|
| I.   | FCR-N                 | <input type="text" value="Insert text here"/> |
| II.  | FCR-D up/down         | <input type="text" value="Insert text here"/> |
| III. | FFR                   | <input type="text" value="Insert text here"/> |
| IV.  | General/Other remarks | <input type="text" value="Insert text here"/> |

Question B: Please provide input on the possible establishment of a common Nordic market for the procurement of reserve capacity, and explain why.

- |    |                       |   |
|----|-----------------------|---|
| I. | General/Other remarks | <input type="text" value="Insert text here"/> |
|----|-----------------------|---|

Question C: Please provide input on the optimal cross-border clearing order of reserve products, and explain why?

- |    |                       |   |
|----|-----------------------|---|
| I. | General/Other remarks | <input type="text" value="Insert text here"/> |
|----|-----------------------|---|



## 2.9 Exchange of reserves with external parties/markets (outside of the Nordic synchronous system)

*This section is about the exchange of reserves with adjacent markets, and on how to accommodate such exchanges with the Nordic synchronous system and reserve markets function. This exchange could potentially include regions, for example UK, Baltics and Central Europe) in the future. This theme is complex, as many different market design aspects including cross-zonal capacity allocation and valuation, price mechanisms, auction vs. continuous trade, need to be considered. Exchange of reserves could happen in both directions, meaning to and from the Nordic area. Exchange could be either implicit or explicit. Please provide input on general and specific thoughts on how adjacent markets should interact with the Nordic synchronous system, along with why.*

*Question A: Please provide input on exchange of reserve outside the Nordic market per reserve below.*

I.	FCR-N	<input type="text" value="Insert text here"/>
II.	FCR-D up/down	<input type="text" value="Insert text here"/>
III.	FFR	<input type="text" value="Insert text here"/>
IV.	General/Other remarks	<input type="text" value="Insert text here"/>

## 2.10 Linking between reserve markets

*This section is about linking between ancillary service markets. The current procurement of reserve capacity is primarily done in parallel, e.g. FCR-N capacity is procured independently of FCR-D, even though the auctions are simultaneous. The future market model can/should potentially include implicit/explicit co-optimization between two or several ancillary services. Examples of topics that could be included in the feedback below are: co-optimization/co-clearing, substitution of capacity between product A and B (procuring more capacity of product A can lead to a reduced need for product B capacity, and vice versa). Please provide proposal(s) on the preferred solution and why.*

**Table 9. Current FCR-N, FCR-D and FFR reserve market linking**

	<b>Svenska kraftnät</b>	<b>Fingrid</b>
FCR-N	<i>Independent procurement (no linking)</i>	<i>Independent procurement (no linking)</i>
FCR-D	<i>Independent procurement (no linking)</i>	<i>Possible to bid FCR-D yearly procurement to FFR, if resource has capability for FFR. Accepted bid will lead to decreased yearly FCR-D.</i>
FFR	<i>Independent procurement (no linking)</i>	<i>Possible to forward non-selected FFR single hourly bids to FCR-D market.</i>

*Question A: Should capacity be procured independently of other ancillary services. Please provide preferred solution and reasoning.*

I.	<i>FCR-N</i>	<i>Insert text here</i>
II.	<i>FCR-D up/down</i>	<i>Insert text here</i>
III.	<i>FFR</i>	<i>Insert text here</i>
IV.	<i>General/Other remarks</i>	<i>Insert text here</i>

*Question B: Given FCR and FFR auction timings in a bigger picture of procurement of ancillary services (e.g. FCR-N, FCR-D, FFR, aFRR capacity and mFRR capacity), what is the preferred time of auction clearing for each reserve in parallel/sequence? If relevant, divide into an unbound scenario and one scenario when all reserves are procured on a D-1 basis. Also please indicate an estimate on how much time will be needed from receiving auction results until next gate closure time (assuming auctions in sequence).*

I.	<i>Free scenario</i>	<i>Insert text here</i>
II.	<i>D-1 constrained scenario</i>	<i>Insert text here</i>
III.	<i>General/Other remarks</i>	<i>Insert text here</i>

*Question C: In theory the overall procurement of sufficient balancing resources could be achieved by different combinations of balancing resources from ancillary products. Hypothetically, if relatively more aFRR capacity is procured, relatively less*

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*FCR-N is needed to ensure the same level of frequency quality. Please provide input on whether such substitution between reserves is an preferred solution.*

*Please provide input per reserve below.*

I.	FCR-N	<i>Insert text here</i>
II.	FCR-D up/down	<i>Insert text here</i>
III.	FFR	<i>Insert text here</i>
IV.	General/Other remarks	<i>Insert text here</i>

(SURVEY) FUTURE DEVELOPMENT OF MARKET MODEL FOR FREQUENCY CONTAINMENT RESERVES (FCR) AND FAST FREQUENCY RESERVE (FFR)

## 2.11 Energy settlement

During activation of FCR-N, FCR-D and FFR, certain energy volumes are injected/extracted to/from the Nordic synchronous system. These energy volumes are in some cases settled using measured or separately calculated values today. Price/cost of the activated energy from the reserve varies depending on the settlement model. See table below for a brief summary on the current solution in Sweden and Finland. Please provide input and reasoning for each preferred solution per reserve product, or in general.

**Table 10. Current FCR-N, FCR-D and FFR reserve energy settlement rules**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
FCR-N	<i>Separately calculated energy of quarterly netting valued at balancing price.</i>	<i>Separately calculated energy with hourly netting valued at balancing price. Netting potentially to be removed in near future (under regulatory approval).</i>
FCR-D	<i>No separate settlement however imbalance settlement is adjusted according to calculated value of activation.</i>	<i>No separate settlement (measured energy goes to imbalance settlement)</i>
FFR	<i>No separate settlement (measured energy goes to imbalance settlement)</i>	<i>No separate settlement (measured energy goes to imbalance settlement)</i>

Question A: Please provide input on energy settlement per reserve below.

I.	FCR-N	<i>Insert text here</i>
II.	FCR-D up/down	<i>Insert text here</i>
III.	FFR	<i>Insert text here</i>
IV.	General/Other remarks	<i>Insert text here</i>

## 2.12 Transfer of obligation

Currently the Nordic TSOs procure reserve capacity from providers using several different auctions. Transfer of reserve obligation refers to the transfer of contracted bids from one reserve provider to another (bilateral trade). Today limited/no possibilities exist where providers can change/exchange obligations<sup>1</sup>.

Question A: How should transfer of obligations be enabled, and explain why?

I.	FCR-N	<i>Insert text here</i>
II.	FCR-D up/down	<i>Insert text here</i>
III.	FFR	<i>Insert text here</i>
IV.	General/Other remarks	<i>Insert text here</i>

Question B: Should transfer of obligation be done via continuous trade or via auctions and what are the relevant times for transfer of obligations, and explain why?

I.	FCR-N	<i>Insert text here</i>
II.	FCR-D up/down	<i>Insert text here</i>
III.	FFR	<i>Insert text here</i>
IV.	General/Other remarks	<i>Insert text here</i>

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<sup>1</sup> Transfer of reserve contracts is possible with written consent (primarily relevant for Finland).

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## 2.13 Penalties for non-delivery

*This topic includes the procedure for handling non-delivery of reserve obligation. Outages and faults are prone to happen, and non-delivery of capacity obligations is thus inevitable. Please provide view on procedure for non-delivery of obligations and why.*

**Table 11. FCR-N, FCR-D and FFR penalties for non-delivery**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
FCR-N	<i>Non-delivery is penalized by buyback of verified non-delivered capacity at marginal price.</i>	<i><b>Yearly market</b> in case of under delivery in relation to reserve plan the reserve provider pays yearly FCR-N market price times measurement verified non-delivered capacity <b>Hourly market (D-1)</b> in case of under delivery in relation to reserve trade, the reserve provider pays hourly FCR-N market price times measurement verified non-delivered capacity</i>
FCR-D	<i>(same rules as FCR-N applies for FCR-D)</i>	<i>(same rules as above apply to FCR-D)</i>
FFR	<i>Non-delivery is penalized with no capacity payment for the specific hour or for all hours in call off period</i>	<i>(same hourly market rules as above apply to FFR)</i>

*Question A: Please provide input on penalties for non-delivery per reserve below.*

<i>I.</i>	<i>FCR-N</i>	<i>Insert text here</i>
<i>II.</i>	<i>FCR-D up/down</i>	<i>Insert text here</i>
<i>III.</i>	<i>FFR</i>	<i>Insert text here</i>
<i>IV.</i>	<i>General/Other remarks</i>	<i>Insert text here</i>

## 2.14 Market information, transparency and publication

*Currently each Nordic TSO primarily hosts their own platform(s) for publishing reserve market data and results. In addition, the ENTSO-e Transparency Platform (TP) publishes market data for the Nordic countries. Should there be a complementary “Nordic Transparency Platform” to the ENTSO-e TP that publishes all relevant reserve market data for the Nordic countries, or should each TSO ensure a domestic platform complemented by the ENTSO-e Transparency Platform? In addition to the platform, please provide what information is currently not available from the various data sources. More information related to this:*

- ENTSO-e Transparency Platform, [link](#)
- Svenska kraftnät MIMER, [link](#)
- Fingrid, [link](#)

*Question A: Please provide input and preferred solution on market information, transparency and publication. Also, feedback on IT-system(s) being used is of interest. If the feedback is directed to a specific TSO, please specify this in the answer.*

I. General remarks

[Insert text here](#)

(SURVEY) FUTURE DEVELOPMENT OF MARKET MODEL FOR FREQUENCY CONTAINMENT RESERVES (FCR) AND FAST FREQUENCY RESERVE (FFR)

## 2.15 Market practicalities and IT-systems

*This topic includes general inherent aspects about market involvement, current practices, routines, and IT-systems involved. This topic also include feedback about market entry procedures, trading process and communications & metering procedures.*

**Table 12. Current reserve market practicalities and IT-systems**

	<i>Svenska kraftnät</i>	<i>Fingrid</i>
Description	<p><i>Currently reserve providers and resources must complete approval and agreement process before being allowed to submit offers to the reserve markets.</i></p> <p><i>Communication between TSO-BSP is done through either Fiftyweb or EDIEL for FCR. For FFR it's currently a manual process.</i></p>	<p><i>Currently reserve providers and resources must complete prequalification and contract processes before being allowed to submit offers to the reserve markets.</i></p> <p><i>Offering of reserve capacity to markets and searching of historical transactions is currently done in "Vaksi", which is an internet-based application.</i></p>
More information	<p><i>Links:</i></p> <ul style="list-style-type: none"> <li>• <a href="#"><i>General market info</i></a></li> <li>• <a href="#"><i>Market entry</i></a></li> </ul>	<p><i>Links:</i></p> <ul style="list-style-type: none"> <li>• <a href="#"><i>Market entry (in Finnish)</i></a></li> <li>• <a href="#"><i>Fingrid's reserve trading and information exchange guidelines</i></a></li> </ul>

*Question A: Please provide input on market practicalities and IT-systems. If the feedback is directed to a specific TSO, please specify this in the answer.*

I. General remarks

*Insert text here*



## 2.16 Other and/or general remarks

*Question A: Please provide input on any other, relevant topics.*

I. General remarks

*Insert text here*

This is the end of the document.

Thank you for the participation in this early stakeholder engagement.