BSP - Implementation Guide

mFRR energy activation market

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1 Introduction

This implementation guide describes the interface between BSP and TSO for the mFRR energy activation market.

1.1 Background

mFRR Energy activation market (mFRR EAM) is a project within Nordic Balancing Model (NBM) program. NBM is the program for updating the Nordic balancing process in order to facilitate increased volumes of variable renewable energy in the system, European market integration and improved balancing market efficiency, while maintaining operational security in the most cost-effective manner. This is a complex program having several great challenges to be resolved, including changing and automating critical system operation processes.

The mFRR EAM will go through 4 development steps from now until the Nordic TSOs are connected to the European platform for mFRR activation (MARI). The steps are:

- Preparation for automated operation (from now and to Q4 2022)
- In national control centre there will be focus on testing and training. New IT tools, new roles and routines and fall-back solutions will be developed and introduced to the operators. Criteria and routines for switching between automatic and manual operation must be developed before automated operation.
- For BSPs the main changes are the introduction of new bid format and attributes and changes to electronic ordering. Details for these changes are described in this implementation guide.
- Automated operation pre 15-minute ISP (from Q4 2022 to Q2 2023)
- New business/operation model with automatic balancing solutions, but still 60-minute ISP.
- The purpose of this step is to give time for new processes, organization and IT-systems to be used, adjusted and verified, before go-live of 15 min ISP and MTU.
- All activation processes planned for step 3 will be supported. In this step the scheduled mFRR activation process is running every 15 minutes when working as intended. New solutions for automatic balancing will not necessarily be used all the time, criteria are set for switching between "old" and "new" processes.
- The BSPs must change to the new formats and can use new attributes for bids. The BSPs must be prepared for different activation dynamics than today. Statnett and Svenska kraftnät will develop a period shift process to replace the current products produksjonsflytting (SN) and kvartsaffär (Svk). This is planned to be implemented by introducing a bid attribute to the mFRR product. The design will be further developed this autumn and winter.
- 15-minute ISP and preparation for MARI (from Q2 2023)
- When entering this step, the ISP and MTU change to 15-minute resolution. Nordics are now also fully mACE based regarding mFRR balancing. The control centres are now dependent on the new IT-solutions, including new fall-back processes and solutions
- Period shift product functionality is still running (in Norway and Sweden) but after a settling period it will be reassessed if this is still needed.
- Connection to European mFRR platform (MARI) (go-live is not planned)
- Move from Nordic platform the European platform for mFRR (no changes for BSPs)

- Standard mFRR product shall be fully implemented

This document covers the steps up to and including go-live of 15 minutes ISP. Except for changes in the timing of some of the activation process attributes, described in chapter 2.1, it is not foreseen changes before connecting to MARI for the BSPs.

On the NBM web-page the Nordic TSOs has published "Memo - Process for activating products". In the memo there is a description of stepwise implementation of different market rules for submitting and activating bids, including product attributes and characteristics. Some of the market features may vary between TSOs and might still be under assessment. Such assessments, including discussion with BSPs, will be part of each TSOs process for updating Terms and Conditions and other relevant regulations/documentations.

1.2 Scope

This document covers the implementation of Nordic mFRR energy activation market and provides information about the processes required to support this market. Both functional and technical aspects are covered. The intended users of this document are the participating BSPs[1].

The main processes described are:

- Bid collection process, including
- New message format
- New bid attributes
- Energy activation process
- New/changed activation processes: Scheduled activation, Direct activation and for Norway and Sweden a Period shift process
- Changes to electronic ordering, including introduction of health check

[1] In Denmark the BSP role has not been separated from the BRP role, so in Denmark the target ordience for this document is the BRP. Whenever the term BSP is used thoroughout this document it should be interpreted - for Denmark - as the «BRP acting as BSP»

1.3 Terms and definitions

Acronym	Term	Definition
AOF	Activation Optimization Function	*The role to operate the algorithm applied for the optimisation of the activation of Balancing Energy bids within a Coordinated Balancing Area.*
BEGCT (BSP GCT)	Balancing Energy Gate closure time	*The point in time when submission or update of a balancing energy bid is no longer permitted*
BEGOT	Balancing Energy Gate opening time	*The first point in time when submission of a balancing energy bid is permitted*
BRP	Balance Responsible Party	*A market participant or its chosen representative responsible for its imbalances*
BSP	Balancing Services Provider	*A market participant with reserve-providing units or reserve-providing groups able to provide balancing services to TSOs*
CIM	IEC Common Information Model	*A standard for describing information about an electrical network. The European style market profile is a profile derivation from the CIM to harmonize the energy market data exchanges in Europe.*
CZC	Cross Zonal Capacity	*The cross-zonal transmission capacity between two bidding zones*
FAT	Full Activation Time	*The period between the activation request by the connecting TSO and the corresponding full delivery of the concerned product*
ECP	Energy Communication Platform	*Reference implementation of MADES standard*
ISP	Imbalance Settlement Period	*The time unit for which balance responsible parties' imbalance is calculated*
MADES	Market Data Exchange Standard	*Communication IEC standard designed by ENTSO-E*
MOL	Merit Order List	*A list of balancing energy bids sorted in order of their bid prices, used for the activation of those bids*
MTU	Market Time Unit	*The period for which the market price is established or the shortest possible common time period for the two bidding zones, if their market time units are different.*
TSO	Transmission System Operator	*A party that is responsible for a stable power system operation (including the organisation of physical balance) through a transmission grid in a geographical area. In the Nordic synchronous area, there are four TSOs: Svenska kraftnät, Fingrid, Energinet.dk and Statnett.*
	Connecting TSO	*the TSO that operates the scheduling area in which balancing service providers and balance responsible parties shall be compliant with the terms and conditions related to balancing;*
TSO GCT	TSO energy bid submission gate closure time	*The latest point in time when a connecting TSO can forward the balancing energy bids received from a balancing service provider to the activation optimisation function*

1.4 References

Ref [1] mFRR Implementation Framework https://consultations.entsoe.eu/markets/mfrr_implementation_framework/

Ref [2] Common Information Model (CIM) and CIM based documents. ENTSO-E implementation guides, see ENTSO-E Electronic Data Interchange (EDI) Library

Ref [3] Acknowledgement: IEC 62325-451-1: Acknowledgement Business Process And Contextual Model For CIM European Market.

Ref [4] EIC codes: The Energy Identification Coding (EIC)

Ref [5] ENTSO-E codelist: Common information model (CIM) European style market profile

Ref [6] Activation (Will point to MARI when its ready) : Common Platform for Replacement Reserves (TERRE) Automatic Frequency Restoration Reserve Process (Picasso)

Ref [7] Nordic Trading System BRS: This document is a Business Requirement Specification (BRS) detailing the document exchanges related to trade in the Nordic energy market

Ref [8] Nordic Operate BRS: This document is a Business Requirement Specification (BRS) detailing the document exchanges related to operation of the Nordic energy market.

Ref [9] NMEG Code List Library: Description of additional codes used for the Nordic Market, Code list schema.

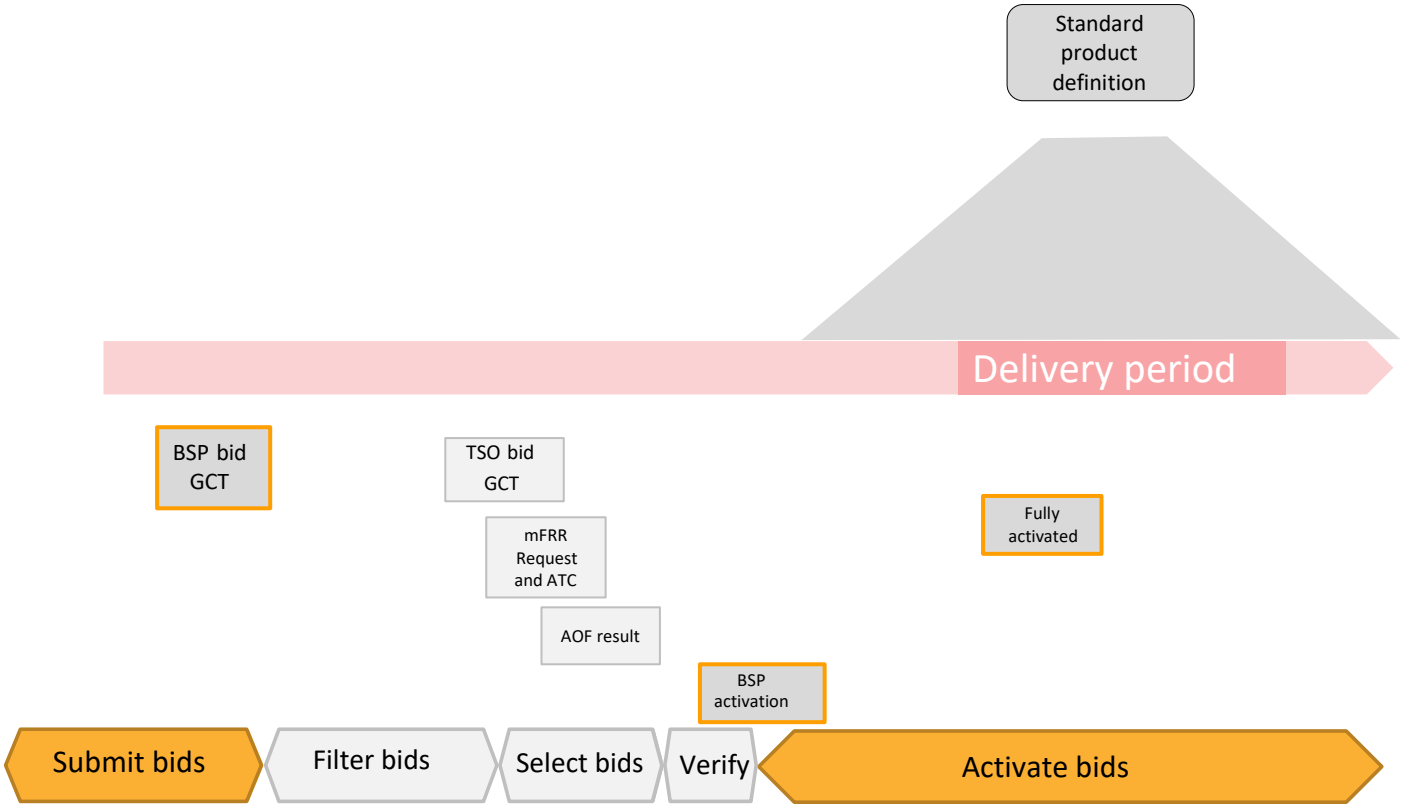
1.5 Implementation plan for Nordic mFRR EAM

The overall implementation plan is available at https://nordicbalancingmodel.net/roadmap-and-projects/. Specific implementation plans for each TSO for the processes described in this implementation guide are described in chapter 4 "TSO specific information".

2 Business context

2.1 Overall process and timeline

In the figure below the timing for the bidding and activation processes is illustrated. The subprocesses and timing where the BSP is involved are indicated in orange colour.



The timing of the processes will change through the four development steps described in chapter 1.1. The planned timing for each development step is described in the table below.

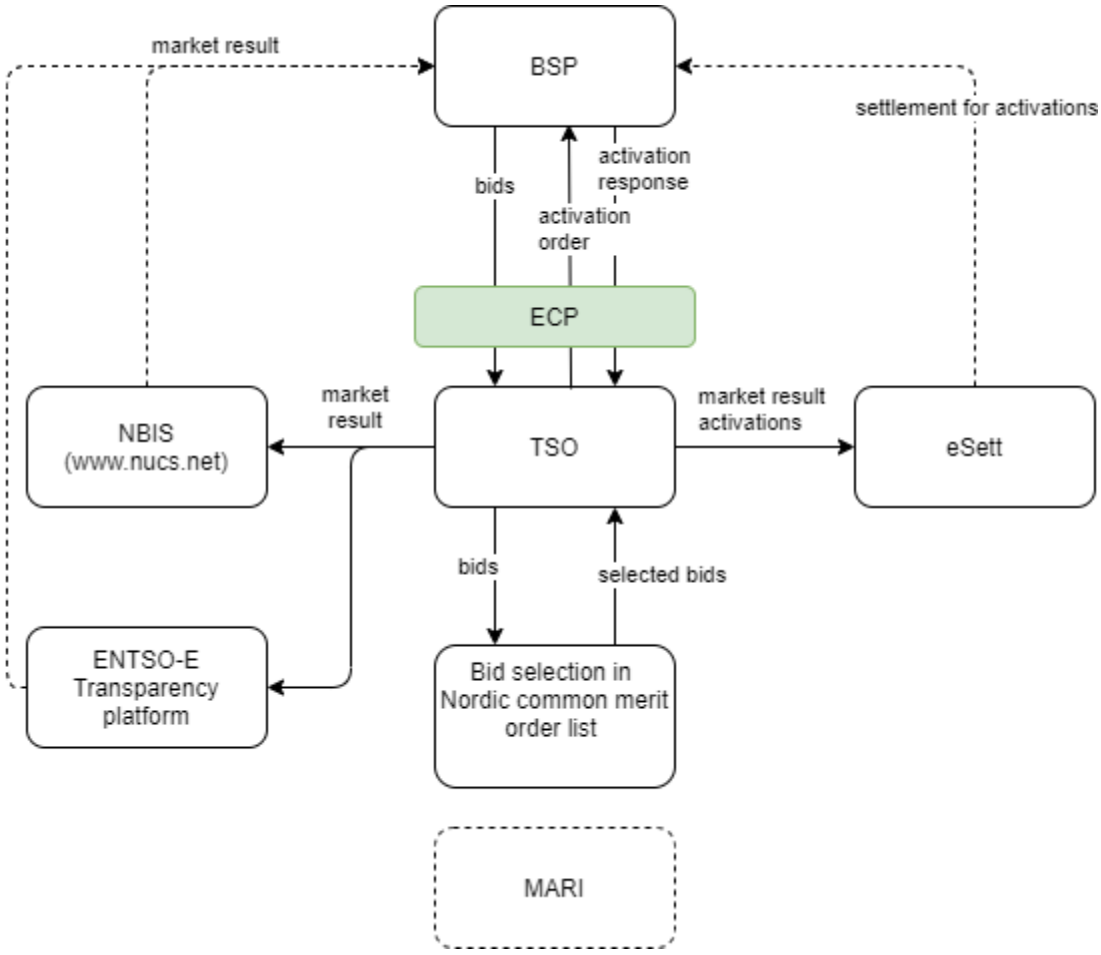
In the "Automated operation pre 15-min ISP" phase, the TSOs will have some more time from bids are selected by the Activation Optimization Function (AOF) to the activation is electronically ordered, than in later steps. The reason for this is to make it possible for the TSOs to initiate remedial actions before activation start, to avoid potential congestions. During "Automated operation pre 15-min ISP" the TSOs will be able to assess and adjust congestion management functionality, before go-live of 15 min ISP.

	Today	Automated operation, pre 15-min ISP	After 15 min ISP but before connection to MARI	When connecting to MARI
BSP GCT (BEGCT bids)	45	45	25	25
TSO GCT	45	17	12	12
TSO mFRR request	NA	15	10	10

AOF run	NA	15	10	10
AOF results	NA	13	8	8
TSO verification period				
Activation orders are sent to BSPs	NA	7.5	7.5	7.5
Full Activation Time, FAT (minutes)	15	15	12.5	12.5

2.2 System context

The diagram below shows the system context of the mFRR energy activation market from a BSP viewpoint. This document provides detailed information about the message exchanges between BSP and TSO. The other exchanges are shown for information purposes only and are outside the scope of this document



2.3 Fallback

2.3.1 Bid collection

Each TSO will have redundant mechanisms to receive bids from BSPs. In addition to machine-to-machine via ECP, it could be a web solution, e-mail, etc. See more on the TSO specific details in Chapter 4.

2.3.2 Bid selection

In cases where the automatic solutions don't work, there will be fall-back solutions in use by one or more TSOs. This fall-back algorithm does not take all bid attributes into account and cannot guarantee a bid selection where all bids that are in-the-money are selected (e.g. not selecting up regulation bid with lower bid price than the marginal price). Unforeseeably rejected bids can potentially happen in normal operation but is more likely to happen in fall-back situations.

2.3.3 Activation

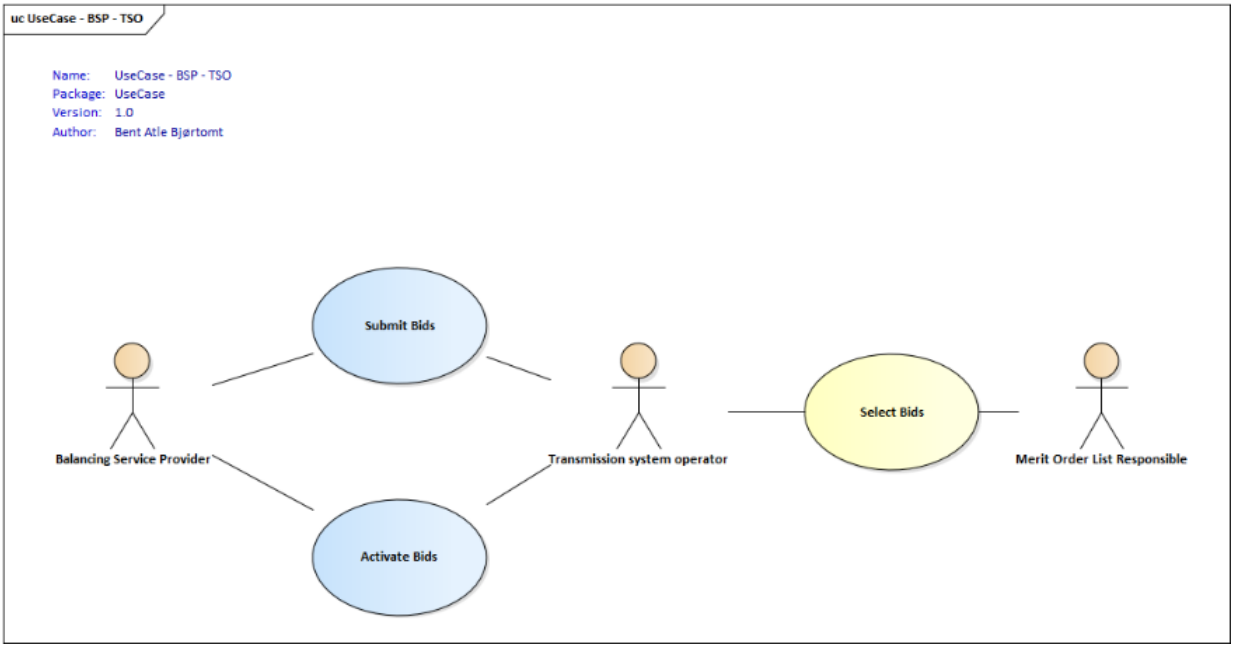
As of now, the fall-back for activation, if electronic ordering is not working, is phone. If one or a few BSPs are not able to receive electronic activation order, their bids will not be included in the bid selection. If there is a major problem with electronic ordering, the TSO must communicate activations via phone. Procedures for this situation will be described in local terms and conditions.

3 Business process

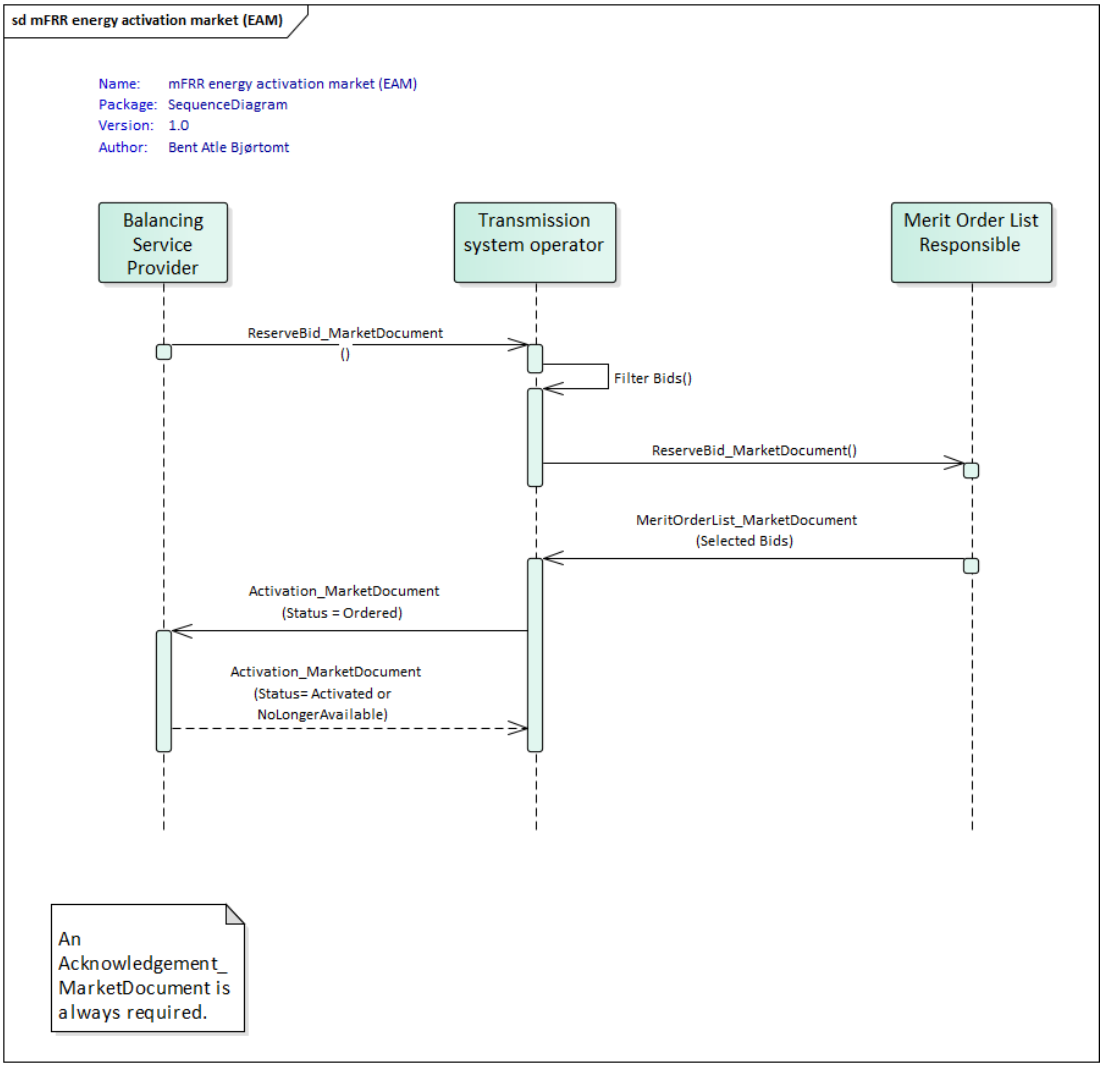
This chapter describes the mFRR EAM process from a BSP perspective with a focus on implementation of message exchanges. In addition to this implementation guide the BSPs need to comply with the relevant national Terms & Conditions, that will be updated accordingly.

3.1 mFRR Business process

This is an overview of the business processes included in the mFRR energy activation market.



3.2 The mFRR energy activation market sequence diagram



The role "Merit Order List Responsible" will be common Nordic during the steps 1-3 prior to connecting to the European platform MARI step 4.

3.3 Submit bid process

Bids can be submitted in a *ReserveBid_MarketDocument* via the ECP-network provided by the TSO. Alternatively, bids can be submitted via a web user interface, as described in chapter 4. A bid is placed in the market when the TSO has provided a positive *Acknowledgement* referring to the bid document or a positive confirmation in the web user interface.

3.3.1 Stepwise implementation of product characteristics

On the NBM web-page the Nordic TSOs has published "Memo - Process for activating products". In the memo bid characteristics and bid attributes to be used in the future are described. The content below is based on the table in the memo.

	Today	**Automated operation, pre 15 min ISP (Q4 2022-Q2 2023)**	**After 15 min ISP but before connection to MARI**	**When connecting to MARI**
Currency	EUR and local currency	EUR	EUR	EUR
Maximum/minimum price (EUR/MWh)	5000/no minimum price	5000/no minimum price	5000/no minimum price	99 999/-99 999
Price granularity (EUR)	0.01 or 0.5	0.01 or 0.5[1]	0.01	0.01
Minimum bid size (MW)	5 or 10[2]	1 or 10[3]	1	1
Maximum bid size (MW)	none or 50	9 999 (technical limit)	9 999 (technical limit)	9 999 (technical limit)
Bid granularity (MW)	1	1	1	1
Activation granularity (MW)	1	1 or 0.1[4]	1	1
BSP bid time resolution for price and volume (minutes).	60 and 15[5]	15 and 60[6]	15	15
Marginal price resolution (minutes)	60	60	15	15

[1] Statnett will continue the current practice with 0.5 EUR price granularity from the start of "Automated operation pre 15-min ISP" but foresees to remove this constraint no later than at the introduction of 15 min ISP.

[2] The minimum bid size differs today depending on the bidding zone.

[3] Statnett will continue with a minimum bid volume of 10MW in "Automated operation pre 15-min ISP". Exceptions may apply in some bidding zones or for pilot projects. Also in Sweden some preconditions will apply, see section 4.5.

[4] The normal activation granularity is 1 MW. In cases with multiple divisible bids on the same price as the clearing price the bids will be selected pro rata with activation granularity 0.1 MW.

[5] In Norway bid volume resolution is 15 min.

[6] How and when 15-minute bid resolution will be introduced will differ among the TSOs. See chapter 4 for TSO specific information on transition periods and handling of 60-minute resolution.

3.3.2 Attribute descriptions

In this chapter new bid attributes are described. The attributes are either common to all Nordic countries or specific to certain countries. In order to understand and utilize the bid attributes it is useful to define three *types* of bids:

- *Simple bids* have one price and are valid for one period. Simple bids are either *fully divisible*, *divisible* with a minimum volume or *indivisible*
- *Complex bids* are composed of a combination of simple bids for one period. The combination can be either an exclusive group or a multipart bid.
- *Linked bids* are linked between time periods. E.g. a bid in period 2 is linked to a bid in period 1. The link can be a technical link or a conditional link.

Attributes common for all Nordic countries

The following attributes are MARI standard product attributes that will also be supported by the Nordic AOF from start of automated operation (Q4-2022).

Type	**Bid attribute**	**Description**
Simple bids One bid, one price	Minimum offered volume CIM: Point.minimum_Quantity.quantity	Can be applied to set a minimum volume to be activated even though the bid is divisible.
	Indivisible Bids CIM: BidTimeSeries.divisible	A standard mFRR balancing energy product bid, which cannot be activated partially. Therefore, the volume of an indivisible bid is always activated altogether
Complex bids Combination of simple bids	Exclusive Group Order CIM: BidTimeSeries. exclusiveBidsIdentification	The exclusive bid is a group of bids where solely one of the bids can be activated; hence, the activation of a bid belonging to an exclusive bid excludes the activation of the other bids belonging to the same group
	Multipart (Parent/child) CIM: BidTimeSeries. multipartBidIdentification	A multipart bid consists of two or more simple bids within the same quarter hour. The bids must have different prices but may have the same or different volumes. A component of an upward multipart bid cannot be activated unless all other components with a lower price have been activated up to their entire offered volumes. A component of a downward multipart bid cannot be activated unless all other components with a higher price have been activated up to their entire offered volumes.

Bids linked in time Between consecutive quarter hours	Conditional bids CIM: BidTimeSeries. ConditionalLinkedBids	Conditional linking is the linking of bids (only simple) in two or three subsequent quarter hours. Conditional linking is used to adjust the availability of a bid in QH0 (available/non-available) based on the activation outcome of linked bids in previous quarter hours QH-1 and/or QH-2.
	Technical linked bids CIM: BidTimeSeries. linkedBidsIdentification	Technical linking is the linking of bids (simple or complex) in two or more subsequent quarter hours. Technical linking ensures that a bid in QH0 is not available for clearing if the bid in the previous quarter hour was activated in direct activation (DA). This is important in order not to activate the same balancing resource twice.
Activation type	Direct CIM: BidTimeSeries. standard_MarketProduct. marketProductType	A standard mFRR balancing energy product bid that can be activated at any point of time following the point of scheduled activation of the quarter hour for which the bid is submitted and until the point of scheduled activation of the subsequent quarter hour. Every direct activatable bid is scheduled activatable bid as well.

National bid attributes

See chapter 4 for TSO specific information on which attributes is planned to be implemented.

Bid attribute	**Description**
Maximum duration CIM: BidTimeSeries. maximum_ConstraintDuration.duration	BSPs include information on the technical limitations regarding how long a bid can be activated. This attribute is necessary to allow BSP to send in bids in advance so that they do not need to update bid if they are activated. Technical linking of the bids must be in combination with this bid attribute. All the linked bids must have the same maximum duration.
Resting time CIM: BidTimeSeries. resting_ConstraintDuration.duration	The BSP can add information on the required minimum duration between the end of deactivation and the following activation. Technical linking of the bids must be in combination with this bid attribute. All the linked bids must have the same resting time.
Inclusive bids CIM: TBD (probably new attribute inclusiveBidsIdentification)	If one bid is activated, another bid (e.g. a resource downstream) must also be activated.
Locational information on bids CIM: BidTimeSeries.registeredResource.mRID	More detailed location on where the resources in the bid are situated, than bidding zone.

3.3.3 Bid validation rules

Document level

- The bid document must be submitted by the BSP and received by the TSO after the BEGOT and before the BEGCT of every bid in the document.

All bids:

- Bid size min/max and resolution
- Price resolution
- Time period is within the document time period

Exclusive group bid:

- All bid components must have the same activation type
- All bid components must refer to the same market period
- None of the bid components can be part of a multipart bid

Multipart bid:

- All bid components must have different prices
- All bid components must be in the same direction
- All bid components must have the same activation type
- All bid components must refer to the same market period
- None of the bid components can be part of an exclusive bid

Technical linking:

- Technical linking is allowed for both simple bids and for complex bids.
  All components of a technically linked complex bid (multipart or exclusive) must have the same value in the linkedBidIdentification attribute.
- Technical linking of simple bids can be used in combination with conditional linking.
- Technical linking ID must be unique within the same ISP but the same within a group of multipart of exlusive bids group.

Conditional linking:

- Conditional linking is only allowed for simple bids
- A bid in QH0 may be linked to maximum three bids in QH-1 and maximum three bids in QH-2
- It is not permitted to link a given bid in QH0 more than once to a given bid in QH-1 or QH-2
- For each link a condition must be associated
- Conditional bids that try to establish a link to a non-existing bid are not allowed. It is the responsibility of a BSP not to place bids with invalid links. For example, if a BSP cancels a bid, which has other bids linked to that bid, those links will become invalid. Any bid with an invalid link will not be considered in the bid selection.

See chapter 5.5 for general rules on updating and cancellation of bids.

3.3.4 Bid acknowledgment

Each time a BSP submits a Reserve bid document to the TSO the TSO will return an Acknowledgement document. If all bids in the bid document are valid a positive Acknowledgement will be returned. If one or more of the bids in the bid document are invalid, according to the bid validation rules, a negative Acknowledgment will be returned and all bids in the document will be rejected. The negative Acknowledgement will contain error codes and text that indicate the reason for why the bids are not valid.

A list of error codes and reason texts will be provided in a later update of this guide.

3.3.5 Bid unavailability

BSP informs TSO about bids that become unavailable after gate closure

Submitted bids must be available for activation via electronic activation ordering.

If bids, for any reason, become unavailable for activation before BEGCT, the BSP must cancel the bids.

In cases where bids become unavailable for activation after BEGCT, the BSP must inform the TSO as quickly as possible by phone.

TSO informs BSP about bids that the TSO marks unavailable for activation

The TSO will for each market period assess the availability of activation for each bid.

The TSO can mark a bid unavailable for the following reasons:

- local congestions
- unavailability of the BSP electronic ordering process
- to meet an activation constraint (max duration and resting time) stated in the bid

The TSO will inform the BSP about bids that have been marked unavailable for activation by sending a BidAvailability_MarketDocument.

Further details on the contents and process for sending BidAvailability_MarketDocument will be provided in a later version of this guide.

3.4 Activate bid process

In automated operation, The TSO will send activation orders for selected bids to the respective BSPs every 15 minutes for scheduled activation. Whenever there is a sudden need for activation the TSO will send activation order for selected bids for direct activation. Scheduled activation orders will cover only one period of 15 minutes. Direct activation orders will cover the remaining of the current 15-minute period and the next 15-minute period. This implies that a resource/bid can be activated several times during an hour.

The activation order must be responded to by the BSP within a certain time limit. The activation process should be automated as much as possible, and ideally fully automated, to avoid timeouts and failed activations.

The activation order must be responded to by the BSP within a certain time limit. The activation process should be automated as much as possible, and ideally fully automated, to avoid timeouts and failed activations.

3.4.1 Activation request

The TSO orders a bid activation by sending an activation request to the BSP. An activation order may contain activation time series for multiple bids.

The BSP sends an Acknowledgement to the TSO to confirm that the Activation order has been received. The Acknowledgement is just a confirmation that the Activation order has been received, not that the activation has started.

3.4.2 Activation response

The BSP then sends an activation response to the TSO to confirm that the activation order will be fulfilled, or that it cannot be fulfilled if the resource has become unavailable for activation.

The time series of the activation response must be equal to the activation order except for Status and Reason.

The BSP must return the activation response to the TSO within 2 minutes, measured from the time the request is sent from the TSO until the time the response is received by the TSO. In case an activation order times out, the TSO may or may not, send another activation order for the bid.

The TSO then returns an Acknowledgement to the BSP to confirm that the Activation response has been received. The Acknowledgement will be positive if the Activation response is correct and received within the time limit. Otherwise the Acknowledegement will be negative. The BSP must not activate the resource unless it receives a positive Acknowledgement for the Activation response.

3.4.3 Acknowledgement

For every activation request and activation response the receiver shall return an Acknowledgment to confirm the document has been received.

3.4.4 Activation heart-beat

Because of the high criticality of the activation process it is necessary to implement a way to monitor the status of the automated activation process and quickly and accurately detect issues.

The monitoring system is based on periodic heart-beat activations messages. A heart-beat activation is an "empty" activation order that BSPs that have submitted bids that day shall receive, process and respond to like a real activation order. The processing of the order should be done by the same systems as for real activation orders. But the heart-beat activation order should not result in a real balancing energy activation.

Heart-beat activation order will be sent

- For every 15-minute period. Additional heart-beat may be sent between periods.
- Only to BSPs for which no bids have been selected for scheduled activation for the upcoming period
- Only to BSPs who have placed bids in any of the next four 15-minute periods
-

The heart-beat activation order will contain

- order_ MarketDocument.mRID = unique order id
- A "dummy" time series with
- TimeSeries.mRID = "ACTIVATION_HEART-BEAT"
- acquiring_Domain.mRID = control area (bidding zone for a normal activation)
- registeredResource.mRID = "DUMMY_RESOURCE"
- quantity = 0

BSP should monitor the activation ordering process and heart-beat and correct issues if there is a problem with any of the activation messages. TSO actions if BSP fail the requirements for availability of activation will be described in a separate document.

3.5 Publication and reporting of market results

3.5.1 Publication of market prices and volumes

Market prices and volumes for the mFRR energy activation market will be published on the ENTSO-E Transparency platform (transparency.entsoe.eu) as well as the Nordic Transparency platform NBiS (www.nucs.net).

3.5.2 Activated bids per BSP

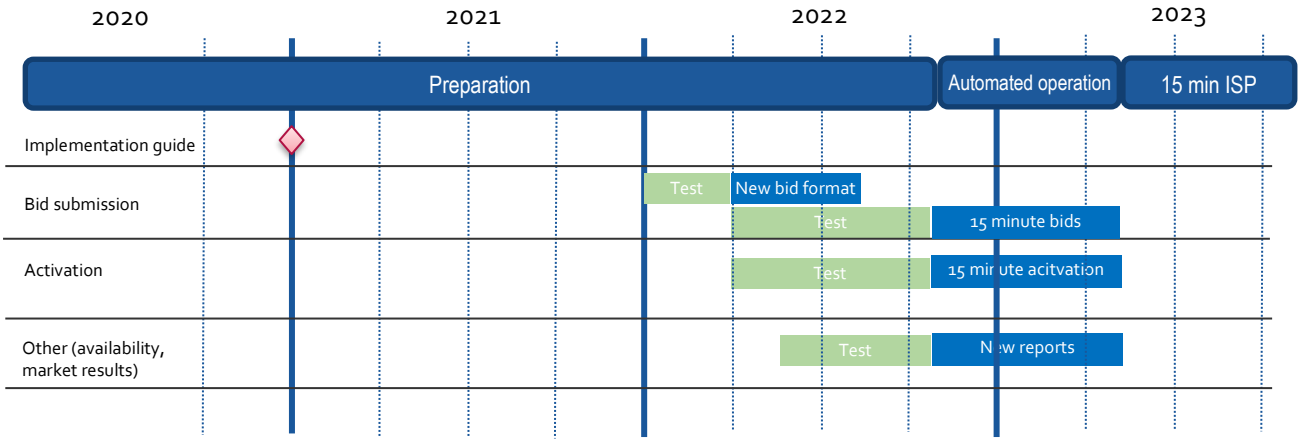
A report of each BSP's activated bids will be sent from the TSO to the BSP after each ISP (Imbalance settlement period) in a ReserveAllocationResult_MarketDocument.

Details on the contents of the ReserveAllocationResult_MarketDocument will be provided in a later version of this guide.

4 TSO specific information

4.1 Energinet

4.1.1 Implementation plan



- *Bid submission – new bid format*:
  BSPs can start using the new bid submission format (the new bid attributes will not have effect). 60 minutes resolution must be used. Bid submission using the legacy format is possible during the transition period. By the end of the "New bid format" period the legacy format can no longer be used.
- *Bid submission – 15-minute bids*:
  BSPs must use 15 minutes resolution and new bid attributes from beginning of this period (aligned with start of automated operation). 60 minutes resolution will not be supported in this period.
- *Activation – 15-minute activation*:
  BSPs must use the new format and process for bid activation described in this guide. The preceding format for bid activation will not be supported in this period.
- *Other – new reports*:
  BSPs can start receiving reports on bid availability and activated bids according to the formats in this guide. Preceding reports for markets results and activated bids will no longer be used.
- Prior to each change there will be a test period where the TSO will support end-to-end testing with BSPs.

4.1.2 Handling of 60 minutes bids in transition period

Before automated operation only bids in 60 minutes resolution will be allowed. As described in the timeline above, both the new and old format will be supported in a transition period, but some time before entering automated operation only the new format will be allowed.

When entering automated operation only bids in new format and 15 minutes resolution will be supported.

4.1.3 Submit bid process

Minimum bid volume

Energinet will allow a minimum bid volume of 1 MW from beginning of automated operation.

National bid attributes

Bid attribute	**Planned to be implemented**
Maximum duration	To be discussed
Resting time	To be discussed
Inclusive bids	To be discussed
Locational information on bids	To be discussed

From beginning of automated operation, *start-* and *stop-gradient* as well as *deadtime* for the regulation will no longer be supported.

Alternative channel for bid submission

The recommended method for bid submission is by sending a reserve bid document via ECP. Alternatively, bids may be submitted using a self-service portal.

4.1.4 Activate bid process

Activation requests to BSPs are sent separately for every 15 minutes period during the automated operation phase.

The delivery shape will change from ramping inside the hour/quarter to ramping symmetrically around the hour/quarter shift. When this change will occur have not been decided yet, but the options are:

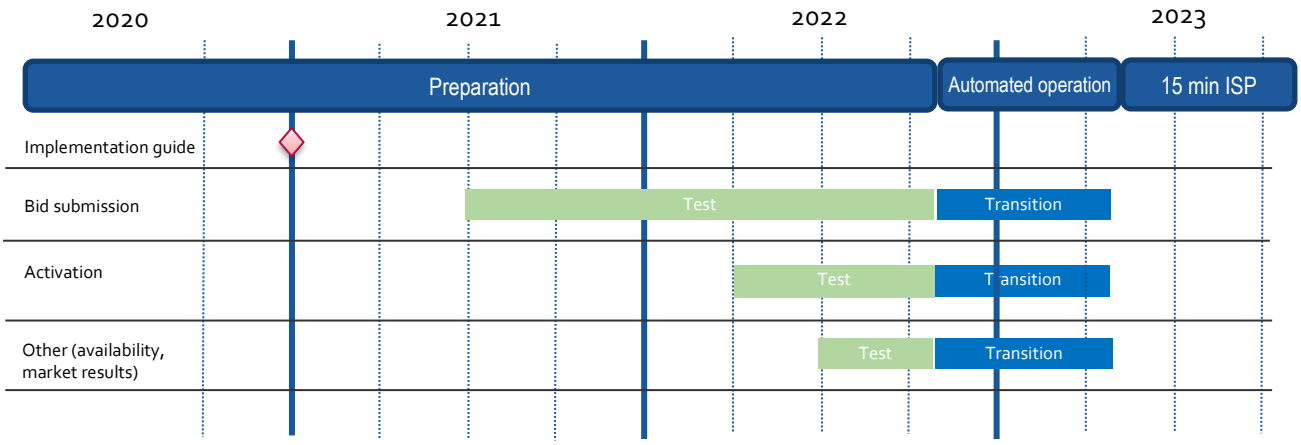
- Changing the delivery shape before automated operation – while still having hourly bids and activation. A possibility would be to align this with changing the bid format.
- Aligning the change in delivery shape with the introduction of 15 minutes bids and activation – that is when entering automated operation.

4.1.5 TSO contact information

Any questions and concerns regarding this implementation guide, and the follow-up of the implementation in Energinet, can be directed to: electricitymarket@energinet.dk.

Fingrid

4.1.6 Implementation plan



- *Bid submission - Transition*:
  BSPs can start using the new bid submission format and the new bid attributes. 15 minutes bid resolution should be used with the new format. Bid submission using the legacy format and 60 minutes bid resolution is possible during the transition period. See below for handling of 60 minutes bid resolution. By the end of the transition period the legacy format can no longer be used. Exact time when the support for 60 minutes bid resolution is discontinued is will be decided later.
- *Activation – Transition*:
  BSPs can start using the formats and process for bid activation described in this guide. By the end of the transition period the legacy format for bid activation can no longer be used. Exact timing when transition will be decided later.
- *Other – Transition*:
  BSPs can start receiving the new reports on bid availability and activated bids according to the formats in this guide. By the end of the transition period the legacy reports for markets results and activated bids will no longer be used.
- Prior to each transition period there will be a test period where the TSO will support end-to-end testing with BSPs.

4.1.7 60 minutes bids in transition period

If BSP sends bids in 60 minutes resolution during the transition period, Fingrid splits a bid into 4 identical bids for each 15 minutes. No new bid attributes can be used for 60 minutes bids. Transformed bids will be fully divisible (and technically linked within the hour). Format for 60 minutes bids is described in a separate implementation guide (Fingrid Implementation Guide mFRR). Activation requests to BSPs are sent separately for every 15 minutes period during the "Automated operation pre 15-minute ISP"-phase.

4.1.8 Submit bid process

The Balancing energy gate opening time (BEGOT) for BSPs is 30 days.

National bid attributes

Bid attribute	**Planned to be implemented**
Maximum duration	Not planned to be used
Resting time	Not planned to be used
Inclusive bids	Not planned to be used
Locational information on bids	Yes (Locational information will be related to the reserve resources)

Alternative channel for bid submission

The preferred channel for bid submission is sending a reserve bid document via ECP. Additionally, bids may be submitted manually in TSO's MMS (Vaksi Web). More detailed description of manual bid submission can be found in Fingrid's reserve trading and information exchange guidelines (Fingridin reservikaupankäynti- ja tiedonvaihto-ohje). Sending conditionally linked bids will not be possible via Vaksi Web. It is not expected that complex bids can be sent via Vaksi Web.

4.1.9 Activate bid process

TSO may send activation request for system regulation purposes for scheduled activation before T-7.5.

Notification of activation orders via SCADA

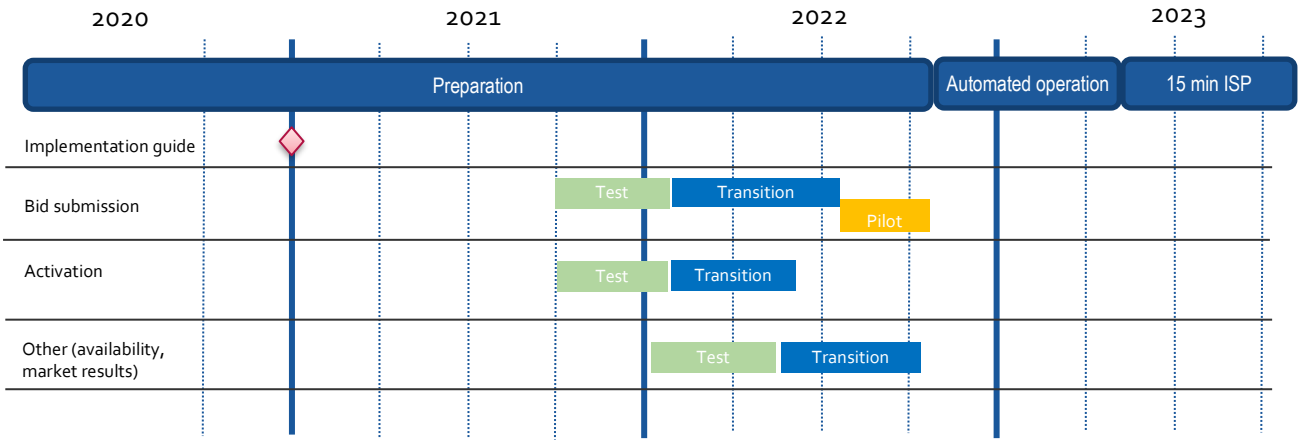
A Back-up channel for electronic activation which can be used simultaneously with ECP, is a notification in TSO's MMS (Vaksi Web) and an alert sent from TSO's SCADA to the BSP's SCADA via Elcom. This back-up process requires a manual confirmation in Vaksi Web by the BSP.

4.1.10 TSO contact information

Any questions and concerns regarding this implementation guide, and the follow-up of the implementation in Fingrid, can be directed to: Reservit@fingrid.fi.

4.2 Statnett

4.2.1 Implementation plan



- *Bid submission - Transition:*
  BSPs can start using the new bid submission format. 15-minute resolution should be used with the new format. Bid submission using the legacy format and 15- or 60-minute resolution is possible during the transition period. See below for handling of 60-minute resolution. By the end of the transition period the legacy format (EDIEL) for bid submission can no longer be used.
- *Bid submission – Pilot:*
  Use of some of the new bid attributes will be supported for BSPs taking part in the pilot. New format and 15-min resolution must be used. By the end of the pilot period the new bid attributes will be supported for all BSPs.
- *Activation – Transition:*
  BSPs can start using the formats for bid activation described in this guide. By the end of the transition period the legacy format for bid activation can no longer be used. A more detailed plan for the transition will be provided in a later version of this guide.
- *Other – Transition:*
  BSPs can start receiving the new reports on bid availability and activated bids according to the formats in this guide. By the end of the transition period the legacy reports for markets results and activated bids will no longer be used.
- Prior to each transition period there will be a test period where the TSO will support end-to-end testing with BSPs.

4.2.2 Handling of 60 minutes bids in transition period

If the BSP sends bids in 60 minutes resolution during the transition period, the TSO will split the bids into 4 identical bids for each 15 minutes. No new bid attributes can be used for 60 minutes bids. Transformed bids will be fully divisible (and technically linked within the hour). Format for 60 minutes is given in a separate implementation guide. Activation requests to BSPs are sent separately for every 15 minutes period during the "Automated operation pre 15-minute ISP"-phase.

4.2.3 Submit bid process

Bid price granularity and minimum bid volume

To limit the number of bids Statnett will continue the current practice with 0.5 EUR price granularity for bid prices. For operational reasons Statnett sees a risk of removing this constraint from the start of Automated operation. Statnett foresees to remove this constraint no later than at the introduction of 15 min ISP.

Statnett will continue with a minimum bid volume of 10MW in the "Automated operation pre 15-minute ISP"-operation. Exceptions may apply in some bidding zones or for pilot projects.

National bid attributes

Bid attribute	**Planned to be implemented**
Maximum duration	Yes
Resting time	Yes
Inclusive bids	Yes
Locational information on bids	Yes

Alternative channel for bid submission

The recommended method for bid submission is by sending a reserve bid document via ECP. Alternatively, bids may be submitted in the manual user interface FiftyWeb (fiftyweb.statnett.no).

4.2.4 Activate bid process

The new process for bid activation involves the following simplifications compared to the legacy process:

- The scheme for "recurring activations" is no longer supported.
- Adjustment of activation time period in the activation response from the BSP is no longer supported.

Notification of activation orders via SCADA

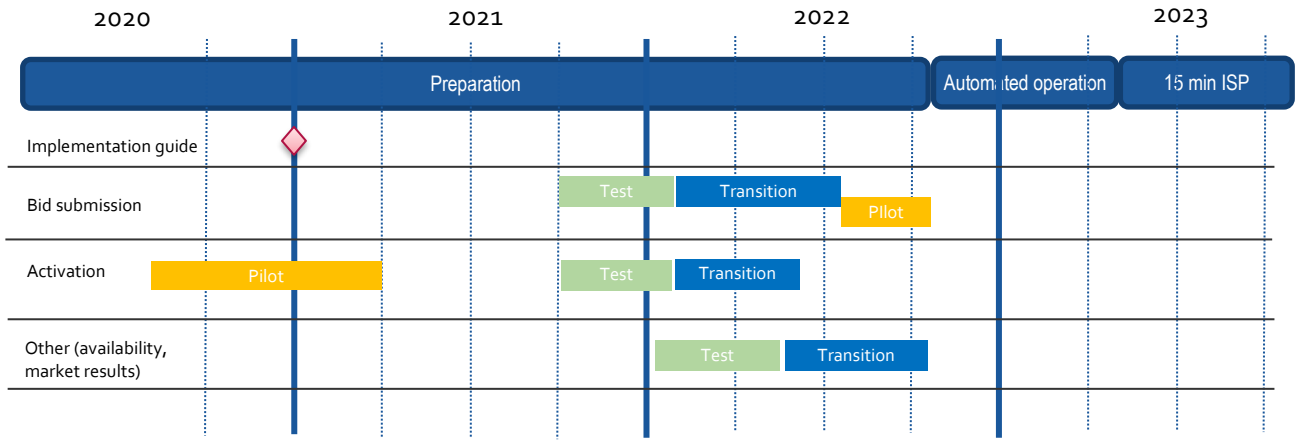
The BSP can opt to receive notifications of activation orders via SCADA signalling. A notification signal will then be sent from TSO SCADA to BSP SCADA through ELCOM each time an activation request is sent. Configuration of SCADA to listen for activation signal from TSO SCADA and to provide an acoustic alarm and presentation of the activation notification is required by the BSP.

4.2.5 TSO contact information

Any questions and concerns regarding this implementation guide, and the follow-up of the implementation in Norway, can be directed to: BSP@statnett.no.

4.3 Svenska kraftnät

4.3.1 Implementation plan



- *Bid submission - Transition:*
  BSPs can start using the new bid submission format. 15-minute resolution should be used with the new format. Bid submission using the legacy format and 60-minute resolution is possible during the transition period. See below for handling of 60- minute resolution. By the end of the transition period the legacy format (EDIEL) for bid submission can no longer be used.
- *Bid submission – Pilot:*
  Use of some of the new bid attributes will be supported for BSPs taking part in the pilot. New format and 15-min resolution must be used. By the end of the pilot period the new bid attributes will be supported for all BSPs.
- *Activation – Transition:*
  BSPs can start using the formats for bid activation described in this guide. By the end of the transition period the legacy format for bid activation can no longer be used. A more detailed plan for the transition will be provided in a later version of this guide.
- *Other – Transition:*
  BSPs can start receiving the new reports on bid availability and activated bids according to the formats in this guide. By the end of the transition period the legacy reports for markets results and activated bids will no longer be used.
- Prior to each transition period there will be a test period where the TSO will support end-to-end testing with BSPs.

Electronic ordering

In due time before the start of Automated operation, all BSPs in Sweden must use electronic ordering. The detailed time plan for this transition will be discussed with BSPs.

Handling of 60 minutes bids in transition period

If the BSP sends bids in 60 minutes resolution during the transition period, the TSO will split the bids into 4 identical bids for each 15 minutes. No new bid attributes can be used for 60 minutes bids. Transformed bids will be fully divisible (and technically linked within the hour). Format for 60 minutes is given in a separate implementation guide. Activation requests to BSPs are sent separately for every 15 minutes period during the "Automated operation pre 15-minute ISP"-phase.

4.3.2 Submit bid process

Minimum bid volume

Svk plan to allow minimum bid size of 1 MW from start of automated operation given some preconditions and that operational processes are sufficiently developed. One precondition is that BSPs which intend to lower bid sizes compared to the current thresholds (10 MW in SE1-3 and 5 MW in SE4) make a requalification.

National bid attributes

Bid attribute	**Planned to be implemented**
Maximum duration	Yes
Resting time	Yes
Inclusive bids	Yes
Locational information on bids	Yes

4.3.3 Alternative channel for bid submission

The recommended method for bid submission is by sending a reserve bid document via ECP. Alternatively, bids may be submitted in the manual user interface FiftyWeb.

4.3.4 TSO contact information

Any questions and concerns regarding this implementation guide, and the follow-up of the implementation in Sweden, can be directed to: mfrr@svk.se.

5 General rules for messaging

5.1 Date and time

Date and Times are based on ENTSO-E Standards and shall be expressed in universal time (UTC+0) in compliance with ISO 8601 as YYYY-MM-DDThh:mm:ssZ. The last 'Z' stands for Zero and indicates UTC+0.

5.2 Document coverage

The beginning and ending date and time of the period covered by the document must be on the same CET/CEST day.

5.3 Daylight saving time

The day is always expressed in local time, i.e.:

- A day is from 23:00 to 23:00 during winter time.
- A day is from 22:00 to 22:00 during summer time (daylight saving time).
- When changing from winter time to summer time there are 23 hours in the time series (from 23:00 to 22:00).
- When changing from summer time to winter time there are 25 hours in the time series (from 22:00 to 23:00).

5.4 Document identification and revision number

The document identification must be unique over time for the sender in question. Furthermore, the document identification itself should not have any significant meaning. The revision number is not used and shall always be equal to '1'.

5.5 Update and cancellation principles

Corrections and cancellations of time series or whole messages can be done by resending the affected time series only or the whole message with new data.

Update of any time series is done by sending a new document honouring these rules

- A new document mRID (document identification).
- The same revision number (always equal to '1').
- A newer created date-time.
- Identification of time series of the corresponding time series (by using the original mRID).

Cancellation of one or more time series is done by sending an update with value 0 for quantity.

5.6 Acknowledgment

For each electronic data interchange defined in this document, an acknowledgement document, as defined in IEC 62325-451-1, should be generated either accepting the whole received document or rejecting it completely.

- All received messages shall be validated at both a technical and an application level.
- The Acknowledgement document shall be used as the tool to exchange errors.
- At a technical level, the reason code in the acknowledgement document shall reflect the error type, and the reason text should have a reference to the element containing the error.
- At the application level, the reason code shall reflect the error type and the reason text should reflect the appropriate business rule that is broken.
- An Acknowledgement document may contain many reason objects, to reflect multiple errors in the received document.

5.7 Energy communication platform

All the messages described in this document shall be communicated over the Energy communication platform (ECP) provided by each TSO.

Implementation guide for ECP can be requested from the respective TSO.

6 Appendix 1 – Document attributes and dependencies

This chapter provides the attributes and dependencies for the documents used to support the mFRR energy activation market.

The following classifications are used for the attributes:

- M – Must be used for the document in the process described in this guide
- D – Must be used if a defined condition is met
- O – Optional, can be used

6.1 Bid document – Attributes and dependencies

ReserveBid_MarketDocument		iec62325-451-7-reservebiddocument.xsd – version 7.2
mRID	M	Unique identification of the document. Requires use of universally unique identifier (UUID)
revisionNumber	M	Constant value of "**1**"
Type	M	**A37** - Reserve bid document
process.processType	M	**A47** – Manual frequency restoration reserve
sender_MarketParticipant.mRID	M	Identification of the party sending the document Identification is supported by different coding schemes. The following coding schemes are supported: **A01** - EIC **A10** – GS1 **NSE** - Swedish national coding scheme
sender_MarketParticipant.marketRole.type	M	**A46 -** Balancing Service Provider (BSP) **A39 –** Data Provider Agents sending on behalf of BSPs must use market role A39 when submitting bids
receiver_MarketParticipant.mRID	M	Identification of the party receiving the document. One of: - Energinet.dk - Fingrid - Statnett - Svenska kraftnät **A01** - EIC coding scheme

receiver_MarketParticipant.marketRole.type	M	**A34** – Reserve Allocator
createdDateTime	M	Date and time of document creation (in ISO 8601 UTC format) YYYY-MM-DDTHH:MM:SSZ
reserveBid_Period.timeInterval	M	The period covered by the document (in ISO 8601 UTC format) Start: YYYY-MM-DDTHH:MMZ End: YYYY-MM-DDTHH:MMZ
domain.mRID	M	EIC identification of the Control Area Denmark (DK1): **10YDK-1--------W** Denmark (DK2): **10YDK-2--------M** Finland: **10YFI-1--------U** Norway: **10YNO-0--------C** Sweden: **10YSE-1--------K** **A01** - EIC coding scheme
subject_MarketParticipant.mRID	M	Identification of the party responsible for the bid Identification is supported by different coding schemes. The following coding schemes are supported: **A01** - EIC **A10** – GS1 **NSE** - Swedish national coding scheme
subject_MarketParticipant.marketRole.type	M	**A46 -** Balancing Service Provider (BSP)

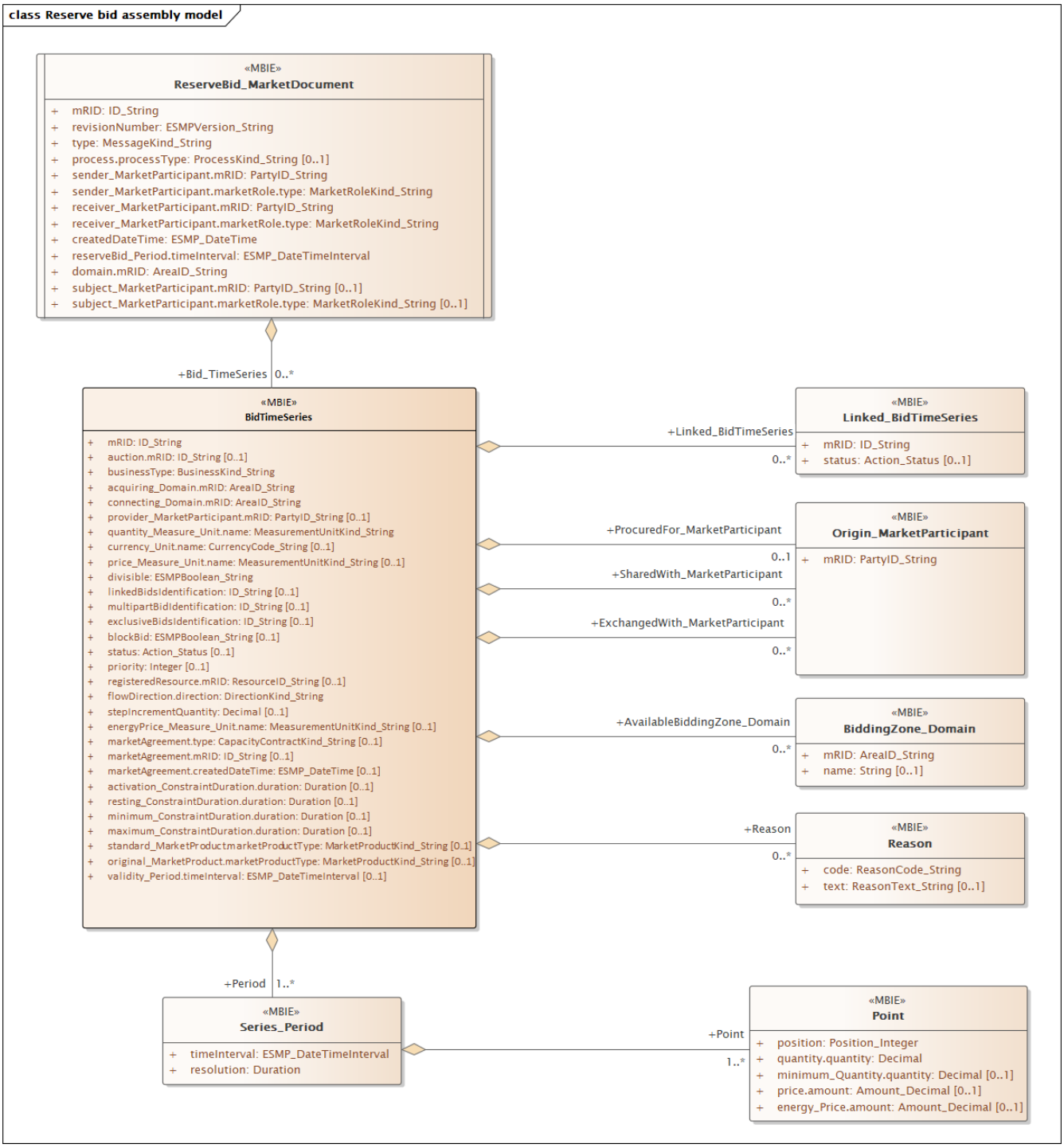
BidTimeSeries		
mRID	M	Unique identification of the bid. Max 60 alphanumeric characters. UUID
auction.mRID	O	Constant value of MFRR_ENERGY_ACTIVATION_MARKET
businessType	M	**B74 -** Offer
acquiring_Domain.mRID	M	**10Y1001A1001A91G** (Nordic Market Area)
		A01 - EIC coding scheme
connecting_Domain.mRID	M	The EIC identification of the bidding zone where the resource is located
		A01 - EIC coding scheme
quantity_Measure_Unit.name	M	**MAW** – megawatt
currency_Unit.name	M	**EUR** – euro
~~price_Measure_Unit.name~~	~~R~~	~~**MAW** – megawatt~~ ~~**MWH** - Megawatt hours.~~
Divisible	M	**A01** = Yes - quantity may be reduced to the minimum bid size by increments of 1 MW **A02** = No - no reduction possible on the quantity, the bid is indivisible
linkedBidsIdentification	O	Unique identification used to associate technically linked bids~~. Max. 35 alphanumeric characters.~~ Since a bid can be linked to one and only one bid in the previous period, there may not be more than one bid having the same value in linkedBidsIdentification within a given period. Not used if bid is not technically linked.
multipartBidsIdentification	O	Unique identification used to associate multipart bids. ~~Max. 35 alphanumeric characters.~~ If bid with flowDirection.direction=A01 (Up) is accepted, then all associated bids with inferior price must also be accepted. If bid with flowDirection.direction=A02 (Down) is accepted, then all associated bids with superior price must also be accepted. Not used if bid is not multipart.
exclusiveBidsIdentification	O	Unique identification used to associate exclusive group bids. If one bid is selected, then none of the other with the same "bid family" identification can be selected. Not used if bid is not part of exclusive group bid.

registeredResource.mRID	O/M	Mandatory for bids in Finland, Norway and Sweden. Optional in Denmark. EIC or national code for the resource (regulation object).
flowDirection.direction	M	**A01** - Up **A02** - Down
energyPrice_Measure_Unit.name	M	**MWH -** Megawatt hours.
activation_ConstraintDuration.duration	O	Activation time - The minimum time for activation of the physical resource. E.g: PT5M, PT10M, PT15M. The attribute will be described in more detail in the next version of this guide.
resting_ConstraintDuration.duration	O	Resting time for the resource object after an activation, in number of minutes.
minimum_ConstraintDuration.duration	O	Minimum duration of activation for the resource object, in number of minutes.
maximum_ConstraintDuration.duration	O	Maximum duration of activation for the resource object, in number of minutes.
standard_MarketProduct.marketProductType	M	Aff = Standard mFRR product eligible for scheduled activation only Ahh = Standard mFRR product eligible for scheduled and direct activation Associated multipart and exclusive bids must have the same value. The codes Aff and Ahh are to be defined.
Series_Period – exactly one instance per BidTimeSeries		
timeInterval	M	Period covered (in ISO 8601 UTC format). Must be 15 or 60 minutes. There must be one, and only one, period for each Bid_TimeSeries. Start: YYYY-MM-DDTHH:MMZ End: YYYY-MM-DDTHH:MMZ
Resolution	M	**PT15M** or **PT60M** – the time resolution. Must equal the duration of the timeInterval.
Point – exactly one instance per Series_Period		
Position	M	Position is always **1**
quantity.quantity	M	Offered quantity
energy_Price.amount	M	The price of the product offered

minimum_Quantity.quantity	D	The minimum quantity of energy that can be activated at a given time position It must be used for divisible bids and can be 0 (fully divisible) but must not be used for indivisible bids.

Linked_BidTimeSeries (associated with BidTimeSeries) - no more than three instances referring to each of MTU-1 and MTU-2, respectively		
mRID	O	mRID of a simple bid in MTU-1 or MTU-2
status	D	Abb = Not available if linked bid activated Add = Not available if linked bid rejected Agg = Not available if linked bid subject to SA Ahh = Not available if linked bid subject to DA Aee = Not available for DA if linked bid subject to DA Aff = Not available for DA if linked bid subject to SA Codes Abb..Aff are to be defined.

6.1.1 ReserveBid_MarketDocument assembly model



Note: the cardinalities indicated in the assembly model are further restricted for the implementation according to this guide, please see Attributes and dependencies table above.

6.2 Activation document – Attributes and dependencies

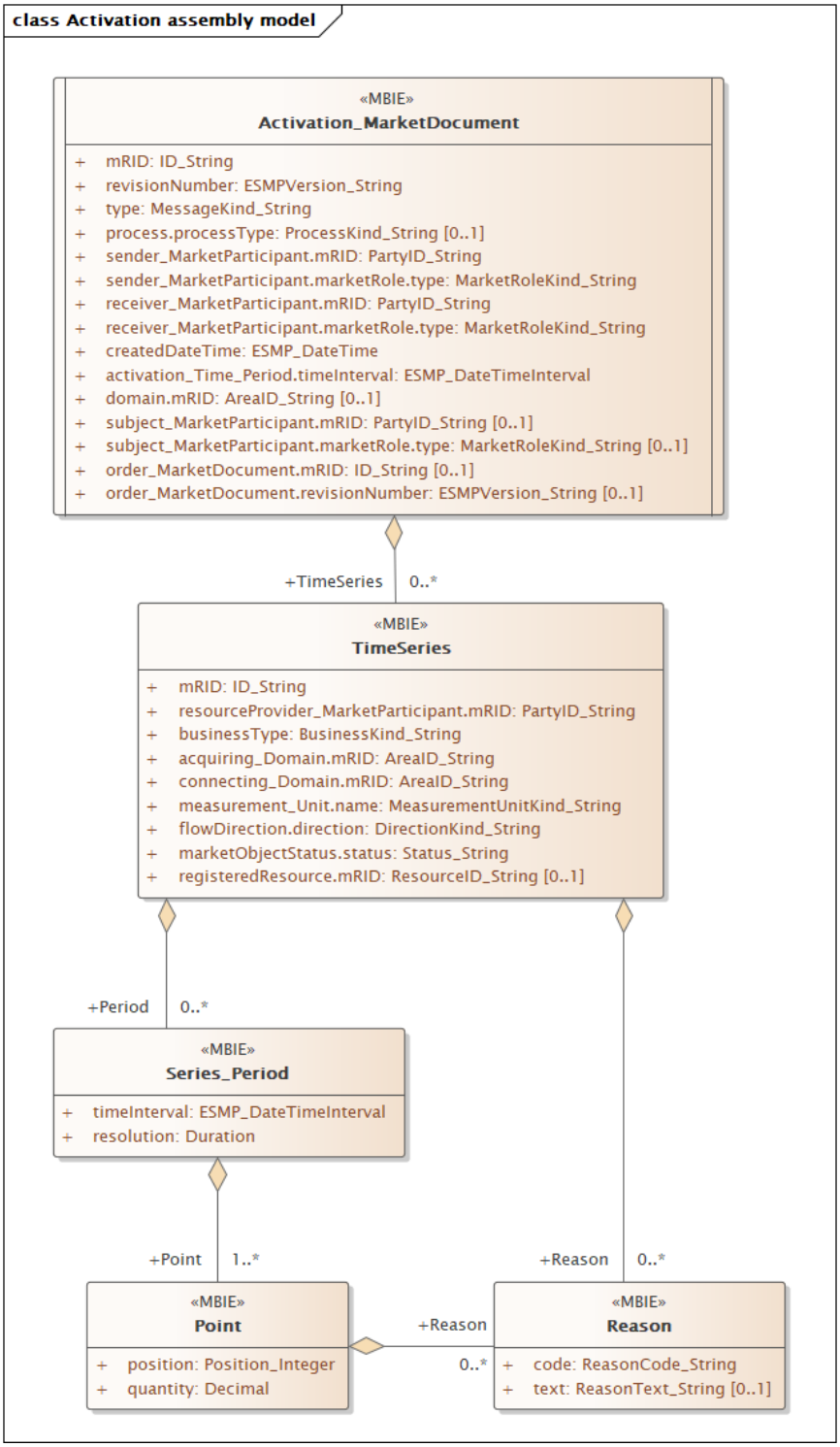
Activation_MarketDocument		iec62325-451-7-activationdocument – version 6.1
mRID	M	Unique identification of the document. Requires use of universally unique identifier (UUID)
revisionNumber	M	Constant value of "**1**"
Type	M	**TSO to BSP:** **A39** – SATCR activation (Scheduled activation) **A40** – DATCR activation (Direct activation) **BSP to TSO:** **A41** – Activation response
process.processType	M	**A47** – Manual frequency restoration reserve
sender_MarketParticipant.mRID	M	Identification of the party sending the document Identification is supported by different coding schemes. The following coding schemes are supported: **A01** - EIC **A10** – GS1 **NSE** - Swedish national coding scheme **NFI** - Finnish national coding scheme
sender_MarketParticipant.marketRole.type	M	**A04 –** System Operator (for the response) **A46 –** Balancing Service Provider (BSP) **A27 –** Resource Provider **A39** – Data Provider
receiver_MarketParticipant.mRID	M	Identification of the party receiving the document. **A01** - EIC **A10** – GS1 **NSE** - Swedish national coding scheme **NFI** - Finnish national coding scheme
receiver_MarketParticipant.marketRole.type	M	**A04 –** System Operator (for the response) **A46 –** Balancing Service Provider (BSP)

		A27 – Resource Provider **A39** - Data provider
createdDateTime	M	Date and time of document creation (in ISO 8601 UTC format) YYYY-MM-DDTHH:MM:SSZ
reserveBid_Period.timeInterval	M	The period covered by the document (in ISO 8601 UTC format) Start: YYYY-MM-DDTHH:MMZ End: YYYY-MM-DDTHH:MMZ --- 1 MTU(Market Unit Time – 15 min) for Scheduled activation (SA). 2 MTUs (30 min.) for Direct activation (DA).
domain.mRID	M	EIC identification of the Control Area Denmark (DK1): **10YDK-1--------W** Denmark (DK2): **10YDK-2--------M** Finland: **10YFI-1--------U** Norway: **10YNO-0--------C** Sweden: **10YSE-1--------K** **A01** - EIC coding scheme
subject_MarketParticipant.mRID	M	**A01** – EIC **A10** – GS1 **NSE** – Swedish national coding scheme **NFI** – Finnish national coding scheme
subject_MarketParticipant.marketRole.type	M	**A46** – Balancing Service Provider (BSP)
order_ MarketDocument.mRID	M	Unique identification of the activation order. The same order id is used in the request and the response. UUID.
order_MarketDocument.revisonNumber	M	The version of the activation order. Incremented with one for each transmission of the document from the System Operator. The

		same version is used in the request and the response.
TimeSeries – one or more instances		
mRID	M	Reference to the bid to be activated. UUID.
resourceProvider_MarketParticipant.mRID	M	The identification of the Resource Provider.
businessType	M	**A97 -** Manual frequency restoration reserve
acquiring_Domain.mRID	M	The EIC identification of the Nordic Market Area - 10Y1001A1001A91G **A01** - EIC coding scheme
connecting_Domain.mRID	M	The EIC identification of the bidding zone where the resource is located (repeat from Acquiring Area) **A01** - EIC coding scheme
meaurement_Unit.name	M	**MAW** – megawatt
flowDirection.direction	M	**A01** - Up **A02** - Down
marketObjectStatus.status	M	*Only in the request:* **A10** - Ordered *Only in the response:* **A07** - Activated (confirmation that quantities in the time series have been activated) **A11** – Unavailable
registeredResource.mRID	O/M	EIC or national code for the resource (regulation object).
Series_Period – exactly one instance per TimesSeries		
timeInterval	M	The start and end date and time of the time interval of the period of activation.
resolution	M	The time resolution is always the difference between the Time Interval End and the Time Interval Start.
Point – exactly one instance per Series_Period		
position	M	Position is always **1**
quantity.quantity	M	Activated quantity

Reason		
code	M	**B22** – System regulation **B49** – Balancing
text	O	

6.2.1 Activation_MarketDocument assembly model



Note: the cardinalities indicated in the assembly model are further restricted for the implementation according to this guide, please see Attributes and dependencies table above.

7 Appendix 2 – Examples

Simple bid:

```
<ReserveBid_MarketDocument xmlns="urn:iec62325.351:tc57wg16:451-7:reservebiddocument:7:2">
	<mRID>NO1_bids_2020-09-22T13:15Z</mRID>
	<revisionNumber>1</revisionNumber>
	<type>A37</type>
	<process.processType>A47</process.processType>
	<sender_MarketParticipant.mRID codingScheme="A01">10X1001A1001A38Y</sender_MarketParticipant.mRID>
	<sender_MarketParticipant.marketRole.type>A04</sender_MarketParticipant.marketRole.type>
	<receiver_MarketParticipant.mRID codingScheme="A01">10V1001C--000284</receiver_MarketParticipant.mRID>
	<receiver_MarketParticipant.marketRole.type>A35</receiver_MarketParticipant.marketRole.type>
	<createdDateTime>2020-09-22T12:45:37Z</createdDateTime>
	<reserveBid_Period.timeInterval>
		<start>2020-09-22T13:15Z</start>
		<end>2020-09-22T13:30Z</end>
	</reserveBid_Period.timeInterval>
	<domain.mRID codingScheme="A01">10Y1001A1001A91G</domain.mRID>
	<subject_MarketParticipant.mRID codingScheme="A01">10X1001A1001A38Y</subject_MarketParticipant.mRID>
	<subject_MarketParticipant.marketRole.type>A27</subject_MarketParticipant.marketRole.type>
	<Bid_TimeSeries>
		<mRID>6d40cae1375a44ea8d61463170be4d8a</mRID>
		<auction.mRID>MFRR_ENERGY_ACTIVATION_MARKET</auction.mRID>
		<businessType>B74</businessType>
		<acquiring_Domain.mRID codingScheme="A01">10Y1001A1001A91G</acquiring_Domain.mRID>
		<connecting_Domain.mRID codingScheme="A01">10YNO-1--------2</connecting_Domain.mRID>
		<quantity_Measure_Unit.name>MAW</quantity_Measure_Unit.name>
		<currency_Unit.name>EUR</currency_Unit.name>
		<price_Measure_Unit.name>MWH</price_Measure_Unit.name>
		<divisible>A01</divisible>
		<flowDirection.direction>A01</flowDirection.direction>
		<energyPrice_Measure_Unit.name>MWH</energyPrice_Measure_Unit.name>
		<standard_MarketProduct.marketProductType>A02</standard_MarketProduct.marketProductType>
		<original_MarketProduct.marketProductType>A02</original_MarketProduct.marketProductType>
		<Period>
			<timeInterval>
				<start>2020-09-22T13:15Z</start>
				<end>2020-09-22T13:30Z</end>
			</timeInterval>
			<resolution>PT15M</resolution>
			<Point>
				<position>1</position>
				<quantity.quantity>5</quantity.quantity>
				<minimum_Quantity.quantity>0</minimum_Quantity.quantity>
				<price.amount>99.26</price.amount>
			</Point>
		</Period>
	</Bid_TimeSeries>
</ReserveBid_MarketDocument>
```

Activation order:

```
<Activation_MarketDocument xmlns="urn:iec62325.351:tc57wg16:451-7:activationdocument:6:1">
	<mRID>WHQTC5SkTq-vby7hAI80-0act</mRID>
	<revisionNumber>1</revisionNumber>
	<type>A39</type>
	<process.processType>A47</process.processType>
	<sender_MarketParticipant.mRID codingScheme="A01">10X1001A1001A329</sender_MarketParticipant.mRID>
	<sender_MarketParticipant.marketRole.type>A04</sender_MarketParticipant.marketRole.type>
	<receiver_MarketParticipant.mRID codingScheme="A01">17X100Z100Z0001H </receiver_MarketParticipant.mRID>
	<receiver_MarketParticipant.marketRole.type>A46</receiver_MarketParticipant.marketRole.type>
	<createdDateTime>2020-11-12T00:21:04Z</createdDateTime>
	<activation_Time_Period.timeInterval>
		<start>2020-11-12T01:00Z</start>
		<end>2020-11-12T01:15Z</end>
	</activation_Time_Period.timeInterval>
	<domain.mRID codingScheme="A01">10YDOM-1001A001A</domain.mRID>
	<subject_MarketParticipant.mRID codingScheme="A01">17X100Z100Z0001H </subject_MarketParticipant.mRID>
	<subject_MarketParticipant.marketRole.type>A46</subject_MarketParticipant.marketRole.type>
	<order_MarketDocument.mRID>WHQTC5SkTq-vby7hAI80-0ord</order_MarketDocument.mRID>
	<order_MarketDocument.revisionNumber>1</order_MarketDocument.revisionNumber>
	<TimeSeries>
		<mRID>WHQTC5SkTq-vby7hAI80-0BID</mRID>
		<resourceProvider_MarketParticipant.mRID codingScheme="A01">50WG00000002488C</resourceProvider_MarketParticipant.mRID>
		<businessType>A97</businessType>
		<acquiring_Domain.mRID codingScheme="A01">10Y1001A1001A91G</acquiring_Domain.mRID>
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		<flowDirection.direction>A01</flowDirection.direction>
		<marketObjectStatus.status>A10</marketObjectStatus.status>
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				<end>2013-11-12T01:15Z</end>
			</timeInterval>
			<resolution>PT15M</resolution>
			<Point>
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				<quantity>1500</quantity>
			</Point>
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		<Reason>
			<code>B49</code>
		</Reason>
	</TimeSeries>
</Activation_MarketDocument>
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Activation response:

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	<revisionNumber>1</revisionNumber>
	<type>A41</type>
	<process.processType>A47</process.processType>
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	<sender_MarketParticipant.marketRole.type>A46</sender_MarketParticipant.marketRole.type>
	<receiver_MarketParticipant.mRID codingScheme = "A01">10X1001A1001A329</receiver_MarketParticipant.mRID>
	<receiver_MarketParticipant.marketRole.type>A04</receiver_MarketParticipant.marketRole.type>
	<createdDateTime>2020-11-12T00:21:09Z</createdDateTime>
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		<end>2020-11-12T01:15Z</end>
	</activation_Time_Period.timeInterval>
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	<order_MarketDocument.mRID>WHQTC5SkTq-vby7hAI80-0ord</order_MarketDocument.mRID>
	<order_MarketDocument.revisionNumber>1</order_MarketDocument.revisionNumber>
	<TimeSeries>
		<mRID>WHQTC5SkTq-vby7hAI80-0BID</mRID>
		<resourceProvider_MarketParticipant.mRID codingScheme = "A01">50WG00000002488C</resourceProvider_MarketParticipant.mRID>
		<businessType>A97</businessType>
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		<connecting_Domain.mRID codingScheme = "A01">10YPT-REN------W</connecting_Domain.mRID>
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</Activation_MarketDocument>
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