

Bidding FCR

Implementation Guide

Version 2.15
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1. Introduction

This guide contains information about the process for bidding of Frequency Containment Reserves to hourly market by electronic messages. The document describes the business rules as well as provides detailed information about the messages exchanged between Fingrid and Balancing Service Provider or their service provider (both referred to later as BSP).

1.1 Abbreviations

BRP	Balancing Responsible Party
BSP	Balancing Service Provider
FCR	Frequency Containment Reserve
FCR-N	Frequency Containment Reserve, Normal operation
FCR-D	Frequency Containment Reserve, Disturbance

1.2 Change log

- Recommended maximum number of bids (2 000) within the bid document added.
- Decimal separator must be a period.
- Reserve object options for FCR-D updated.
- FCR-D one step activation added as a separate product.
- An acknowledgement document is generated either accepting the completely received document or rejecting it completely. Partly accept is never used.
- version 2.13:
 - Seconds added to the Creation Date Time -field
 - Correction to the Reserve Allocation Results -document
 - Example of acknowledgement-document added
- version 2.14:
 - FCR-D one step activation product removed
 - Possibility for FCR-D down direction (A02) added
 - Description of FCR-D down Reserve Results -document added
- version 2.15:
 - Document for reporting results per bid added
 - Description of acknowledgment messages added

1.3 References

- [1] urn-entsoe-eu-wgedi-errp-reservebiddocument-5-0.xsd
- [2] urn-entsoe-eu-wgedi-errp-reserveallocationresultdocument-5-0.xsd
- [3] urn-entsoe-eu-wgedi-acknowledgement-acknowledgementdocument-6-0.xsd
- [4] Rules and fees for the hourly market of frequency-controlled reserves (official version in Finnish: Taajuusohjattujen reservien tuntimarkkinoiden säännöt ja maksut)
- [5] urn:iec62325.351:tc57wg16:451-7:reserveallocationresultdocument:6:4
- [6] urn:iec62325.351:tc57wg16:451-1:acknowledgementdocument:8:1

2. General Rules

2.1 Trade process

BSP can submit hourly bids to the FCR hourly markets for the next day (CET time zone) until 18.30 (EET). For each hour, Fingrid places the bids in price order, with the principle of giving priority to the cheapest bids. A necessary number of the bids is used in the price order, separately for FCR-N, FCR-D up and FCR-D down. Fingrid confirms the transactions for the next calendar day by 22.00 (EET). [4]

2.2 Technical Aspects

Bid documents, Allocation Result documents and Acknowledgement documents will be exchanged between the parties using the ECP/MADES network.

If the ECP connection is not working properly, the BSP should, if possible, use the Vaksi Web trading system as a back-up to check the status of the submitted bids.

2.3 Updating and deleting of bids

A BSP can update bids by sending a new bid with the same bid ID. Latest successfully received bid is considered valid.

Bids can be deleted by sending a new bid with the same bid ID and zero volume. This removes the bid completely from the Vaksi trading system.

A BSP can see their valid bids in the Vaksi Web trading system. The bids can also be updated and deleted manually in the Vaksi Web trading system.

3. Message Implementation Guide

The bidding and allocation processes can be summarized in the following steps:

1. Bids are submitted by BSP using the ENTSO-E ERRP Reserve Bid Documents [1]
2. Fingrid will always acknowledge a bid document using a standard ENTSO-E Acknowledgement Document [3]
3. Allocations are notified using ENTSO-E ERRP Reserve Allocation Result Documents [2]
4. BSP will always acknowledge the allocation document using a standard ENTSO-E Acknowledgement Document [3]
5. Allocations per bid are notified using ENTSO-E CIM Reserve Allocation Result Documents [5]

3.1 Reserve bid document

3.1.1 Business rules

- Recommended maximum number of bids within a bid document is 2 000.
- Bid prices can have two decimals.
- Volume can have one decimal.
- Decimal separator must be a period.
- Document identification can be a maximum 60 characters long.
- EIC code shall be used as sender identification code and subject party code.
- Each ReserveBidTimeSeries can include only one period.

	FCR-N	FCR-D
Minimum bid size (MW)	0,1	1,0
Maximum bid size (MW)	5,0	10,0
Minimum price (€/MW,h)	0	0
Maximum price (€/MW,h)	-	-

3.1.2 Mapping table

Reserve Bid	
Document Identification	<i>Unique identification of the document. Max 60 characters long.</i>
Document Version	Fixed 1
Document Type	A24 Bid document
Process Type	A28 Primary reserve process
Sender Identification	<i>EIC party code (X) of the BSP or their service provider</i> XXXXXXXXXXXXXXXX (BSP or their service provider) codingScheme = A01 (EIC)
Sender Role	A46 Balancing Service Provider (Also A12 – Balance Supplier can be used, but this will be phased out in the future)
Receiver Identification	10X1001A1001A264 (Fingrid) codingScheme = A01 (EIC)
Receiver Role	A04 System Operator (Also A11 – Market operator can be used, but this will be phased out in the future)
Creation Date Time	<i>Date and time for creation of the document. Must include seconds without decimals</i> YYYY-MM-DDTHH:MM:SSZ (ISO 8601 UTC format)
Reserve Bid Time Interval	<i>The beginning and ending date and time of the period covered by the document. Does not include seconds</i> YYYY-MM-DDTHH:MMZ/YYYY-MM-DDTHH:MMZ (ISO 8601 UTC format)
Domain	10YFI-1-----U codingScheme = A01 (EIC)
Subject Party	<i>EIC party code (X) of the BSP</i> XXXXXXXXXXXXXXXX (BSP) codingScheme = A01 (EIC)
Subject Role	A46 Balancing Service Provider (Also A12 – Balance Supplier can be used, but this will be phased out in the future)
Bid Time Series	
Reserve Bid Identification	<i>Unique over time identification of the of the bid given by the sender. Max 60 characters long.</i>
Auction Identification	Fixed "FCR" <i>Note: the element should not be checked</i>
Business Type	Z03 FCR-N, Frequency Containment Reserves, Normal Z06 FCR-D, Frequency Containment Reserves, Disturbance
Acquiring Area	<i>EIC code for the national area</i>

	10YFI-1-----U <i>"The area where the resource is contracted for use"</i> codingScheme = A01 (EIC)
Connecting Area	<i>EIC code for the national area</i> 10YFI-1-----U <i>"The area where the resource is located"</i> codingScheme = A01 (EIC)
Measure Unit Quantity	MAW
Currency	EUR
Measure Unit Price	MAW
Divisible	A01 Yes
Linked Bids Identification	Optional 1-10 Aggregation number code, only valid for aggregated FCR-N bids
Block Bid	A02 No
Reserve Object	<i>For FCR-N:</i> Regulation object code. This is defined by Fingrid based on the BRP of the reserve site. Information is not mandatory. <i>For FCR-D up:</i> One of the following options, depending on the asset Kulutus (consumption) / Tuotanto (Production) / Aggregoitu (Aggregated) codingScheme = NFI (kansallinen tunnus) <i>For FCR-D down:</i> Not Used
Direction	<i>For FCR-N:</i> A03 Up and down <i>For FCR-D:</i> A01 Up A02 Down
Period	
Time Interval	<i>The hour of the bid in question, the time interval must be one hour</i> YYYY-MM-DDTHH:MMZ/YYYY-MM-DDTHH:MMZ (ISO 8601 UTC format) This shall be included in the Time Period Covered. Each BidTimeSeries can only include one Period. (One hour)
Resolution	PT60M or PT1H
Interval	
Pos	1 For all bids
Qty	<i>The volume of the bid in question</i>
Price	<i>The price of the bid in question</i>

3.1.3 Validation of bid document

An acknowledgement document [3] is generated either by accepting the completely received document or rejecting it completely. Partly accept is never used. Figure 1 shows an example of the acknowledgement document.

The following error codes are applied:

- A01 successfully received document.
- A02 discarded document.

```
<?xml version="1.0" encoding="UTF-8" standalone="true"?>
- <AcknowledgementDocument xmlns="urn:entsoe.eu:wgedi:acknowledgement:acknowledgementdocument:6:0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <DocumentIdentification v="70f0e033d2fd4f29a0b920fd53ca6efb"/>
  <DocumentDateTime v="2021-01-25T12:28:36Z"/>
  <SenderIdentification v="10X1001A1001A264" codingScheme="A01"/>
  <SenderRole v="A11"/>
  <ReceiverIdentification v="44X-DummyBSP100" codingScheme="A01"/>
  <ReceiverRole/>
  <ReceivingDocumentIdentification v="4129590a05a64467a90e4d6746e96991"/>
  <ReceivingDocumentVersion v="1"/>
  <ReceivingDocumentType v="A24:A28"/>
- <Reason>
  <ReasonCode v="A01"/>
</Reason>
</AcknowledgementDocument>
```

Figure 1 Example of an acknowledgement message to a bid document

The table below contains a list of error messages included in the Acknowledgement document in case the validation of a bid document fails:

Description	Level of validation	Error message
Reserve Bid Document:		
Document Identification is mandatory	Message	<i>Message reference missing.</i>
Document Identification must be unique	Message	<i>Message reference must be unique.</i>
Message must be received within a given time	Message	<i>Message was received after deadline.</i>
Message can only include bids for next 30 days	Message	<i>Message contains data for more than next 30 days.</i>
Sender Identification must be connected to the Subject Party	Message	<i>Sender is not connected to the Subject Party.</i>
Bid Times Series		
Message can only contain FCR bids	Message	<i>Message can only contain FCR bids.</i>
Measure Unit Quantity required	Bid	<i>Quantity unit required.</i>
Quantity unit must be MAW	Bid	<i>Quantity unit must be MAW.</i>
Measure Unit Price required	Bid	<i>Currency required.</i>
Currency must be EUR	Bid	<i>Currency must be EUR.</i>
Reserve object code required	Bid	<i>Reserve object code required.</i>
Bid Times Series Interval:		
Position is required to be 1	Bid	<i>The time interval of the bid can be only one hour</i>
Quantity can contain only one decimal	Bid	<i>Quantity contains too many decimals; position <pos¹></i>

¹ The error message will include a reference to the interval position for the error

Quantity is required	Bid	<i>Quantity required; position <pos></i>
Quantity must be 0 or larger	Bid	<i>Quantities must be 0 or larger; position <pos></i>
Quantity must be maximum 5 MW for FCR-N and 10 MW for FCR-D	Bid	<i>Maximum quantity 5 MW for FCR-N and 10 MW for FCR-D.</i>
Price is required	Bid	<i>Price required; position <pos></i>
Bid price must be 0 or larger	Bid	<i>Price is lower than the lower limit; position <pos>.</i>
Reserve object is invalid	Bid	<i>Reserve object must valid and connected to the subject party.</i>
Linked bid identification is invalid	Bid	<i>Linked bid identification must be 1-10. Only FCR-N bids can have linked bid identification.</i>

3.2 Reserve allocation result document

3.2.1 Business rules

- The time series includes volume and megawatt average price per hour (EUR/MW/h).
- The result does not have any reference to the bids.
- There are separate documents for FCR-N, FCR-D up and FCR-D down.
- The time series includes results per hour. The result is a sum of all the accepted bids.
- The Reserve Allocation Result Document is only sent to a BSP, if the BSP has submitted bids for that day to Fingrid.

If the BSP does not receive Reserve Allocation Result Document by 22:00 (EET), the BSP is obliged to manually check the results via the Vaksi Web user interface, if the BSP has submitted bids.

3.2.2 Mapping table

Reserve Allocation Result	
Document Identification	<i>Unique identification of the document</i>
Document Version	Fixed 1
Document Type	A38 Reserve Allocation Result
Process Type	A28 Primary reserve process
Sender Identification	10X1001A1001A264 (Fingrid) codingScheme = A01 (EIC)
Sender Role	A11 Market operator (TSOs)
Receiver Identification	XXXXXXXXXXXXXX (BSP or their service provider) codingScheme = A01 (EIC)
Receiver Role	A12 Balance Service Provider (Balance Supplier)
Creation Date Time	<i>Date and time for creation of the document</i> YYYY-MM-DDTHH:MM:SSZ (ISO 8601 UTC format)
Reserve Bid Time Interval	<i>The beginning and ending date and time of the period covered by the document</i> YYYY-MM-DDTHH:MMZ/YYYY-MM-DDTHH:MMZ (ISO 8601 UTC format)

Domain	10YFI-1-----U (Finland) codingScheme = A01 (EIC)
Allocation Time Series	
Time Series Identification	<i>Unique identification of the time series instance</i>
Reserve Bid Document Identification	Fixed " NA " <i>Note: the element should not be checked</i>
Reserve Bid Document Version	Fixed 1
Reserve Bid Identification	Fixed " NA " <i>Note: The Reserve allocation result document contains a calculated sum, hence there is no single bid to reference</i>
Tendering Party	10X1001A1001A264 (Fingrid) codingScheme = A01 (EIC)
Auction Identification	Fixed " FCR "
Business Type	Z03 FCR-N, Frequency Containment Reserves, Normal Z06 FCR-D, Frequency Containment Reserves, Disturbance
Acquiring Area	10YFI-1-----U (Finland) codingScheme = A01 (EIC)
Connecting Area	10YFI-1-----U (Finland) codingScheme = A01 (EIC)
Contract Type	A01 Daily
Contract Identification	Fixed " NA "
Measure Unit Quantity	MAW
Currency	EUR
Measure Unit Price	MAW
Direction	<i>For FCR-N:</i> A03 Up and down <i>For FCR-D:</i> A01 Up A02 Down
Time Interval	Time Interval is one complete spot-day YYYY-MM-DDTHH:MMZ/YYYY-MM-DDTHH:MMZ (ISO 8601 UTC format)
Resolution	PT60M or PT1H
Interval	
Pos	<i>The relative position of a period within a Reserve Bid Interval</i>
Qty	<i>The sum of all accepted bids</i>
Price	<i>The marginal price of the hour</i>

3.3 Reserve allocation result document per bid

3.3.1 Business rules

- The time series includes accepted and the original volume, and marginal price and the original bid price.
- The result has reference to the bids.
- There are separate documents for FCR-N, FCR-D up and FCR-D down.
- The reason code indicates whether the bid has been fully or partially accepted or rejected.
- The Reserve Allocation Result Document is only sent to a BSP, if the BSP has submitted bids for that day to Fingrid.

3.3.2 Mapping table

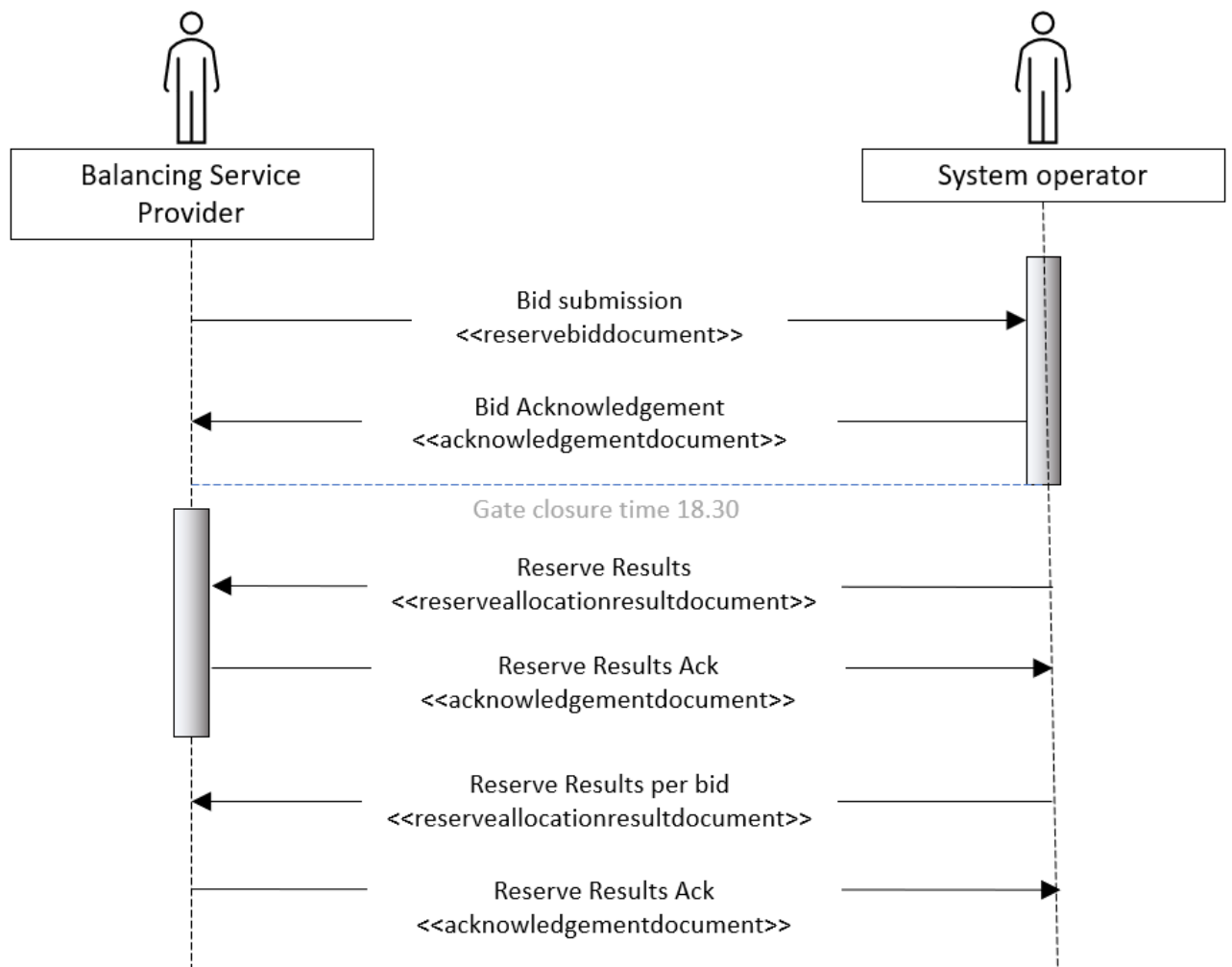
ReserveAllocationResult_MarketDocument	urn:iec62325.351:tc57wg16:451-7:reserveallocationresultdocument:6:4
mRID	Unique identification of the document. Proper UUID is required.
revisionNumber	Constant value of 1
Type	A38 - Reserve Allocation Result Document
process.processType	A52 = Frequency containment reserve
sender_MarketParticipant.mRID	10X1001A1001A264 (Fingrid) codingScheme = A01 (EIC)
sender_MarketParticipant.marketRole.type	A04 – TSO
receiver_MarketParticipant.mRID	XXXXXXXXXXXXXX (BSP or their service provider) codingScheme = A01 (EIC)
receiver_MarketParticipant.marketRole.type	A46 – Balancing Service Provider A39 – Data / Service provider
createdDateTime	Date and time of document creation (in ISO 8601 UTC format) YYYY-MM-DDTHH:MM:SSZ
reserveBid_Period.timeInterval	The period covered by the document (in ISO 8601 UTC format) Start: YYYY-MM-DDTHH:MMZ End: YYYY-MM-DDTHH:MMZ The period length remains unchanged (a spot-day)
domain.mRID	EIC identification of the Control Area Finland: 10YFI-1-----U ----- A01 - EIC coding scheme
TimeSeries	
mRID	Unique identification of the timeseries. Proper UUID is required. The ID is generated for each time series UUID
bid_Original_MarketDocument.bid_BidTimeSeries.mRID	Original bid ID <i>The identification of the time series that was used in the original bid document - the reference to the bid</i>

bid_Original_MarketDocument.tendering_MarketParticipant.mRID	XXXXXXXXXXXXX (BSP) codingScheme = A01 (EIC)
auction.mRID	FCR_CAPACITY_MARKET
businessType	C26 = Frequency Containment Reserve - Normal (FCR-N) C27 = Frequency Containment Reserve - Disturbance (FCR-D)
acquiring_Domain.mRID	The EIC identification of the bidding zone where the resource is contracted for use. Finland: 10YFI-1-----U codingScheme = A01 (EIC)
connecting_Domain.mRID	The EIC identification of the bidding zone where the resource is located. Finland: 10YFI-1-----U codingScheme = A01 (EIC)
marketAgreement.type	A01 – daily
quantity_Measure_Unit.name	MAW – megawatt
currency_Unit.name	EUR – euro
price_Measurement_Unit.name	MAW – megawatt
registeredResource.mRID	The RO-ID of the original bid if it is available. If unavailable, the empty value
flowDirection.direction	If business type is C26 --> A03 - Up ja Down If business type is C27 --> A01 - Up A02 – Down
Reason (within timeseries level)	
code	A73 –Bid in question has been accepted (bid fully accepted) A72 - The original bid quantity has been divided to enable it to be accepted. (The bid is partially accepted) B09 - Bid not accepted
Series_Period	
timeInterval	The period covered by the bid (in ISO 8601 UTC format) Start: YYYY-MM-DDTHH:MMZ End: YYYY-MM-DDTHH:MMZ Bid time interval
resolution	PT60M
Point	
position	Fixed 1
quantity	Volume that was accepted from the bid (MW)

price.amount	Hourly marginal price (EUR). The price is included even if the bid in question was not accepted on the market
secondaryQuantity	The original volume of the bid (MW)
bid_Price.amount	The original price of the bid (EUR)

3.4 Communication overview

In the figure below, the overall communication regarding the bidding process to the FCR-markets is clarified.



3.5 Acknowledgement for each message

Receiving party is expected to send acknowledgement for each document received.

3.5.1 Acknowledgement Mapping table v.6.0

AcknowledgementDocument	Version 6.0 Link: 01 Acknowledgement-v6r0-2014-01-16.pdf (entsoe.eu)
DocumentIdentification	Unique identification of the acknowledgement of a document that has been received.
DocumentDateTime	Date and time of transmission of the acknowledgement expressed in UTC as YYYY-MM-DDTHH:MM:SSZ
SenderIdentification	The originator of the acknowledgement is identified by a unique coded identification. This value should be the same as that found in the receiver identification of the document being acknowledged.
SenderRole	Identification of the party that is the originator of the acknowledgement. <i>One of:</i> A04 – System Operator A46 - Balancing Service Provider (BSP) A39 - Service Provider (Data Provider)
ReceiverIdentification	Identification of the party who is the recipient of the acknowledgement.
ReceiverRole	Identification of the role played by the receiver. <i>One of:</i> A04 – System Operator A46 – Balancing Service Provider (BSP) A39 - Service Provider (Data Provider)
ReceivingDocumentIdentification	The unique identification of the received document.
ReceivingDocumentVersion	Version of the document received.
ReceivingDocumentType	Type of the document received.
ReasonCode	A01 – Message fully accepted A02 – Message fully rejected More specific error codes may be used.

text	May be populated to provide additional explanation in free text format.
------	---

3.5.2 Acknowledgement Mapping table v.8.1

AcknowledgementDocument	Version 8.1 ENTSO-E link
mRID	Unique identification of the acknowledgement of a document that has been received.
createdDateTime	Date and time of transmission of the acknowledgement expressed in UTC as YYYY-MM-DDTHH:MM:SSZ
sender_MarketParticipant.mRID	The originator of the acknowledgement is identified by a unique coded identification. This value should be the same as that found in the receiver identification of the document being acknowledged.
sender_MarketParticipant.marketRole.type	Identification of the party that is the originator of the acknowledgement. <i>One of:</i> A04 – System Operator A46 - Balancing Service Provider (BSP) A39 - Service Provider (Data Provider)
receiver_MarketParticipant.mRID	Identification of the party who is the recipient of the acknowledgement.
receiver_MarketParticipant.marketRole.type	Identification of the role played by the receiver. <i>One of:</i> A04 – System Operator A46 – Balancing Service Provider (BSP) A39 - Service Provider (Data Provider)
received_MarketDocument.mRID	The unique identification of the received document.
received_MarketDocument.revisionNumber	Version of the document received.
received_MarketDocument.type	Type of the document received.
received_MarketDocument.process.processType	Process of the document received.
received_MarketDocument.createdDateTime	Timestamp of the original document

ReasonCode	A01 – Message fully accepted A02 – Message fully rejected More specific error codes may be used.
text	May be populated to provide additional explanation in free text format.