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# IMPLEMENTATION GUIDE

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VERSION 2.2 ICTC APPROVED



European Network of  
Transmission System Operators  
for Electricity

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## SOGL TRANSPARENCY REPORTING

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2023-09-14

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APPROVED DOCUMENT

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- **MAY:** This word, or the adjective "OPTIONAL", means that an item is truly optional.

## Revision History

Version	Release	Date	Paragraph	Comments
1	0	2019-09-10		SO GL Transparency Reporting Implementation guide agreed by CIM EG. Approved by MC.
1	1	2019-11-08		Weekly resolution is removed from the list of permitted values for attribute resolution.
2	0	2021-06-01		Document aligned with the revised detailed data description and business requirements specification. Section 4.1: Document references versions updated. Section 4.2: Applicable ESMP documents section added.  Sections 6.4 and 6.5: Use case and sequence diagrams simplified to cover data exchanges with central transparency platform only.  Sections 6.5, 6.6 and 7.2: Data exchanges added for SO GL articles 185.4, 188.3, 189.2, 190.2 and 190.3. Existing data exchanges were revised.  For approval by MC. Approved by MC.
2	1	2023-02-02		Maintenance request SOGL04: - Removed references to Reason class in chapter 5.2.3, dedicated to SO GL art. 190, since class is not used - Balancing Market Document version 4.5 referenced rather than 4.1 Editorial corrections. Approved by ICTC.
2	2	2023-09-14		Maintenance request SOGL05: Clarification on the use of negative values in quantity attribute. Chapter 5.1 amended. Approved by ICTC.

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## 1 Scope

The objective of this implementation guide is to enable TSOs and ENTSO-E to publish information for transparency purposes in accordance with articles 183 to 190 of the System Operation Guideline.

This implementation guide focuses on defining the information to be exchanged for the publication of data specified by the TP Business Requirements Specification.

The implementation guide is one of the building blocks for using UML (Unified Modelling Language) based techniques in defining processes and documents for interchange between actors in the electrical industry in Europe.

This guide provides a standard for enabling a uniform layout for the transmission of data between the European electricity market participants and the Transparency platform via the Data Provider (who may be the Transmission System Operator). The information model within the guide shall ensure that a common interface can be provided between different software solutions. The implementation guide is developed for the harmonisation of the underlying data exchange process.

## 2 References

### 2.1 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- [IEC 62325-351:2016, Framework for energy market communications – Part 351: CIM European market model exchange profile.](#)
- [IEC 62325-450:2013, Framework for energy market communications – Part 450: Profile and context modelling rules.](#)
- [IEC 62325-451-1:2017, Framework for energy market communications – Part 451-1: Acknowledgement business process and contextual model for CIM European market.](#)
- [IEC 62325-451-6:2018 Framework for energy market communications - Part 451-6: Publication of information on market, contextual and assembly models for European-style markets](#)

### 2.2 Other references

- [Articles 183 to 190 of the System Operation Guideline \(Transparency of Information\)](#)
- [The Harmonised Electricity Market Role Model \(release 2022-01\)](#)
- Detailed Data Description for the SO GL Transparency Reporting version 2.0
- Business Requirements Specification for SO GL Transparency Reporting version 2.0
- [All TSOs' proposal for the determination of LFC blocks for the Synchronous Area Continental Europe](#)

- 132 • [The introduction of different time series possibilities within ENTSO-E electronic](#)  
133 [documents](#)

### 3 Terms and definitions

**CIM:** Common Information Model, set of standards for modelling data exchanges in an electrical utility enterprise developed under IEC TC 57.

**Criteria application process:** Means the process of calculating the target parameters for the synchronous area, the LFC block and the LFC area based on the data obtained in the data collection and delivery process.

**ESMP:** European Style Market Profile

**FCR:** Frequency Containment Reserves. Means the active power reserves available to contain system frequency after the occurrence of an imbalance

**FRP:** Frequency Restoration Process. Means a process that aims at restoring frequency to the nominal frequency and, for synchronous areas consisting of more than one LFC area, a process that aims at restoring the power balance to the scheduled value

**FRR:** Frequency Restoration Reserves. Means the active power reserves available to contain system frequency after the occurrence of an imbalance.

**LFC:** Load-Frequency Control.

**LFC area:** Means a part of a synchronous area or an entire synchronous area, physically demarcated by points of measurement at interconnectors to other LFC areas, operated by one or more TSOs fulfilling the obligations of load-frequency control.

**LFC block:** Means a part of a synchronous area or an entire synchronous area, physically demarcated by points of measurement at interconnectors to other LFC blocks, consisting of one or more LFC areas, operated by one or more TSOs fulfilling the obligations of load-frequency control.

**LFC Block Monitor:** Means a TSO responsible for collecting the frequency quality evaluation criteria data and applying the frequency quality evaluation criteria for the LFC block.

**LFC Operator:** Responsible for the load frequency control for its LFC Area or LFC Block. This role is typically performed by a TSO.

**MIA:** Market Information Aggregator.

**Frequency quality evaluation criteria:** Means a set of calculations using system frequency measurements that allows the evaluation of the quality of the system frequency against the frequency quality target parameters.

**Reserve capacity for FCR:** The capacity required for the synchronous area that shall cover at least the reference incident.

**RR:** Replacement Reserves. Means the active power reserves available to restore or support the required level of FRR to be prepared for additional system imbalances, including generation reserves.

**SA:** Synchronous Area: Means an area covered by synchronously interconnected TSOs, such as the synchronous areas of Continental Europe, Great Britain, Ireland-Northern Ireland and Nordic and the power systems of Lithuania, Latvia and Estonia, together referred to as 'Baltic' which are part of a wider synchronous area (article 2(2) of the Commission Regulation (EU) 2016/631 of 14 April 2016 establishing a network code on requirements for grid connection of generators).



- 175 **Shares of the reserve capacity on FCR:** Shall be based on the sum of the net generation and  
176 consumption of its control area divided by the sum of net generation and consumption of the  
177 synchronous area over a period of 1 year for each TSO.
- 178 **Sharing of reserves:** Means a mechanism in which more than one TSO takes the same reserve  
179 capacity, being FCR, FRR or RR, into account to fulfil their respective reserve requirements  
180 resulting from their reserve dimensioning processes.
- 181 **Synchronous Area Monitor:** Means a TSO responsible for collecting the frequency quality  
182 evaluation criteria data and applying the frequency quality evaluation criteria for the  
183 synchronous area.
- 184 **TP:** Transparency Platform
- 185 **TSO:** Transmission System Operator.
- 186

## 4 The SOGL Transparency Reporting Business Process

### 4.1 Overview

SO GL, Title III, Articles 183 to 190, “information transparency” requires publication of all methodologies defined under Article 118 by each Synchronous area and certain methodologies developed under Article 119 at the LFC block level. The obligation to publish the Synchronous area Operational Agreements can be found in SO GL Article 184; the obligations to publish information on frequency quality is available on Article 185, the obligations to publish information on the load-frequency control structure is available on Article 186, the obligations to publish information on FCR, FRR and RR can be found in Article 187, 188 and 189 respectively. Finally, Article 190 contains the obligations to publish information on sharing and exchange of reserves. Methodologies found in article 118 will be published by the Synchronous area monitor for each Synchronous area. Methodologies found in article 119 will be published by the LFC block monitor for each LFC block of each Synchronous area.

In practice, the different categories of information to be submitted and published are detailed in chapter 4.6.

### 4.2 Applicable ESMP documents

This implementation guide assumes the use of the following ESMP documents and contextual and assembly models, also referred to as XSD or schema versions:

EDI document	version
Balancing market document	urn:iec62325.351:tc57wg16:451-6:balancingdocument:4:5
Acknowledgement document	urn:iec62325.351:tc57wg16:451-1:acknowledgementdocument:8:1

**Table 1 – Applicable ESMP documents**

All schemas are available for download from the ENTSO-E website.

### 4.3 Applicable protocols for file-based data exchange

For file-based data exchange the following protocols will be supported:

- MADES (IEC 62325-503)
- Web services (IEC 62325-504)

## 4.4 Use Cases

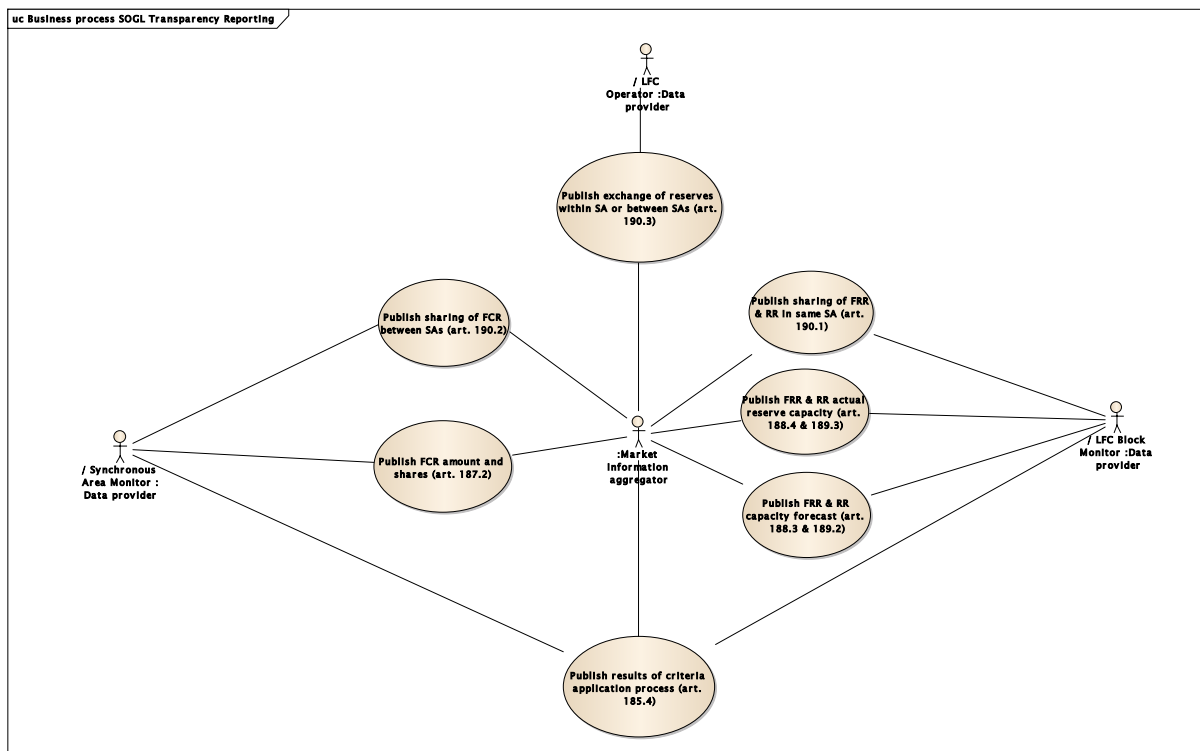


Figure 1 - Use Cases

The table below gives a list of actors involved in the SOGL Transparency reporting:

Actor Label	Actor Description
Data provider	Data provider is responsible for gathering all the required balancing information by the network code and provide it to the MIA. This role will be played by the LFC operators, LFC block monitors or SA monitors.
Market information aggregator (MIA)	MIA is the role that receives, validates and acknowledges all submitted information from the data providers. This role will be played by TP.

Table 2 - Actor labels and descriptions

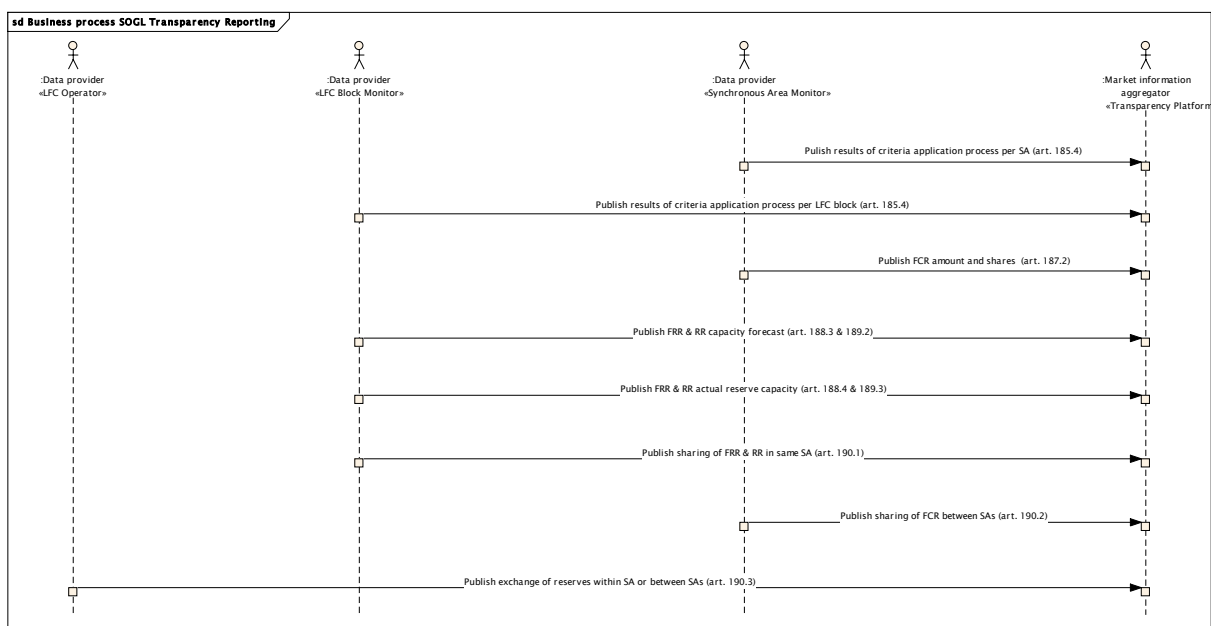
## 4.5 Document exchange processes

### 4.5.1 Overview

The use cases are supported by the following document exchanges:

- Submit results of the criteria application process per SA or LFC block (Art 185.4)
- Submit total amount and shares of FCR reserve capacity (Art. 187.2)
- Submit year-ahead forecast of FRR capacities per LFC block. ( Art. 188.3)
- Submit FRR actual reserve capacity per LFC block (Art. 188.4)
- Submit year-ahead forecast of RR capacities per LFC block (Art. 189.2).
- Submit RR actual reserve capacity per LFC block (Art. 189.3)
- Submit the sharing of FRR and RR in the same SA (Art. 190.1)
- Submit the sharing of FCR between SAs (Art 190.2)
- Submit exchange of reserves within SA or between SAs (Art. 190.3).

Next figure shows a sequence diagram of the documents exchange processes:



**Figure 2 - Sequence diagram for SOGL Transparency reporting**

All data submissions are based on the Balancing Market Document. The MIA shall respond with an Acknowledgement Market Document.

## **4.6 Business process context**

This Implementation Guide covers only the final data exchanges between the different Data Providers (LFC operator, LFC block monitor and SA monitor) and the MIA (TP). The data aggregations that each data provider undertakes with regard to its domain (LFC block, SA) is a local responsibility and out of scope of this IG.

### **4.6.1 Submission of the results of the criteria application process (Art. 185.4)**

The Data provider (SA monitor or LFC block monitor) submits to MIA (TP) the resulting values from the frequency quality evaluation process including the measurement resolution, accuracy and calculation methods. Before submitting the information, the SA or LFC block monitor shall aggregate the received values per SA or LFC block. This data is published ex-post quarterly.

### **4.6.2 Submission of the total amount and shares of FCR reserve capacity (Art. 187.2)**

Data provider (SA monitor) submits to MIA (TP) the total amount of FCR reserve capacity values per SA. Before submitting this information, SA monitor shall aggregate the received values per SA. SA monitor also submits the share of capacity per LFC block. Data is published ex-ante per calendar year.

### **4.6.3 Submission of year-ahead forecast for FRR capacities per LFC block (Art. 188.3)**

The LFC block monitor submits the year-ahead forecast of FRR capacities for its LFC block.

### **4.6.4 Submission of the FRR actual reserve capacity per LFC Block (Art. 188.4)**

LFC block monitor submits to MIA (TP) the actual reserve capacities for FRR for its LFC block on a quarterly basis ex-post.

### **4.6.5 Submission of year ahead forecast of RR capacities per LFC block (Art. 189.2)**

The LFC block monitor submits to MIA (TP) the year-ahead forecast of RR capacities.

### **4.6.6 Submission of RR actual reserve capacity per LFC Block (Art. 189.3)**

LFC block monitor submits to MIA (TP) the actual reserve capacities for RR for its LFC block on a quarterly basis ex-post.

### **4.6.7 Submission of the sharing of FRR and RR in the same SA (Art. 190.1)**

All LFC block monitor submits to MIA (TP) the reduced volume of mFRR, aFRR or RR capacity within its LFC block due to sharing of reserves. Data is submitted ex-ante per sharing agreement.

### **4.6.8 Submission of the sharing of FCR capacity between SAs ( Art. 190.2)**

The SA monitor submits to the MIA (TP) the shared volume and reduction of reserve capacity in its SA. Data is submitted ex-ante per sharing agreement.

### **4.6.9 Submission of exchanged reserve capacity within and between SAs ( Art. 190.3)**

The LFC operator submits data describing the reserve capacities to be exchanged to the MIA (TP). The exchanged volumes are represented by reserve capacity exported or imported by a

291 given LFC area or LFC block within the same or different SA. Data is submitted ex-ante,  
292 separately per reserve type RR, aFRR, mFRR or FCR.

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#### 294 **4.6.10 Acknowledgements**

295 All received documents must be acknowledged in a syntactic and business/semantic way by  
296 the MIA (TP). If the submitted document is rejected by the MIA (TP), it will send a negative  
297 acknowledgement (A02 Message fully rejected) to the sender, which gives a list of reasons for  
298 rejection. Else if the document is correct, receiver sends a positive acknowledgement (A01 fully  
299 accepted).

300

## 5 General rules for document exchange

### 5.1 Balancing\_MarketDocument General Overview

Following tables shows a description of the different attributes in the Balancing Market Document to be used in this business process and the XSD requirements for each one of them.

Balancing_MarketDocument			
Class	Attribute	Description	XSD Requirements
Balancing_MarketDocument	mRID	Unique identification of the Balancing Market Document	Mandatory
	revisionNumber	Identification of version that distinguishes one version from another	Mandatory
	type	The coded type of a document	Mandatory
	process.processType	Identification of the nature of the process that the document addresses	Mandatory
	sender.mRID	sender ID	Mandatory
	sender.roleType	Role played by the sender	Mandatory
	receiver.mRID	receiver ID	Mandatory
	receiver.roleType	Role played by the receiver	Mandatory
	createdDateTime	Date and time of document creation	Mandatory
	docstatus	identification of condition or position of a document with regard to its standing See Note 1 below.	Optional
	area_Domain.mRID	Unique id of domain area	Optional
	allocationDecision_DateAndOrTime.dateTime	Not used	Optional
	period.TimeInterval	Start and end date time of a given period interval	Mandatory

Note 1: docStatus A13=Withdrawn may exceptionally be used to withdraw data erroneously submitted to MIA.

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Balancing_MarketDocument			
Class	Attribute	Description	XSD Requirements
TimeSeries	mRID	Time series Unique id	Mandatory
	businessType	Identification of the nature of time series	Mandatory
	acquiring_Domain.mRID	Identification of the acquiring domain	Optional
	connecting_Domain.mRID	Identification of the connecting domain	Optional
	type_MarketAgreement.type	Not used	Optional
	standard_MarketProduct.marketProductType	Not used	Optional
	original_MarketProduct.marketProductType	Not used	Optional
	mktPSRType.psrType	Not used	Optional
	flowDirection.direction	Coded identification of energy flow	Optional
	currency_Unit.name	Not used	Optional
	quantity_Measurement_Unit.name	Unit of measure for the time series	Optional
	price_Measurement_Unit.name	Not used	Optional
	curveType	Identification of the coded representation of type of curve	Optional
	cancelledTS	May be used	Optional
Series_Period	timeInterval	Time interval of the period	Mandatory
	resolution	The number of units of time that composes of an individual step change within a period	Mandatory
Point	position	Position within the time interval	Mandatory
	quantity	Principal Quantity	Optional
	secondaryQuantity	Secondary Quantity	Optional



311 **Table 3 - Balancing\_Market Document General Overview**

312 Note: The rest of the attributes in point class are optional and they are not used in this business  
313 process. The same applies to Financial\_Price class.

314 Negative values are permitted in quantity attribute only when publishing data for SO GL art.  
315 185.4 Results of the criteria application process, for the combination of DocumentType  
316 A45="Measurement Value Document", ProcessType A65=" frequency restoration" and  
317 BusinessTypes C66="Mean value of FRCE" or C68="Percentile of FRCE".

## 5.2 Dependency tables

### 5.2.1 SO GL articles 185.4 and 187.2

The table below indicates which attributes must or may be used within the Balancing Market document when submitting data required under SO GL articles 185.4 and 187.2.

Class	Attribute	185.4 Criteria application process	187.2 FCR total capacity	187.2 Shares of FCR capacity
Balancing_MarketDocument	mRID	Used	Used	Used
	revisionNumber	Used	Used	Used
	type	A45: Measurement Value Document	A26: Capacity document	A26: Capacity document
	process.processType	A64: criteria application for instantaneous frequency A65: Criteria application for frequency restoration	A52: Frequency Containment Reserve	A52: Frequency Containment Reserve
	sender.mRID	Used	Used	Used
	sender.roleType	A39: Data Provider	A39: Data Provider	A39: Data Provider
	receiver.mRID	Used	Used	Used
	receiver.roleType	A32: MIA	A32: MIA	A32: MIA
	createdDateTime	Used	Used	Used
	area_Domain.mRID	SA mRID when processType = A64 LFC block mRID when processType = A65	SA mRID	LFC block mRID
	period.TimeInterval	Quarter	Year	Year
	mRID	Used	Used	Used

TimeSeries	businessType	<p>Codes used when ProcessType = A64:</p> <p>C60 = frequency deviation larger than standard deviation</p> <p>C61 = frequency deviation larger than maximum deviation</p> <p>C62 = frequency deviation not returned to 50%</p> <p>C63 = frequency deviation not returned to restoration range</p> <p>C64 = Frequency deviation outside recovery range</p> <p>C65 = frequency</p> <p>Codes used when ProcessType = A65:</p> <p>C71 = FRCE outside level 1 range</p> <p>C72 = FRCE outside level 2 range</p> <p>C73 = FRCE exceeded 60% of FRR capacity</p> <p>C74 = FRCE exceeded steady state deviation</p> <p>C75= FRCE calculation and accuracy descriptor</p> <p>Codes used for both processTypes:</p> <p>C66 = Mean value</p> <p>C67 = Standard deviation</p> <p>C68 = Percentile</p> <p>C69 = Resolution</p> <p>C70 = Accuracy</p> <p>C80 = frequency and accuracy descriptor</p>	A25: General capacity information	C23: Share of reserve capacity
	acquiring_Domain.mRID	Not used	Not used	Not used
	connecting_Domain.mRID	Not used	Not used	Not used
	flowDirection.direction	<p>A01:UP when positive measure</p> <p>A02: DOWN when negative measure</p> <p>A03: UP AND DOWN when single measure</p>	<p>A01: UP</p> <p>A02: DOWN</p> <p>A03: Symmetric</p>	<p>A01: UP</p> <p>A02: DOWN</p> <p>A03:Symmetric</p>
	quantity_Measurement_Unit.name	<p>When processType=A64 and businessType=C66, C67, C68, C69 or C70: MTZ</p> <p>When processType=A64 and businessType=C60 or C61: MIN (for minute)</p>	MAW	MAW

		<p>When processType=A64 and businessType=C65: SEC (for second)</p> <p>When processType= A65 and businessType=C66, C67, C68, C69 or C70: MAW</p> <p>Not used when businessType= C80 or C75</p> <p>For all other combinations of processType and businessType: One</p>		
	curveType	<p>A01: Sequential fixed block</p> <p>A03: Variable sized block</p>	A01: Sequential fixed block	A01: Sequential fixed block
Series_Period	timeInterval	Quarter time interval	Year time interval	Year time interval
	resolution	<p>When businessType=C69, C65, C70, C80 or C75: P3M</p> <p>For all other businessTypes: P1M</p>	P1Y	P1Y
Point	position	Used	Used	Used
	quantity	<p>Not used when businessType= C80 or C75.</p> <p>Measurement value with up to 6 decimals</p>	Total capacity with 1 MW precision	Share of capacity with 1 MW precision
	secondaryQuantity	<p>used when business type C68 = percentile.</p> <p>Permitted values: 1, 5 10, 90, 95 or 99</p>	Not used	Not used

One or several instances of the Reason class shall be associated with the Point when BusinessType = C80 or C75 for art. 185.4. Reason class shall not be included for any other business types.

Reason	code	A95 = Complementary information	Not used	Not used
	text	Descriptor	Not used	Not used

**Table 4 - Dependency table for SO GL articles 185.4 and 187.2**

### 5.2.2 SO GL articles 188.3, 188.4, 189.2 and 189.3

The table below indicates which attributes must or may be used within the Balancing Market document when submitting data required under SO GL articles 188.3, 188.4, 189.2 and 189.3.

Class	Attribute	Usage and permitted values
-------	-----------	----------------------------

Balancing_MarketDocument	mRID	Used
	revisionNumber	Used
	type	A26: Capacity document
	process.processType	Art. 188: A56=FRR Art. 189: A46=RR
	sender.mRID	Used
	sender.roleType	A39: Data Provider
	receiver.mRID	Used
	receiver.roleType	A32: MIA
	createdDateTime	Used
	area_Domain.mRID	LFC block mRID
	period.TimeInterval	Art. 188.3 and 189.2: Year Art. 188.4 and 189.3: Quarter
TimeSeries	mRID	Used
	businessType	Art. 188.3 and 189.2 C76 = forecasted capacity Art. 188.4 and 189.3: C77 = minimum available reserve capacity C78 = average available reserve capacity C79 = maximum available reserve capacity
	acquiring_Domain.mRID	Not used
	connecting_Domain.mRID	Not used
	flowDirection.direction	A01: UP A02: DOWN
	quantity_Measurement_Unit.name	MAW
	curveType	A01: Sequential fixed block A03: Variable sized block
Series_Period	timeInterval	Art. 188.3 and 189.2: Year Art. 188.4 and 189.3: Quarter
	resolution	P3M

Point	position	Used
	quantity	Art. 188.3 and 189.2: Forecasted capacity Art. 188.4 and 189.3: Actual capacity  Data provided with 1 MW precision.
	secondaryQuantity	Not used

**Table 5 - Dependency table for SO GL articles 188.3, 188.4, 189.2 and 189.3**

### 5.2.3 SO GL article 190

The table below indicates which attributes must or may be used within the Balancing Market document when submitting data required under SO GL article 190.

Class	Attribute	190.1	190.2	190.3
Balancing_Market Document	mRID	Used	Used	Used
	revisionNumber	Used	Used	Used
	type	A26: Capacity document	A26: Capacity document	A26: Capacity document
	process.processType	A46: RR A51: aFRR A47:mFRR	A52:FCR	A52:FCR A46: RR A51: aFRR A47:mFRR
	sender.mRID	Used	Used	Used
	sender.roleType	A39: Data Provider	A39: Data Provider	A39: Data Provider
	receiver.mRID	Used	Used	Used
	receiver.roleType	A32: MIA	A32: MIA	A32: MIA
	createdDateTime	Used	Used	Used
	area_Domain.mRID	LFC block mRID	SA mRID	mRID of sender's LFC area
	period.TimeInterval	Time interval described by document	Time interval described by document	Time interval described by document

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TimeSeries	mRID	Used	Used	Used
	businessType	C22: Shared balancing reserve capacity	C22: Shared balancing reserve capacity	C21: Exchanged balancing reserve capacity
	acquiring_Domain.mRID	Not used	Not used	LFC area or LFC block or region acquiring the reserves
	connecting_Domain.mRID	Not used	Not used	LFC area or LFC block or region providing the reserves
	flowDirection.direction	A01: UP A02: DOWN	A01: UP A02: DOWN A03: Symmetric	A01: UP A02: DOWN A03: Symmetric (only permitted when processType=A52)
	quantity_Measurement_Unit.name	MAW	MAW	MAW
	curveType	A03: Variable sized block	A03: Variable sized block	A01: Sequential fixed block A03: Variable sized block
Series_Period	timeInterval	validity period of agreement See Note 2 below	validity period of agreement See Note 2 below	delivery period of the exchanged reserves
	resolution	P1D	P1D	PT15M
Point	position	1 See Note 2 below	1 See Note 2 below	Used
	quantity	capacity reduction with 1 MW precision	capacity reduction with 1 MW precision	Exchanged capacity with 1 MW precision
	secondaryQuantity	Not used	shared volume	Not used

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Note 2: For SO GL articles 190.1 and 190.2 single, constant values for the entire validity period of the agreement shall be reported



345 Reason class is not used.

346 **Table 6 - Dependency table for SO GL article 190**

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