

Business Service

Exchange of measurement data volumes and meter readings

This version of the Service Description will take effect after approval,
when
Allocatie 2.0 tranche 3 goes live.

Please note: the Dutch version is leading.

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Referenced documents

Requirements model

No.	Description	Version	Date	Author
1.	BRS Metering data and objections metering data GV	9.0	14-04-2023	MFF BAS WG C1

Design frameworks and guidelines

No.	Description	Version	Date	Author
2.	NEDU EDSN Ontwerpkeuzes	3.9	15-04-2021	NEDU/EDSN
3.	TenneT Web Services guide	N/A	April 2020	TenneT
8.	Technical Guide - Measurements & Allocations Documents	1.7	13-06-2022	TenneT

Service descriptions and data model

No.	Description	Version	Date	Author
4.	EDSN Complex Data Type Specification	2.4	07-06-2023	EDSN
5.	EDSN Logical Data Type Specification	3.0	07-06-2023	EDSN
6.	ebIX® Code list	1.2A	May 2023	ebIX TC
7.	ISO 8601 voor datum- en tijdnnotatie	1:2019	2019	ISO

This document is a publication of EDSN for MFF BAS. In the interest of completeness and accuracy, we kindly request you to forward any comments, additions and corrections regarding this document to EDSN.

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1. Introduction

1.1 Service description

The service description describes the agreements on the exchange of volumes and meter readings of:

- Allocation point electricity profile large consumption
- Allocation point electricity telemetry large consumption
- Large consumption Electricity Transfer Point MLOEA
- Large consumption gas connection
- Grid-to-grid transfer point electricity¹.

To give the reader a good idea of the exchange, a detailed process description is included as well as an indication of the notifications to be used. For a functional description of the process that supports this exchange, please refer to the Business Requirement Specification Metering data and objections metering data[1].

1.2 Reading guide

This document describes the following aspects, including:

- Process *Exchange metering data volumes and meter readings*;
- These volumes and meter readings are exchanged via TenneT's MMC-hub
- The syntactic validations by the MMC-hub, the confirmation/rejection by the MMC-hub
- Checks on volumes and meter readings carried out by the consumers (TSO, BRP, DSO);
- Confirmation/rejection of volumes and meter readings by the consumers (TSO, BRP, DSO);
- XML message definitions.

For the functionality of the MMC-hub, please refer to the TenneT Web Services guide[3].

1.3 Starting points

The following principles were used when designing the service *Exchange metering data volumes and meter readings*:

- Date/time notation in XML notifications according to NEDU EDSN *Design Choices*[2]
- The start and end date are in UTC and in accordance with the notation: YYYY-MM-DDThh:mm:ssZ;
 Example start and end date **calendar day** electricity (winter time):
 2020-02-08T23:00:00Z / 2020-02-09T23:00:00Z;
 Example start and end date **calendar day** electricity (change winter time to summer time):
 2020-03-28T23:00:00Z / 2020-03-29T22:00:00Z;
 Example start and end date **gas day** (winter time):
 2020-02-08T05:00:00Z / 2020-02-09T05:00:00Z;
 Example start and end date **calendar day** electricity (summer time):
 2020-06-08T22:00:00Z / 2020-06-09T22:00:00Z;
 Example start and end date **calendar day** electricity (change summer time to winter time):
 2020-10-24T22:00:00Z / 2020-10-25T23:00:00Z;
 Example start and end date **gas day** (summer time):
 2020-06-08T04:00:00Z / 2020-06-09T04:00:00Z;
- Wherever this service description refers to "large consumption", this means a large connection/allocation point or a Section 1 paragraphs 2 and 3 connection/allocation point (A1)
- Wherever this service description refers to "distribution system operator" or "DSO", one can also understand "GDS owner" in the case of large consumption electricity connections;
- Wherever this service description refers to "Connection", one can also understand connection gas, allocation point electricity, transfer point electricity or grid-to-grid transfer point electricity;

¹ Also for GDS.

- In case of a meter change, the expansion position, the installation position and the total volume over a period of time are included in one notification

1.4 Using the service Exchange of measurement data volumes and meter readings

The table below shows the type of connection for which the metering responsible party must send a separate metering data volumes and meter readings notification to the system operator and/or the balance responsible party. The table also contains a reference to the relevant use cases from the BRS[1].

The frequency is usually monthly², except for the annual connections. In addition, the metering responsible party will send an update if new data has become available. In an update notification, all metering data for the relevant period will be made available again. This includes the measurement data that have not been changed.

Exchange	Measurement data provider	Consumer of measurement data			Type of connection	BRS Use case	Code ³
ELK (not MLOEA)							
Volumes and meter readings "allocation point electricity profile large consumption" The notification shall also contain the kWmax and the blind consumption (if measured).	MRP	-	DSO	-	Allocation point ELK PRF	A20.003 (DSO) A20.004 (DSO)	N40
Volumes and meter readings "allocation point electricity telemetry large consumption" The notification to the DSO also contains the kWmax and the blind consumption (if measured).	MRP	TSO	DSO	BRP	Allocation point ELK TMT	A20.002 (DSO) A20.004 (DSO) A20.022 (BRP) A20.035 (TSO)	N41
ELK (MLOEA)							
Volumes and meter readings "allocation point electricity telemetry large consumption" With MLOEA, these notifications do not contain the kWmax and the blind consumption per allocation point.	MRP	TSO	DSO	BRP	Allocation point ELK TMT	A20.002 (DSO) A20.022 (BRP) A20.035 (TSO)	N41
Volumes and meter readings "electricity transfer point large consumption MLOEA" The notification shall also contain the kWmax and the blind consumption (if measured). The EAN code of the transfer point shall be used.	MRP	TSO	DSO	-	Transfer point ELK TMT	A20.004 (DSO) A20.037 (TSO)	N50
GAS							
Volumes and meter readings "Large consumption gas connection"	MRP	-	DSO	-	Connection GAS PRF	A20.006 (DSO)	N60
Grid-to-grid transfer point ELK							

² Unless a SVEL event has taken place.

³ See paragraph 3.5 Application ProcessTypeID.

Exchange	Measurement data provider	Consumer of measurement data			Type of connection	BRS Use case	Code ³
Volumes and meter readings "grid-to-grid transfer point electricity"	MRP	-	DSO	-	Grid-to-grid transfer point ELK	A20.008 (DSO)	N70

1.5 List of abbreviations

Abbreviation	Description
A1	A connection which falls within the definition of Article 1 of the Electricity Act. This connection is treated as a large consumption, while technically the connection is a small consumption connection
BRP	Balance responsible party (formerly PV)
EDSN	Energy Data Services Netherlands
GDS	Closed distribution system
GV	Large consumption
TSO	Transmission system operator
MLOA	Multiple suppliers on a connection
MMC-hub	Market-Market-Communication hub
MRP	Metering Responsible Party
PRF	Profile (abbreviation used to distinguish between profiled connections/allocation points and connections/allocation points measured by telemetry).
BRP	Balance responsible party
DSO	Distribution system operator
SVEL	Supplier-switch, relocation (moving in, moving out) and/or end of delivery
TMT	Telemetry (abbreviation used to distinguish between connections/allocation points with allocation method PRF and connections/allocation points with allocation method TMT)

2. Roles and responsibilities

2.1 Consumer

This service description describes how the consumers (TSO, BRP, DSO) receive the volumes and meter readings.

2.2 Provider

This service description describes how the provider (MRP) provides the volumes and meter readings.

2.3 RACI

The RACI below shows the roles and responsibilities for this service:

R (Responsible, NL: Verantwoordelijk)	EDSN Business Integration
A (Accountable, NL: Eindverantwoordelijk)	To be determined!
C (Consulted, NL: Raadplegen)	Notifications team MFFBAS, ebIX Technical Commission,
I (Informed, NL: Informeren)	GMM MFF, EDSN

3. BPMN Exchange measurement data volumes and meter readings

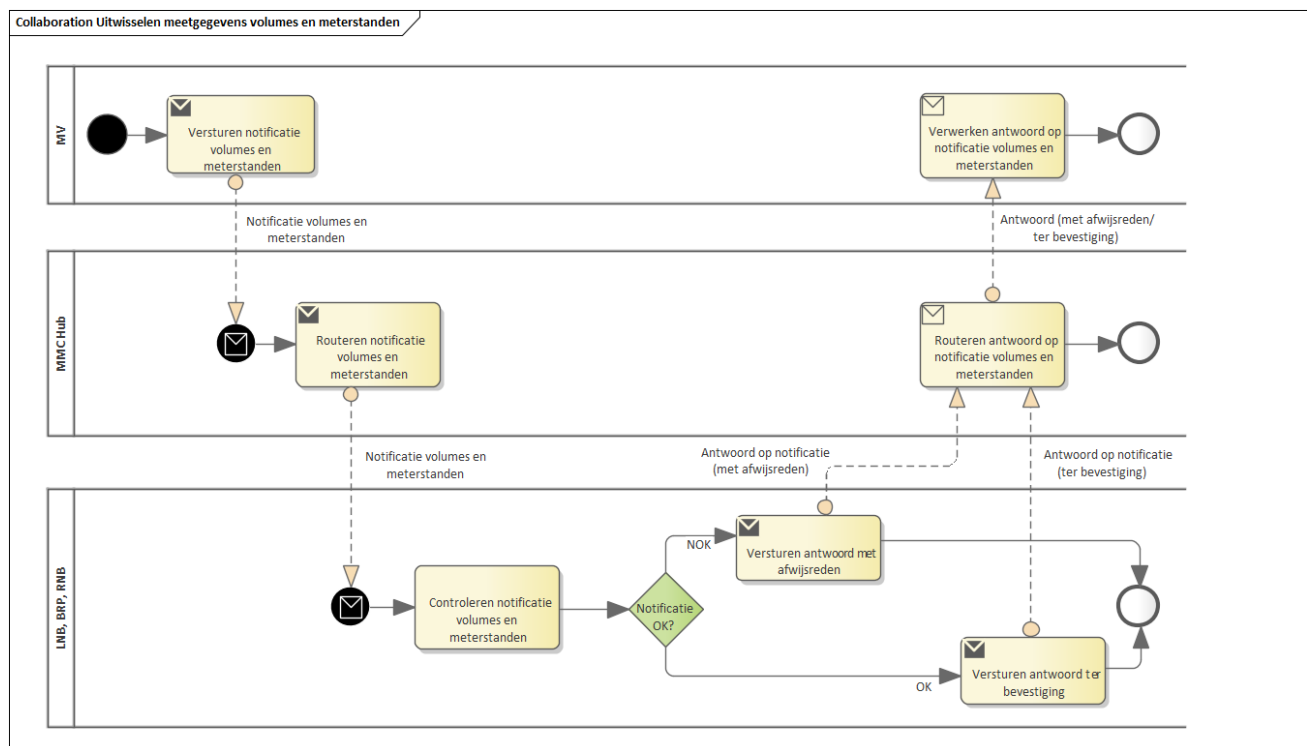


Figure 1 For detailed information about this process, see BRS Metering data and contested metering data GV ref[1]

3.1 Exchange of measurement data volumes and meter readings

The process for exchange of measurement data volumes and meter readings follows the following scenario:

1. The metering responsible party sends the notification "Notification metering data volumes and meter readings" to the MMC-hub
2. The MMC-hub processes⁴ the received "Notification metering data volumes and meter readings" notification and routes the notification to the receiver;
3. The recipient checks the notification "Notification of volume and meter readings"
4. The receiver sends the response "Confirmation/rejection notification of measurement data volumes and meter readings" to the MMC-hub:
 - an answer with rejection reason(s), or
 - a reply with confirmation
5. The MMC-hub processes⁵ the response and routes the notification to the recipient.

⁴ A non-valid notification will be rejected by the MMC-hub, see paragraph 3.2.

⁵ A non-valid notification will be rejected by the MMC-hub, see paragraph 3.2.

3.2 Validations MMC-hub

Following the received notification "Notification of measurement data volumes and meter readings" and received notification "Confirmation/rejection of notification of measurement data volumes and meter readings", the MMC-hub performs the following validations:

Validation	Error notification
XSD Validation: The notification shall comply to the XSD rules	TEN-500001: [Error detail]
Unreadable notification: The notification shall be a valid XML layout	TEN-500001: [Error detail]
Others: All other faults	TEN-999999: Unhandled exception

If a notification is rejected by the MMC-hub, the MMC-hub sends the error code and text to the submitter of the notification concerned. For the functionality of the MMC-hub, please refer to the TenneT Web Services guide[3].

3.3 Checks on receiver

After receiving the notification "Notification metering data volumes and meter readings" and the notification "Confirmation/rejection notification metering data volumes and meter readings", the receiver can perform the following validations⁶:

Validation	Error notification in the SOAP response
The received XML notification complies with the W3C XML 'well-formedness' specification.	TEN-500001: [Error detail]
The received XML notification complies with the XML schema definition (XSD) of the receiver.	TEN-500001: [Error detail]

Following the received notification "Notification of measurement data volumes and meter readings" the receiver performs the following checks:

Validation	Error notification in the Acknowledgement
The integrity and/or confidentiality of the XML notification is guaranteed (signing check).	Error code: 999 Error notification: TEN-500021 – Incorrect notification signing
The technicalNotificationId in the SOAP header is unique.	Error code: 999 Error notification: TEN-500023 – Unique identifier not unique or already processed

3.4 Checks recipient for notification "Notification measurement data volumes and meter readings"

In response to the notification "Notification of measurement data volumes and meter readings", the following checks and error notifications are available to the recipient and the recipient performs these checks insofar as they are mandatory or relevant for the processing by the recipient:

Control	Error notification	Role	Code
Connection/grid area			
The EAN code-18 of the connection is a valid EAN code.	EAN code-18 is not valid.	BRP/SO	650
The EAN code-18 of the grid area is a valid EAN code.	EAN code-18 is not valid .	BRP/SO	651
The EAN code-18 of the connection is registered with the system operator during the entire notification period.	The connection does not appear in the records of the system operator.	SO	652
The EAN code-18 of the connection is administered in the connection register during the entire notification period.	The connection does not appear in the connection register.	BRP	653
The EAN code-18 of the grid area is administered in the connection register during the entire notification period.	The grid area does not appear in the connection register.	BRP/SO	654
According to the connection register, the MRP is registered as MRP on the connection during the entire notification period.	The MRP is not registered as an MRP on the connection.	BRP/SO	655
According to the connection register, the BRP is registered as BRP on the connection during the entire notification period.	The BRP is not registered as a BRP on the connection.	BRP	656

⁶ These validation are always carried out by the MMC-hub. It is recommended that recipients also perform these validations themselves.

The connection was not demolished during the entire period covered by the notice.	The connection has been demolished.	BRP/SO	657
The connection is a GV connection throughout the period to which the notification relates.	The connection is not a GV connection.	BRP/SO	658
The product type in the notification corresponds to the product type of the connection in the connection register.	The product type does not correspond to the product type of the connection.	BRP/SO	659
The period to which the notification relates lies at least 1 (gas) day in the past.	The measurement data are (partly) related to the future.	BRP/SO	660
The start date of the period is before the end date of the period.	Invalid time period.	BRP/SO	661
The period covered by the notification does not overlap with the date of an SUP switch, a BRP switch, a connection, a disconnection, and/or an end of delivery.	Period overlaps an SVEL event or BRP switch.	BRP/SO	714
For all connections (excl. annual connections), the notification period is a maximum of 1 (gas) month.	The period to which the notification refers is not correct.	BRP/SO	716
The period covered by the notification concerns whole (gas) days.	The period does not cover whole (gas) days.	BRP/SO	743
The gas connection is not a telemetered connection.	The gas connection is a telemetrically allocated connection.	SO	690
The connection is measured according to the connection register.	The connection is unmetered according to the connection register.	SO	742
A newer version of the notification has not yet been received when processing the notification.	Notification not processed because a newer version of the notification has been received.	BRP/SO	760
The reference in the notification is unique.	A notification with this reference has been received in the past.	BRP/SO	670
Volume/Rest volume gas			
All products match the product type.	One or more products do not fit the product type.	BRP/SO	667
All energy units match the products.	One or more energy units do not fit the product(s).	BRP/SO	668
When supplying residual volume, there is a gas connection.	Delivery of residual volume is not possible for an electricity connection.	BRP/SO	679
All volumes in the notification are positive numbers (or zero). ⁷	Volume with negative value.	BRP/SO	686
The volume for product active energy in combination with energy direction and tariff zone occurs at most 1 time in the notification.	Multiple delivery of volumes.	BRP/SO	692
For a telemetered connection, only tariff zone normal and low may be supplied for product active energy.	Incorrect application of tariff zone for a telemetered connection.	BRP/SO	706
The volume for product reactive energy in combination with energy direction and tariff zone occurs at most 1 time in the notification.	Multiple delivery of volumes.	SO	717
The volume for product natural gas appears at most 1 time in the notification.	Multiple delivery of volumes.	SO	718
The volume for product active energy has a tariff zone.	Incorrect application of tariff zone to the volume supplied.	BRP/SO	705
The volume for product reactive energy has a tariff zone.	Incorrect application of tariff zone to the volume supplied.	SO	719
The volume for product natural gas has no tariff zone.	Incorrect application of tariff zone to the volume supplied.	SO	720
When supplying volume with tariff zone normal, a volume with tariff zone low is also supplied and when supplying volume with tariff zone low, a volume with tariff zone normal is also supplied.	Incorrect application of tariff zone to the volume supplied.	BRP/SO	721
When supplying volume with tariff zone total, no volume with tariff zone low and/or normal is supplied.	Incorrect application of tariff zone to the volume supplied.	SO	722

⁷ This check is not applicable for:

- gas volume if a residual volume of gas with energy direction is "Production" is included in the message;
- yearly article 1 paragraph 2 and 3-connection/allocation point, if the actual recorded meter readings are lower than the penultimate (estimated) meter readings.

The volume does not exceed the maximum number of agreed decimal places.	Volume has an incorrect number of decimal places.	BRP/SO	677
The volume in the notification is less than 200% of the volume that may be expected based on the registered physical capacity in the connection register.	The volume does not match the registered physical capacity.	BRP/SO	744
Counting			
All products match the product type.	One or more products do not fit the product type.	BRP/SO	667
All energy units match the products.	One or more energy units do not fit the product(s).	BRP/SO	668
Meter reading			
All recording dates in the notification are less than or equal to the notification creation date.	The meter readings relate (partly) to the future.	BRP/SO	696
The meter reading for product active energy in combination with energy direction, tariff zone, date of recording, meter ID and counter ID shall appear at most once in the notification.	Multiple delivery of meter readings.	BRP/SO	697
The meter reading for product reactive energy in combination with energy direction, tariff zone, date of recording, meter ID and counter ID shall appear at most once in the notification.	Multiple delivery of meter readings.	SO	723
The meter reading for product natural gas in combination with recording date, meter ID and counter ID shall appear in the notification no more than once.	Multiple delivery of meter readings.	SO	724
All meter readings in the notification are positive numbers (or zero).	Meter reading with negative value.	BRP/SO	678
The meter reading does not exceed the maximum number of agreed decimal places.	Meter reading has an incorrect number of decimal places.	BRP/SO	693
Week peak load			
All products match the product type.	One or more products do not fit the product type.	SO	667
All energy units match the products.	One or more energy units do not fit the product(s).	SO	668
The week peak load for product active energy in combination with energy direction and period occurs at most 1 time in the notification.	Multiple delivery of weekly peak loads.	SO	709
The start date of the period to which the weekly peak load relates is before the end date of the relevant period.	Invalid time period.	SO	703
The periods of the supplied weekly peaks do not overlap.	Overlapping periods of the week peaks.	SO	725
At least one day of each week peak period falls within the notification period.	One or more weekly peaks are outside the notification period.	SO	726
All weekly peak loads in the notification are positive numbers (or zero).	Week peak load with negative value.	SO	684
The weekly peak load does not exceed the maximum number of agreed decimal places.	Week peak load has an incorrect number of decimal places.	SO	694
The period for a weekly peak load starts at 06:00 and ends at 06:00, is maximum one week and starts and/or ends on a Monday.	Invalid period for week peak.	SO	698
Monthly peak load			
All products match the product type.	One or more products do not fit the product type.	SO	667
All energy units match the products.	One or more energy units do not fit the product(s).	SO	668
The monthly peak load for product active energy in combination with energy direction occurs at most once in the notification.	Multiple delivery of monthly peak loads.	SO	700
The monthly peak load for product active energy has an energy direction.	Missing energy direction.	SO	727
The monthly peak load for product natural gas appears in the notification a maximum of once.	Multiple delivery of monthly peak loads.	SO	728
All monthly peak loads in the notification are positive numbers (or zero).	Monthly peak with negative value.	SO	685

The monthly peak load does not exceed the maximum number of agreed decimal places.	Monthly peak load has an incorrect number of decimal places.	SO	695
Notification header			
The NotificationID in the SOAP header is unique.	A previous notification has already been received with the same NotificationID.	BRP/SO	669
The ProcessTypeID in the header of the notification matches the content of the notification.	ProcessTypeID does not match the content of the notification.	BRP/SO	681
The ProcessTypeID in the notification header matches the recipient of the notification.	ProcessTypeID does not match the recipient of the notification.	BRP/SO	747
No notification with a more recent creation date/time stamp has been received.	A notification has already been received with a more recent creation date/time stamp.	BRP/SO	704
The senderID in de SOAP Header equals the SenderID in the Business Document Header.	senderID in de SOAP Header does not equal SenderID in de Business Document Header.	BRP/SO	701
The receiverID in de SOAP Header equals the ReceiverID in the Business Document Header.	receiverID in de SOAP Header does not equal the ReceiverID in the Business Document Header.	BRP/SO	745
The EAN 13 of the market party that compiled the data is the same as the SenderID in the Business Document Header.	EAN 13 of the market party that produced the data does not match the SenderID in the Business Document Header.	BRP/SO	778
The contentType ⁸ in the SOAP Header is in keeping with the ProcessTypeID in the Business Document Header.	contentType in the SOAP is not consistent with ProcessTypeID in the Business Document Header.	BRP/SO	754
The Correlation ID in the Business Document Header, if filled in, is the same as the Correlation ID in the SOAP Header.	The Correlation ID in the Business Document Header is not the same as the Correlation ID in the SOAP Header.	BRP/SO	780
Entire notification			
Notification is complete, correct and directed to the correct recipient ⁹ .	[free text field] ¹⁰	BRP/SO	999

3.5 Application ProcessTypeID for exchange of measurement data volumes and meter readings

As described in *the BRS Metering data and contested metering data GV*[1], the schedule for volumes and meter readings can be used for various applications. In the EDSNBusinessDocumentHeader (functional header) in the notification, the application should be specified under ProcessTypeID. Further explanation about the use of the EDSNBusinessDocumentHeader is included in *the NEDU EDSN Design Choices*[2].

Application	Code
Volumes and meter readings "allocation point electricity profile large consumption"	N40
Volumes and meter readings "allocation point electricity telemetry large consumption"	N41
Volumes and meter readings "electricity transfer point large consumption MLOEA"	N50
Volumes and meter readings "Large consumption gas connection"	N60
Volumes and meter readings "grid-to-grid transfer point electricity"	N70

⁸ See Technical Guide - Measurements & Allocations Documents[8] for further information how to fill the contentType.

⁹ Check and error notification if a received notification is not correct or not intended for that recipient and cannot be caught by one of the above checks.

¹⁰ An explanation for error code 999 should be entered in this text field.

4. Functional parameters

4.1 Notification Exchange measurement data volumes and meter readings

The following functional parameters are used for an *Exchange metering data volumes and meter readings*:

Given	Gas	Elec	0/1/n	Note	XML code
Notification Reference	V	V	1	A UUID as a unique identifier of the notification.	
EAN code connection	V	V	1	EAN 18 connection gas respectively allocation point electricity, grid-to-grid transfer point electricity.	
EAN code metering responsible party	V	V	1	EAN 13 of the metering responsible party	
Market role	V	V	1	Role of the metering responsible party.	MDR
EAN code grid area	V	V	1	EAN 18 of the grid area.	
Product type	V	V	1	Allowed values (from ebIX Code list[6] and including a leading zero): Electricity Gas	023 027
Reference to revision requests ¹¹	O	O	1	Reference to the correlated review request.	
Start date period	V	V	1	A periodic notification is sent for each consecutive period that a party is active on a connection. Start date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
End date period	V	V	1	End date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
Volume (gas and electricity)			n		
Volume	V	V	1	Volume in whole numbers.	
Product ID	V	V	1	Allowed values (from ebIX Code list[6]): Electricity: Active energy Reactive energy Gas: Natural gas	8716867000030 8716867000047 5410000100016
Energy unit	V	V	1	Permissible values of active energy: kWh Permissible values of reactive energy: Kvarh Permissible values for natural gas: m ³ _(n)	KWH K3 NM3
Energy direction	N/A	V	1	Allowed values (from ebIX Code list[6]): Consumption Production Convention for a grid-to-grid electricity transfer point: - For energy flow away from the grid area, the energy direction is consumption. - For energy flowing into the grid area, the energy direction is production.	E17 E18 E17 E18
Tariff zone	N/A	V	1	Allowable values for electricity (from ebIX Code list[6]): Low Normal Total	E10 E11 E29
Residual volume of gas (only for system operator)			0/1		
Volume	V	N/A	1	Volume in whole numbers.	
Product ID	V	N/A	1	Allowable gas values (from ebIX Code list[6]): Natural gas	5410000100016
Energy unit	V	N/A	1	Permissible values for natural gas: m ³ _(n)	NM3

¹¹ Metering data volumes and meter readings does not yet have a revision request. This reference has been added for future use.

Given	Gas	Elec	0/1/n	Note	XML code
Energy direction	V	N/A	1	Allowed values (from ebIX Code list[6]): Consumption Production	E17 E18
Weekly peak load electricity (only for system operator)			0/n		
kWMax	N/A	V	1	kWMax in whole numbers.	
Product ID	N/A	V	1	Allowable values for electricity (from ebIX Code list[6]): Active energy	8716867000016
Energy direction	N/A	V	1	Allowed values (from ebIX Code list[6]): Consumption Production	E17 E18
Energy unit	N/A	V	1	Permissible values of active energy: kW	KW
Start date time (Starting on Monday 06:00)	N/A	V	1	Start date and time to which the weekly peak load relates. Start date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
End date time (ending one week later on Monday 06:00)	N/A	V	1	End date and time to which the weekly peak load relates. End date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
Monthly peak load electricity (only for system operator)			0/n		
kWMax	N/A	V	1	kWMax in whole numbers.	
Product ID	N/A	V	1	Allowable values for electricity (from ebIX Code list[6]): Active energy	8716867000016
Energy direction	N/A	V	1	Allowed values (from ebIX Code list[6]): Consumption Production	E17 E18
Energy unit	N/A	V	1	Permissible values of active energy: kW	KW
Peak load gas (only for system operator)			0/1		
Volume	O	N/A	1	Volume in whole numbers. Optional for G2C connections.	
Product ID	O	N/A	1	Allowable gas values (from ebIX Code list[6]): Natural gas. Optional for G2C connections.	5410000100016
Energy unit	O	N/A	1	Permissible values for natural gas: m ³ _(n) /hour Optional for G2C connections.	NM3H
Counting			0/n		
Counterpart ID	V	V	1	Identifier of counting device.	
Meter ID	V	V	1	Identifier of meter.	
Tariff zone	N/A	V	1	Allowed values for electricity (from ebIX Code list[6]): Low Normal Total	E10 E11 E29
Product ID	V	V	1	Allowed values (from ebIX Code list[6]): Electricity: Active energy Reactive energy Gas: Natural gas	8716867000030 8716867000047 5410000100016
Energy unit	V	V	1	Permissible values of active energy: kWh Permissible values of reactive energy: Kvarh	KWH K3

Given	Gas	Elec	0/1/n	Note	XML code
				Permissible values for natural gas: m ³ _(n) m ³	NM3 M3
Energy direction	V	V	1	Allowed values (from ebIX Code list[6]): Consumption Production	E17 E18
Meter reading			0/n		
Meter reading	V	V	1	Count the meter in whole numbers.	
Recording date	V	V	1	Date of recording (NL local date).	
Origin indicator	V	V	1	Allowed values (from ebIX Code list[6]): Recorded by customer Recorded by metering responsible party Calculated by metering responsible party	E26 E27 E28

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) if required for the context of the related measurement data notification.

4.2 Response Exchange measurement data volumes and meter readings

The response consists of an acknowledgement or a rejection:

Given	Gas	Elec	1/n	Note	XML code
Notification Reference	V	V	1	A UUID as a unique identifier of the notification.	
Notification reference	A ¹²	A ¹³	1	A UUID as unique identifier for the acknowledged or rejected notification ¹⁴ .	
Date/time response notification	V	V	1	Date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ	
Confirmation/rejection code	V	V	n	If confirmed (not rejected!), code "000" must be returned in the response. If rejected, at least one code for rejection must be returned in the response (see section 3.3 and 3.4).	Code for rejection: see section 3.3 and 3.4
Explanation of the rejection	O	O	n	Optional explanation of the rejection.	

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) if required for the context of the related measurement data notification.

4.2.1 Explanation of the correlation of the response to the notification

Correlation on the following levels:

1. CorrelationID in de EDSNBusinessDocumentHeader shows the technical correlation between Notification and Acknowledgement if entered into the Notification by the provider¹⁵;
2. Via the notification attribute (both UUID), the obligatory process correlation between Notification and Acknowledgement is established

Additionally, a correlation may apply on the level of the SOAP header, see the document MMC Technical Guide – Measurements & Allocations Documents [8].

¹² If the integrity and/or confidentiality of the XML notification cannot be guaranteed, the recipient must be able to send a rejection to the sender of the corresponding notification without the reference of the received notification. Due to compromised integrity or confidentiality there is no proper way to retrieve this information.

¹³ If the integrity and/or confidentiality of the XML notification cannot be guaranteed, the recipient must be able to send a rejection to the sender of the corresponding notification without the reference of the received notification. Due to compromised integrity or confidentiality there is no proper way to retrieve this information.

¹⁴ This is the Volume_Series.mRID for the VolumeSeriesNotification notification.

¹⁵ CorrelationID can be filled by the supplier of volumes and meter readings (provider). If filled, the receiving party (consumer) must specify this CorrelationID in the response to the provider. See Design Choices[2] for an explanation of the use of CorrelationID.

5. Sequence Diagram

5.1 Note

The sequence diagram shows the parties and services as an object with a so-called "lifeline". The interaction between these objects is shown by arrows as one or more notifications between objects. The notifications in the sequence diagram are explained in more detail in the chapter Information Model. Further details about notification standards and application methods are described in NEDU EDSN Design Choices[2].

5.2 Exchange of measurement data volumes and meter readings

The sequence diagram below concerns the offering of Exchange metering data volumes and meter readings by the metering responsible party to the MMC-hub. The MMC-hub takes care of routing, preparing and forwarding the relevant measurement data to the receiver.

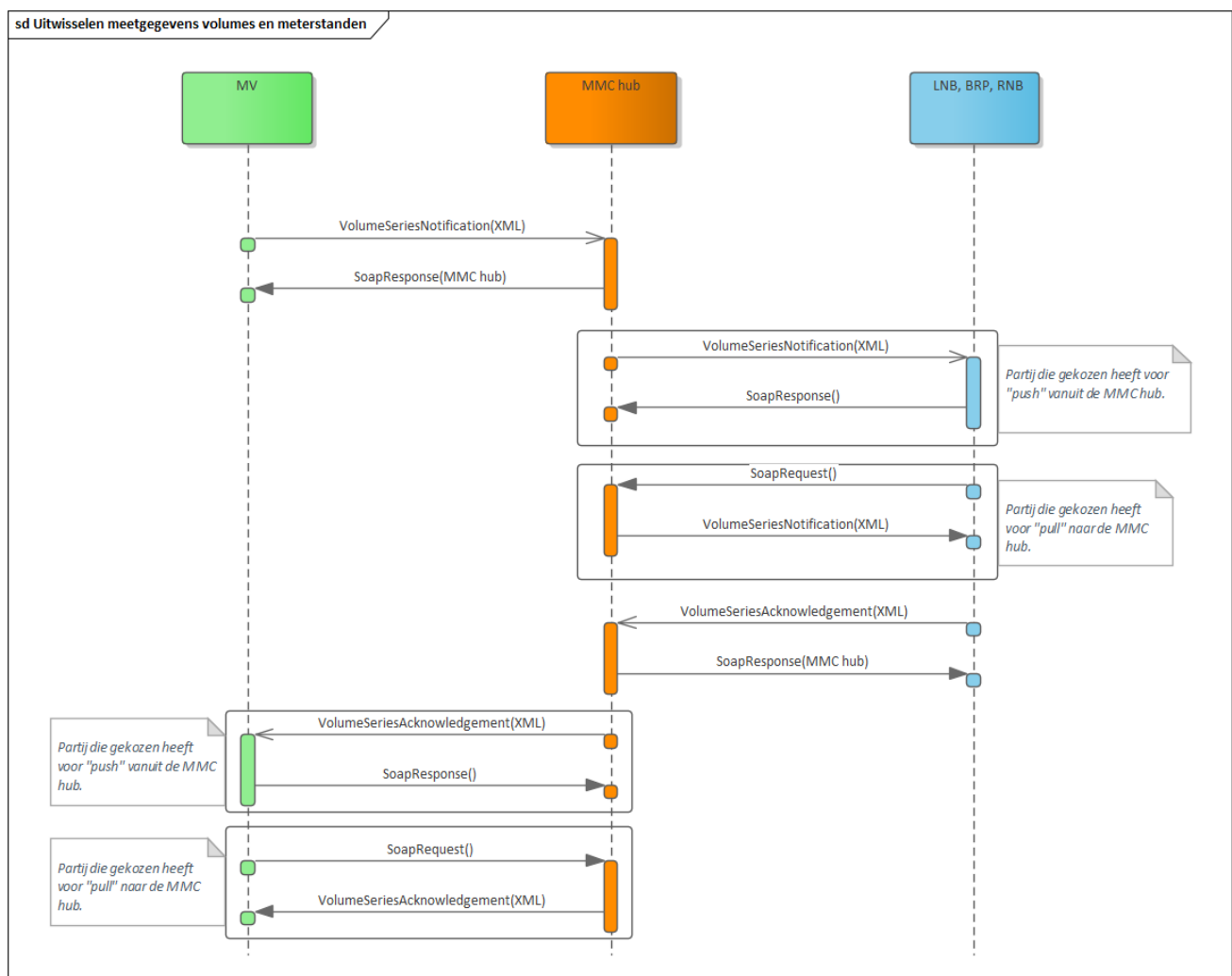


Figure 2 The sequence diagram for exchanging volumes and meter readings between MRP and TSO, BRP and DSO via the MMC-hub

6. Properties service Exchange measurement data volumes and meter readings

Exchange of measurement data volumes and meter readings (VolumeSeries)	
Service	VolumeSeries - Exchange metering data volumes and meter readings
DSO Service ID	BSCMF0063
Description	Exchange metering data volumes and meter readings between MRP (provider) and TSO, BRP, DSO (consumer)
Service transaction pattern	Notification/Acknowledgement
Precondition(s)	<i>Notification Exchange metering data volumes and meter readings</i> is submitted by a party that is authorised and authenticated to do so.
Trigger	Party offer <i>Notification Exchange metering data volumes and meter readings</i> to MMC-hub.
Post condition(s)	<i>Notification Exchange metering data volumes and meter readings</i> rejected; - or <i>Notification Exchange metering data volumes and meter readings</i> carried out.
Service use¹⁶	
Pattern of use	N/a.
Average load	N/a.
Peak load	N/a.
Period peak load	N/a.
Period of inactivity	N/a.
Max. consumer response time	95% of the incoming Notifications must be answered by the consumer by means of an Acknowledgement within 60 minutes.
Max. response time Soap response MMC-hub	See MMC Technical Guide - Measurements & Allocations Documents[8].
Time-out	See MMC Technical Guide - Measurements & Allocations Documents[8].
Retry	The sender (provider of the measurement data) only performs a 'retry' if he did not receive a positive HTTP response from de MMC-hub. If the recipient (consumer of the measurement data) after the max. response time still did not receive a response, we advise to contact the recipient to find out the reason behind. If necessary after that the administrator of the MMC-hub can be contacted. After coordination, a resend of the Notification can be chosen as a follow-up action.
Web service	
WSDL	See MMC Technical Guide - Measurements & Allocations Documents[8].
Version	See MMC Technical Guide - Measurements & Allocations Documents[8].
Date	See MMC Technical Guide - Measurements & Allocations Documents[8].
Soap address	See MMC Technical Guide - Measurements & Allocations Documents[8].

¹⁶ To be agreed with TenneT.

Operation		
User	MRP-er	
Function	Submit <i>Notification Exchange metering data volumes and meter readings</i>	
Soap action	See WSDL	
	Input notification	VolumeSeriesNotification
	XSD	VolumeSeriesNotification_2p0
	Output notification	VolumeSeriesAcknowledgement
	XSD	VolumeSeriesAcknowledgement_1p1

7. Information model

7.1 Note

The information model is shown as a class diagram. Each class diagram is followed by a table with the description of the elements, except for the class diagrams of "empty" notifications exchanged for acknowledgement.

Multiplicities are indicated with the elements. Notation 0..1 means that the element optionally occurs once, 1..1 means that the element occurs once (mandatory). Notation 0...* means that the element may optionally occur more than once. Notation 1..* means that the element may occur one or more times (mandatory).

Data types determine which type of value an element can contain. The data types are subdivided into:

- **Composite data types** (CDT): a composition of several (fixed) elements, which are reused more often (e.g. address)[4].
- **Logical data types** (LDT): a defined set of properties of the element such as minimum length, maximum length, pattern[5].

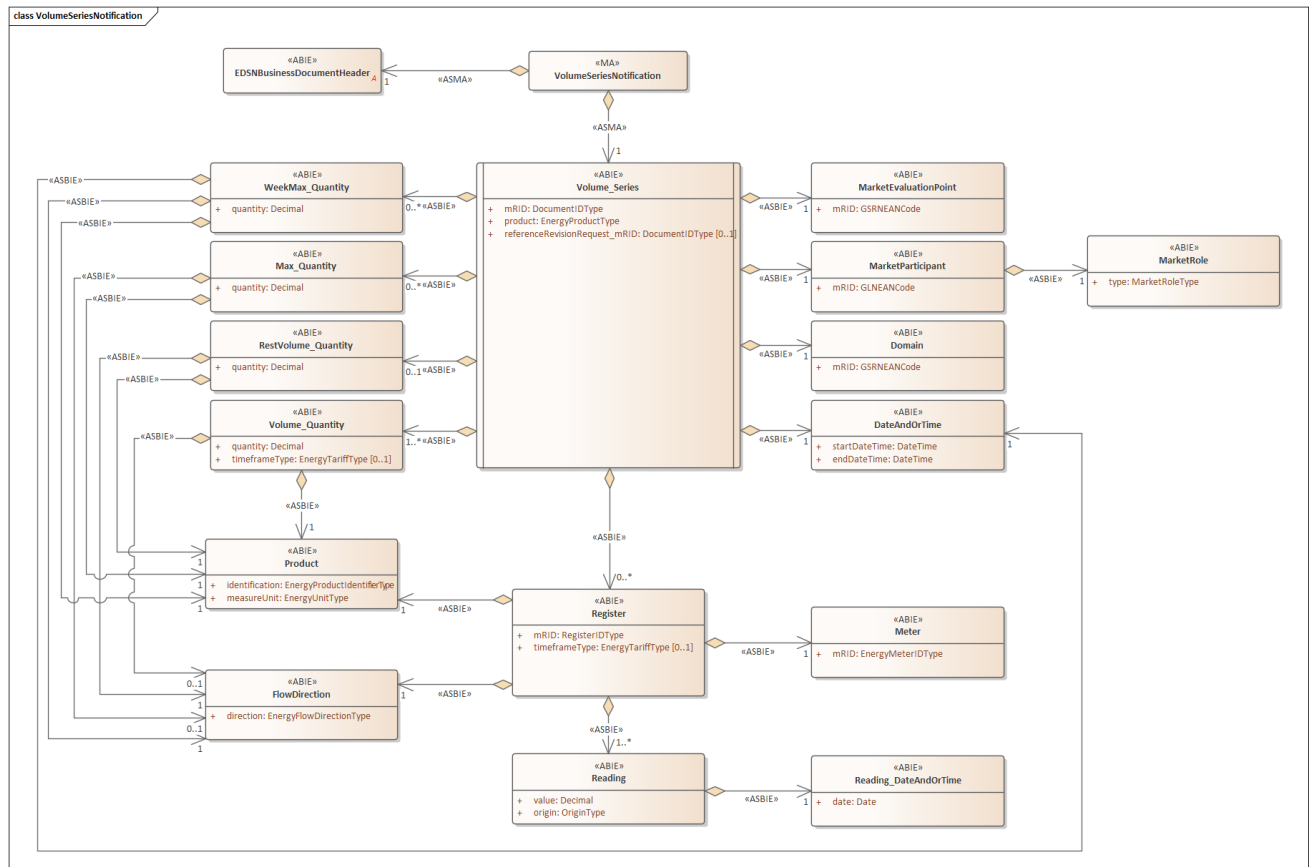
For more information on data types, please refer to NEDU EDSN Design Choices[2].

Detailed information on the values of the data types is available as a PDF document on mijnEDSN:

- EDSN Complex Data Type Specification (CDT).
- EDSN Logical Data Type Specification (LDT).

These documents also describe the values of the data types used in other information models.

7.2 Notification Exchange measurement data volumes and meter readings (VolumeSeriesNotification)



DateAndOrTime

XML element	Data type	Multiplicity	Description	Functional parameter
startDateTime	DateTime	1..1	Start date/time of the period as per ISO 8601 YYYY-MM-DDThh:mm:ssZ.	Start date period
endDateTime	DateTime	1..1	End date/time of the period as per ISO 8601 YYYY-MM-DDThh:mm:ssZ.	End date period

Domain

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	GSRNEANCode	1..1	The unique identification of the domain.	EAN code grid area

FlowDirection

XML element	Data type	Multiplicity	Description	Functional parameter
direction	EnergyFlowDirectionType	1..1	The identification of the direction.	Energy direction

MarketEvaluationPoint

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	GSRNEANCode	1..1	The identification of the evaluation point.	EAN code connection

MarketParticipant

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	GLNEANCode	1..1	The identification of a party in the energy market.	EAN code metering responsible party

MarketRole

XML element	Data type	Multiplicity	Description	Functional parameter
type	MarketRoleType	1..1	The identification of the role played by a market player.	Market role

Max_Quantity

XML element	Data type	Multiplicity	Description	Functional parameter
quantity	Decimal	1..1	The quantity value. The association role provides the information about what is expressed.	Peak load (electricity (kWMax) and gas)

Meter

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	EnergyMeterIDType	1..1	The unique identification of the meter.	Meter ID

Product

XML element	Data type	Multiplicity	Description	Functional parameter
identification	EnergyProductIdentifierType	1..1	The unique identification of the product.	Product ID
measureUnit	EnergyUnitType	1..1	The identification of the measure unit.	Energy unit

Reading

XML element	Data type	Multiplicity	Description	Functional parameter
value	Decimal	1..1	The reading value.	Meter reading (counter reading on the meter.)
origin	OriginType	1..1	The identification of the origin.	Origin indicator

Reading_DateAndOrTime

XML element	Data type	Multiplicity	Description	Functional parameter
date	Date	1..1	The date as "YYYY-MM-DD", which complies with ISO 8601.	Recording date

Register

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	RegisterIDType	1..1	The identification of the register.	Counterpart ID
timeframeType	EnergyTariffType	0..1	The coded identification of the timeframe.	Tariff zone

RestVolume_Quantity

XML element	Data type	Multiplicity	Description	Functional parameter
quantity	Decimal	1..1	The quantity value. The association role provides the information about what is expressed.	Residual volume of gas

Volume_Quantity

XML element	Data type	Multiplicity	Description	Functional parameter
quantity	Decimal	1..1	The quantity value. The association role provides the information about what is expressed.	Volume (gas and electricity)
timeframeType	EnergyTariffType	0..1	The coded identification of the timeframe.	Tariff zone

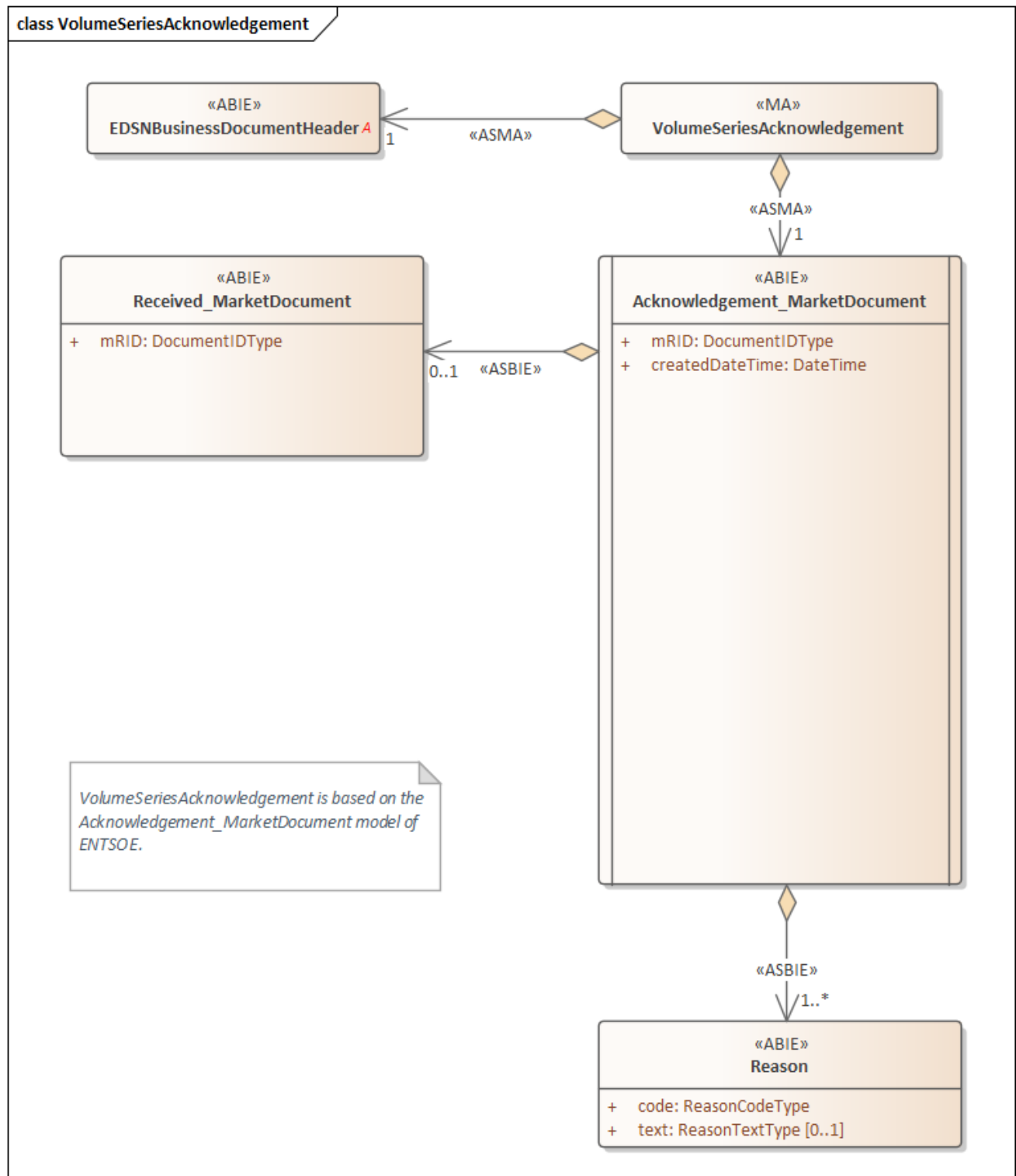
Volume_Series

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	DocumentIDType	1..1	A unique identification of the time series.	Notification Identifier (UUID)
product	EnergyProductType	1..1	The identification of the energy product (electricity, gas etc.)	Product type
referenceRevisionRequest_mRID	DocumentIDType	0..1	Reference to an earlier received revision request	Reference to review request

WeekMax_Quantity

XML element	Data type	Multiplicity	Description	Functional parameter
quantity	Decimal	1..1	The quantity value. The association role provides the information about what is expressed.	Electricity peak load (week)

7.3 Confirmation/rejection of measurement data volumes and meter readings (VolumeSeriesAcknowledgement)



Acknowledgement_MarketDocument

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	DocumentIDType	1..1	The unique identification of the document being exchanged within a business process flow.	Notification Identifier (UUID)

XML element	Data type	Multiplicity	Description	Functional parameter
createdDateTime	DateTime	1..1	The date and time of the creation of the document.	Date/time notification

Reason

XML element	Data type	Multiplicity	Description	Functional parameter
code	ReasonCodeType	1..1	The motivation of an act in coded form.	Confirmation/rejection code
text	ReasonTextType	0..1	The textual explanation corresponding to the reason code.	Explanation of the rejection

Received_MarketDocument

XML element	Data type	Multiplicity	Description	Functional parameter
mRID	DocumentIDType	1..1	The unique identification of the document being exchanged within a business process flow.	Notification identifier (UUID)