

Business Service

## Exchange settlement results electricity

|             |                                                                                                                                                                 |                |                           |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| <b>Name</b> | SD030 - Exchange settlement results electricity                                                                                                                 | <b>Version</b> | 1.0                       |
| <b>Code</b> | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes<br>BSCMF0088 - Exchange settlement results for aggregated OVP volumes | <b>Status</b>  | Approved                  |
| <b>Date</b> | 03-02-2023                                                                                                                                                      | <b>Author</b>  | EDSN Business Integration |

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## Document management

| Version | Version date | Changes                                                                                  | Author |
|---------|--------------|------------------------------------------------------------------------------------------|--------|
| 0.1     | 17-08-2022   | Initial version<br>Prepared on the basis of BRS Settlement electricity                   | EDSN   |
| 0.2     | 28-09-2022   | Version after review by WG C1                                                            | EDSN   |
| 0.3     | 26-10-2022   | Functional parameters and class diagrams added                                           | EDSN   |
| 0.6     | 07-11-2022   | Version after processing review WG C1                                                    | EDSN   |
| 0.7     | 12-12-2022   | Version after processing review sector                                                   | EDSN   |
| 0.9     | 02-01-2023   | Version for approval                                                                     | EDSN   |
| 0.91    | 23-01-2023   | Version after processing subsequent review sector<br><br>House style changed to MFF BAS  | EDSN   |
| 1.0     | 03-02-2023   | Approved version                                                                         | EDSN   |
| 1.1     | 20-04-2023   | Changed due to RFC A2.0-TR3-2, change definition and control to Settlement(result)run_ID | EDSN   |
| 1.9     | 04-05-2023   | Review <i>Berichtenteam MFFBAS</i>                                                       | EDSN   |
| 2.0     | 12-05-2023   | Approved version                                                                         | EDSN   |

## Distribution history

| Version | Distribution date | Receivers                                                                                                                                                          |
|---------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.1     | 17-08-2022        | Working group C1<br>EDSN Business Integration                                                                                                                      |
| 0.2     | 28-09-2022        | EDSN Business Integration                                                                                                                                          |
| 0.3     | 26-10-2022        | Working group C1                                                                                                                                                   |
| 0.6     | 07-11-2022        | Working group C1<br>Issue leads and central coordinator working groups IC257, IC275, IC252 and IC279<br>Members sounding board group IC280 Light<br>MFF BAS        |
| 0.7     | 07-12-2022        | Working group C1                                                                                                                                                   |
| 0.7     | 12-12-2022        | Working group C1<br>Issue leads and central coordinator working groups IC257, IC275, IC252 and IC279<br>Members sounding board group IC280 Light<br>MFF BAS        |
| 0.9     | 02-01-2023        | Working group C1<br>Issue leads and central coordinator working groups IC257, IC275, IC252 and IC279<br>SI MFF BAS<br>Design Authority MFF BAS<br>SSG A2.0 MFF BAS |
| 0.91    | 23-01-2023        | Working group C1<br>Design Authority MFF BAS<br>SSG A2.0 MFF BAS                                                                                                   |
| 1.0     | 03-02-2023        | Working group C1<br>MFF BAS                                                                                                                                        |
| 1.1     | 20-04-2023        | <i>Berichtenteam MFFBAS</i>                                                                                                                                        |
| 1.9     | 04-05-2023        | <i>Berichtenteam MFFBAS</i><br>Steeringgroup implementation MFFBAS<br>SSG A2.0 MFFBAS                                                                              |
| 2.0     | 12-05-2023        | <i>Berichtenteam MFFBAS</i><br>MFFBAS                                                                                                                              |

## Referenced documents

### *Requirements model*

| No. | Description                  | Version | Date       | Author                                         |
|-----|------------------------------|---------|------------|------------------------------------------------|
| 1.  | BRS Settlement elektriciteit | 1.0     | 13-01-2023 | Working group<br>C1 Allocatie 2.0<br>Tranche 3 |

### *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 Specificatie | 2.2     | 27-05-2020 | EDSN     |
| 5.  | EDSN Logisch Data Type Specificatie | 2.7     | 27-05-2020 | EDSN     |
| 6.  | ebIX® Code list                     | 1.0A    | June 2019  | ebIX TC  |
| 7.  | ISO 8601 date- time notation        | 1:2019  | 2019       | ISO      |
| 9.  | ENTSO-E Code list                   | V84     | 27-10-2022 | ENTSO-E. |

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# 1 Introduction

## 1.1 Service description

The service description describes:

1. the arrangements for exchange by the TSO of volumes for settlement SMA:
  - a. the volumes and volume differences relating to one full calendar month across all grid areas per BRP (national portfolio) between the sum of the aggregated volumes active energy SMA used by the TSO in the final imbalance determination and the sum of the aggregated volumes active energy SMA provided by the DSOs in the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month, to the BRP;
  - b. the volumes and volume differences relating to one full calendar month per grid area per BRP between the aggregated volumes active energy SMA used by the TSO in the final imbalance determination and the aggregated volumes active energy SMA provided by the DSOs in the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month, to the BRP and DSO;
  - c. the grid loss change relating to one full calendar month per grid area, determined by the TSO based on the sum of the aggregated volumes active energy SMA of all BRPs used by the TSO's in the final imbalance determination and the sum of the aggregated volumes active energy SMA of all BRPs as supplied by the DSO's in the settlement process, the settlement price for the calendar involved month and the to-be-settled amount for the calendar month involved, to the BRP Grid loss<sup>1</sup> and DSO;
2. the arrangements for exchange by the TSO of volumes for settlement TMT:
  - a. the volumes and volume differences relating to one full calendar month across all grid areas per OVP per BRP (national portfolio) between the aggregated volumes active energy TMT per OVP as used by the TSO in the final imbalance determination and the aggregated volumes of active energy TMT per OVP as provided by the SO in the settlement process, the settlement price per OVP for the calendar month involved and the amount to-be-settled per OVP for the calendar month involved to the BRP;
  - b. the volumes and volume differences relating to one full calendar month across all grid areas per BRP (national portfolio) between the sum of the aggregated volumes active energy TMT per OVP as provided by the SOs in the settlement process and the aggregated volumes active energy TMT as provided by SOs in the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for the calendar month involved, to the BRP;
  - c. the volumes and volume differences relating to one full calendar month per grid area per OVP per BRP between the aggregated volumes active energy TMT per OVP as used by the TSO in the final imbalance determination and the aggregated volumes active energy TMT per OVP as provided by the DSOs in the settlement process, the settlement price per OVP for the calendar month involved and the to-be-settled amount per OVP for that calendar month, to the BRP and SO;
  - d. the volumes and volume differences relating to one full calendar month per grid area per BRP between the sum of the aggregated volumes active energy TMT per OVP as provided by the SOs in the settlement process and the aggregated volumes active energy TMT as provided by the SOs in the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month, to the BRP and SO;
  - e. the grid loss change relating to one full calendar month per grid area per OVP, determined by the TSO based on the aggregated volumes active energy TMT per OVP as used by the TSO in the final imbalance determination and the aggregated volumes active energy TMT per OVP as provided by the SO in the settlement process, the settlement price per OVP for the calendar month involved and the to-be-settled amount per OVP for that calendar month, to the BRP Grid loss<sup>2</sup> and SO;

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<sup>1</sup> The BRP designated by the DSO for grid loss.

<sup>2</sup> The BRP designated by the DSO for grid loss.

- f. the grid loss change relating to one full calendar month per grid area, determined by the TSO based on the aggregated volumes active energy TMT per OVP as used by the TSO in the final imbalance determination and the aggregated volumes active energy TMT as provided by the SOs in the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month, to the BRP Grid loss<sup>2</sup> and SO;
3. arrangements about the exchange by the TSO of reconciliation results PRF:
  - a. the volumes and volume differences relating to one full calendar month across all grid areas per BRP (national portfolio) between the sum of the aggregated volumes active energy PRF used by the DSOs in the final imbalance determination and the sum of the aggregated volumes active energy PRF as provided by the DSOs in the reconciliation process, the reconciliation price for the calendar month involved and the to-be-settled amount for that calendar month, to the BRP;
  - b. the volumes and volume differences relating to one full calendar month per grid area per BRP between the sum of the aggregated volumes active energy PRF as provided by the DSOs for the final imbalance determination and the sum of the aggregated volumes active energy PRF as provided by the DSOs in the reconciliation process, the reconciliation price for the calendar month involved and the to-be-settled amount for that calendar month, to the BRP;
  - c. the grid loss change relating to one full calendar month per grid area, determined by TSO based on the grid loss volumes submitted by the DSO, the reconciliation price for the calendar month involved and the to-be-settled-amount for that calendar month, to the BRP Grid loss<sup>2</sup>.

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 Settlement elektriciteit[1].

## 1.2 Reading guide

This document describes the following aspects, including:

- Process *Exchange settlement results*;
- The exchange of these settlement results via TenneT's MMC hub;
- The syntactic validations by the MMC hub, the confirmation/rejection by the MMC-hub
- The checks on the settlement results by consumers (BRP and SO);
- The confirmation/rejection of the settlement results by the consumers (BRP and SO);
- XML notification 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 *Exchange* settlement results service:

- Date/time notation in XML notifications according to NEDU EDSN Ontwerpkeuzes[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 time calendar month (November 2024, winter time):  
2024-10-31T23:00:00Z / 2024-11-30T23:00:00Z;
  - Example start and end date time **calendar month** (June 2024, summer time):  
2024-05-31T22:00:00Z / 2024-06-30T22:00:00Z;
  - Example start and end date calendar day (9 February 2024, winter time):  
2024-02-08T23:00:00Z / 2024-02-09T23:00:00Z;
  - Example start and end date **calendar day** (31 March 2024, change winter time to summer time):  
2024-03-30T23:00:00Z / 2024-03-31T22:00:00Z;
  - Example start and end date **calendar day** (09 June 2024, summer time):  
2024-06-08T22:00:00Z / 2024-06-09T22:00:00Z;
  - Example start and end date **calendar day** (27 October 2024, change summer time to winter time):  
2024-10-26T22:00:00Z / 2024-10-27T23:00:00Z;
- Wherever this service description refers to “System operator” or “SO”, this can also be read as “GDS owner” if it involves electricity connections large consumers;
- A set of settlement results that are generated in a settlement result run for a given calendar month per allocation group will be assigned an identical settlement results run identification in order to enable consumers can use this identification to match the set of settlement results for a given calendar month and allocation group. This settlement results run identification is identical for all receivers;
- All volumes are positive numbers (or zero) except volumes for the set of volume differences and grid loss changes. Negative numbers are only allowed for these sets;
- The notifications with volumes and volume differences for SMA, TMT and PRF always refer to one full calendar month, thus also the notifications for reconciliation results PRF<sup>3</sup>;
- If a party will supply data on behalf of another party (via the MMC hub), the Carrier ID should be used for this in the SOAP header . For use of the CarrierID, see *TenneT Web Services guide*[3];

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<sup>3</sup> This is a change from the EDINE notification E26 which may contain reconciliation results over a period of maximum 17 months.



## 1.4 Use of the Exchange settlement results service

The table below shows which settlement results the transmission system operator (TSO) must send to the balance responsible party (BRP) or distribution system operator (DSO). The table also contains a reference to the relevant use cases from the BRS[1].

### Overview table

| From | Data<br>GA = grid area<br>AP=allocation point<br>OVP=imbalance settlement period | To  |     |     |               |     |     |     |     |     |     |     |     |
|------|----------------------------------------------------------------------------------|-----|-----|-----|---------------|-----|-----|-----|-----|-----|-----|-----|-----|
|      |                                                                                  | BRP |     |     | BRP Grid loss |     |     | SUP |     |     | DSO |     | SO  |
|      |                                                                                  | SMA | PRF | TMT | SMA           | PRF | TMT | SMA | PRF | TMT | SMA | PRF | TMT |
| TSO  | Volume differences across all Gas (BSCMF0087)                                    | 1.  | 16. | 7.  |               |     |     |     |     |     |     |     |     |
| TSO  | Volume difference per GA (BSCMF0087)                                             | 2.  | 17. | 10. |               |     |     |     |     |     | 3.  |     | 11. |
| TSO  | Volume differences across all GAs per OVP (BSCMF0088)                            |     |     | 6.  |               |     |     |     |     |     |     |     |     |
| TSO  | Volume difference per GA per OVP (BSCMF0088)                                     |     |     | 8.  |               |     |     |     |     |     |     |     | 9.  |
| TSO  | Grid loss change per GA (BSCMF0087)                                              |     |     |     | 4.            | 18. | 14. |     |     |     | 5.  |     | 15. |
| TSO  | Grid loss change per GA per OVP (BSCMF0088)                                      |     |     |     |               |     | 12. |     |     |     |     |     | 13. |

The numbers shown in bold in the table above refer to the numbers shown in bold in the table below.

### Detailed overview

| Exchange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Provider of settlement results | Consumer of settlement results | Type allocation point    | BRS Use case     | Business Service                                                                                                                   | Code <sup>4</sup> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>Allocation points with allocation method smart meter allocation (SMA);</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                |                                |                          |                  |                                                                                                                                    |                   |
| <b>1.</b><br><b>National Portfolio:</b><br>Sum of the aggregated active energy volumes SMA across all grid areas per BRP per energy direction, as used by the TSO in the final imbalance determination;<br><br>Sum of the aggregated volumes active energy SMA across all grid areas per BRP per energy direction, as provided by the DSOs in the settlement process.<br><br><b>Volume differences between the two amounts across all grid areas per BRP</b> per energy direction, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month per energy direction. | TSO                            | BRP                            | Allocation point ELK SMA | UC A20.304 (BRP) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N231              |
| <b>2.</b><br><b>By grid area:</b><br>Aggregated volumes active energy SMA per grid area per BRP per energy direction, as used by the TSO in the final imbalance determination.                                                                                                                                                                                                                                                                                                                                                                                                                                     | TSO                            | BRP                            | Allocation point ELK SMA | UC A20.304 (BRP) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N232              |

<sup>4</sup> See paragraph 3.6 Application ProcessTypeID.

| Exchange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Provider of settlement results | Consumer of settlement results | Type allocation point       | BRS Use case        | Business Service                                                                                                                   | Code <sup>4</sup> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-----------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <p>Aggregated volumes active energy SMA per grid area per BRP per energy direction, as provided by the DSOs in the settlement process;</p> <p><b>Volume differences between both aggregated volumes per grid area per BRP</b> per energy direction, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month per energy direction.</p>                                                                                                                                                                                                    |                                |                                |                             |                     |                                                                                                                                    |                   |
| <p><b>3.</b><br/><b>By grid area:</b><br/>Sum of the aggregated volumes active energy SMA per grid area per BRP per energy direction, as used by the TSO in the final imbalance determination.</p> <p>Aggregated volumes active energy SMA per grid area per BRP per energy direction, as provided by the DSOs in the settlement process;</p> <p><b>Volume differences between both aggregated volumes per grid area per BRP</b> per energy direction, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month per energy direction.</p> | TSO                            | DSO                            | Allocation point<br>ELK SMA | UC A20.321<br>(DSO) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N232              |
| <p><b>4.</b><br/><b>By grid area:</b><br/><b>Grid loss change per grid area</b>, determined by the TSO based on the sum of the aggregated volumes active energy used by the TSO in the final imbalance determination and the sum of the aggregated volumes active energy SMA, as provided by the DSO in the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month.</p>                                                                                                                                             | TSO                            | BRP Grid loss                  | Allocation point<br>ELK SMA | UC A20.304<br>(BRP) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N233              |

| Exchange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Provider of settlement results | Consumer of settlement results | Type allocation point    | BRS Use case     | Business Service                                                                                                                   | Code <sup>4</sup> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>5.</b><br><b>By grid area:</b><br><b>Grid loss change per grid area</b> per energy direction, determined by the TSO based on the sum of the aggregated volumes active energy used by the TSO in the final imbalance determination and the sum of the aggregated volumes active energy SMA, as provided by the DSO in the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month.                                                                                                                                                                                  | TSO                            | DSO                            | Allocation point ELK SMA | UC A20.321 (DSO) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N233              |
| <b>Allocation points with allocation method telemetry (TMT)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                |                                |                          |                  |                                                                                                                                    |                   |
| <b>6.</b><br><b>National Portfolio:</b><br>Aggregated volumes active energy TMT across all grid areas per BRP per OVP per energy direction, as used by the TSO in the final imbalance determination.<br><br>Aggregated volumes active energy TMT across all grid areas per BRP per OVP per energy direction, as provided by the SO's in the settlement process.<br><br><b>Volume differences between both aggregate volumes across all grid areas per BRP per OVP per energy direction,</b> the settlement price per OVP for the calendar month involved and the to-be-settled amount per OVP for that calendar month per energy direction. | TSO                            | BRP                            | Allocation point ELK TMT | UC A20.305 (BRP) | BSCMF0088 - Exchange settlement results for aggregated OVP volumes (AggregatedSettlementResultSeries)                              | N241              |
| <b>7.</b><br><b>National Portfolio:</b><br>Sum of aggregated volumes active energy TMT across all grid areas per BRP per OVP per energy direction, as provided by the SO's in the settlement process.<br><br>Aggregated volumes active energy TMT across all grid areas per BRP per energy direction, as provided by the SO's in the settlement                                                                                                                                                                                                                                                                                             | TSO                            | BRP                            | Allocation point ELK TMT | UC A20.305 (BRP) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N242              |

| Exchange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Provider of settlement results | Consumer of settlement results | Type allocation point       | BRS Use case     | Business Service                                                                                      | Code <sup>4</sup> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-----------------------------|------------------|-------------------------------------------------------------------------------------------------------|-------------------|
| process.<br><br><b>Volume differences between both aggregated volumes across all grid areas per BRP</b> per energy direction, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month per energy direction.                                                                                                                                                                                                                                                                                                                                                 |                                |                                |                             |                  |                                                                                                       |                   |
| <b>8.</b><br><b>By grid area:</b><br>Aggregated volumes active energy TMT per grid area per BRP per OVP per energy direction, as used by the TSO in the final imbalance determination.<br><br>Aggregated volumes active energy TMT per grid area per BRP per OVP per energy direction, as provided by the SO's in the settlement process.<br><br><b>Volume differences between both aggregate volumes per grid area per BRP per OVP</b> per energy direction, the settlement price per OVP for the calendar month involved and the to-be-settled amount per OVP for that calendar month per energy direction. | TSO                            | BRP                            | Allocation point<br>ELK TMT | UC A20.305 (BRP) | BSCMF0088 - Exchange settlement results for aggregated OVP volumes (AggregatedSettlementResultSeries) | N243              |
| <b>9.</b><br><b>By grid area:</b><br>Aggregated volumes active energy TMT per grid area per BRP per OVP per energy direction, as used by the TSO in the final imbalance determination<br><br>Aggregated volumes active energy TMT per grid area per BRP per OVP per energy direction, as provided by the SO's in the settlement process<br><br><b>Volume differences between both aggregate volumes per grid area per BRP per OVP</b> per energy direction, the settlement price per OVP for the calendar involved month                                                                                      | TSO                            | DSO                            | Allocation point<br>ELK TMT | UC A20.322 (DSO) | BSCMF0088 - Exchange settlement results for aggregated OVP volumes (AggregatedSettlementResultSeries) | N243              |

| Exchange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Provider of settlement results | Consumer of settlement results | Type allocation point    | BRS Use case     | Business Service                                                                                                                   | Code <sup>4</sup> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| and the to-be-settled amount per OVP for that calendar month per energy direction.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                |                                |                          |                  |                                                                                                                                    |                   |
| <b>10.</b><br><b>By grid area:</b><br>Sum of aggregated volumes active energy TMT per grid area per BRP per OVP per energy direction, as provided by the SO's in the settlement process.<br><br>Aggregated volumes active energy TMT per grid area per BRP per energy direction, as provided by the DSOs in the settlement process;<br><br><b>Volume differences between both aggregated volumes per grid area per BRP</b> per energy direction, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month per energy direction. | TSO                            | BRP                            | Allocation point ELK TMT | UC A20.305 (BRP) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N251              |
| <b>11.</b><br><b>By grid area:</b><br>Sum of aggregated volumes active energy TMT per grid area per BRP per OVP per energy direction, as provided by the SO's in the settlement process.<br><br>Aggregated volumes active energy TMT per grid area per BRP per energy direction, as provided by the DSOs in the settlement process;<br><br><b>Volume differences between both aggregated volumes per grid area per BRP</b> per energy direction, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month per energy direction. | TSO                            | DSO                            | Allocation point ELK TMT | UC A20.322 (DSO) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N251              |
| <b>12.</b><br><b>By grid area:</b><br><b>Grid loss change per grid area per OVP</b> per energy direction, determined by the TSO based on the volumes                                                                                                                                                                                                                                                                                                                                                                                                                             | TSO                            | BRP Grid loss                  | Allocation point ELK TMT | UC A20.305 (BRP) | BSCMF0088 - Exchange settlement results for aggregated OVP volumes (AggregatedSettlementResultSeries)                              | N261              |

| Exchange                                                                                                                                                                                                                                                                                                                                                                                                                                     | Provider of settlement results | Consumer of settlement results | Type allocation point       | BRS Use case     | Business Service                                                                                                                   | Code <sup>4</sup> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-----------------------------|------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| used by the TSO in the final imbalance determination and the aggregated active energy volumes TMT per OVP, as provided by the SOs in the settlement process, the settlement price per OVP for the calendar month involved and the to-be-settled amount per OVP for that calendar month.                                                                                                                                                      |                                |                                |                             |                  |                                                                                                                                    |                   |
| <b>13.</b><br><b>By grid area:</b><br><b>Grid loss change per grid area per OVP</b> per energy direction, determined by the TSO based on the volumes used by the TSO in the final imbalance determination and the aggregated active energy volumes TMT per OVP, as provided by the SOs in the settlement process, the settlement price per OVP for the calendar month involved and the to-be-settled amount per OVP for that calendar month. | TSO                            | SO                             | Allocation point<br>ELK TMT | UC A20.322 (SO)  | BSCMF0088 - Exchange settlement results for aggregated OVP volumes (AggregatedSettlementResultSeries)                              | N261              |
| <b>14.</b><br><b>By grid area:</b><br><b>Grid loss change per grid area</b> per energy direction, determined by the TSO based on the aggregated active energy volumes TMT per OVP and the aggregated active energy volumes as provided by the SO for the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for that calendar month.                                                      | TSO                            | BRP Grid loss                  | Allocation point<br>ELK TMT | UC A20.305 (BRP) | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N271              |
| <b>15.</b><br><b>By grid area:</b><br><b>Grid loss change per grid area</b> per energy direction, determined by the TSO based on the aggregated active energy volumes TMT per OVP and the aggregated active energy volumes as provided by the SO for the settlement process, the settlement price for the calendar month involved and the to-be-settled amount for that                                                                      | TSO                            | SO                             | Allocation point<br>ELK TMT | UC A20.322 (SO)  | BSCMF0087 - Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) | N271              |

| Exchange                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Provider of settlement results | Consumer of settlement results | Type allocation point    | BRS Use case     | Business Service                                                                                                                | Code <sup>4</sup> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------|
| calendar month.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                |                                |                          |                  |                                                                                                                                 |                   |
| <b>Allocation points with allocation method profiled (PRF)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                |                                |                          |                  |                                                                                                                                 |                   |
| <b>16. National Portfolio:</b><br>Sum of the aggregated allocated volumes active energy PRF across all grid areas per BRP per energy direction per price period, as provided by the DSO during the reconciliation process.<br><br>Sum of the aggregated determined volumes active energy PRF across all grid areas per BRP per energy direction per price period, as provided by the DSOs in the reconciliation process.<br><br><b>Volume differences per price period between both amounts across all grid areas per BRP</b> per energy direction per price period, the reconciliation price per price period for the calendar month involved and the to-be-settled amount for that calendar month per energy direction per price period. | TSO                            | BRP                            | Allocation point ELK PRF | UC A20.306 (BRP) | BSCMF0087 - Exchange settlement results and reconciliation results aggregated volumes (AggregatedVolume SettlementResultSeries) | N281              |
| <b>17. By grid area:</b><br>Sum of the aggregated allocated volumes active energy PRF per grid area per BRP per energy direction per price period, as provided by the DSO during the reconciliation process.<br><br>Sum of the aggregated determined volumes active energy PRF per grid area per BRP per energy direction per price period, as provided by the DSOs in the reconciliation process.<br><br><b>Volume differences between both amounts per grid area per BRP</b> per energy direction per price period, the reconciliation price per price period for the calendar month involved and the to-be-settled amount for that calendar month per energy direction per price period.                                                | TSO                            | BRP                            | Allocation point ELK PRF | UC A20.306 (BRP) | BSCMF0087 - Exchange settlement results and reconciliation results aggregated volumes (AggregatedVolume SettlementResultSeries) | N282              |

| Exchange                                                                                                                                                                                                                                                                                                                                                           | Provider of settlement results | Consumer of settlement results | Type allocation point       | BRS Use case     | Business Service                                                                                                                | Code <sup>4</sup> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|-----------------------------|------------------|---------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>18.</b><br><b>By grid area:</b><br><b>Grid loss change per grid area</b> per energy direction per price period, determined by the TSO based on the grid loss volumes provided by the TSO, the reconciliation price per price period for the calendar month involved and the to-be-settled amount for that calendar month per energy direction per price period. | TSO                            | BRP Grid loss                  | Allocation point<br>ELK PRF | UC A20.306 (BRP) | BSCMF0087 - Exchange settlement results and reconciliation results aggregated volumes (AggregatedVolume SettlementResultSeries) | N283              |



## 1.5 List of terms and abbreviations

| Term                                   | Description                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aggregate volumes                      | Aggregation of volumes determined based on determined periodic meter readings in the measurement and change processes.                                                                                                                                                                                                                                          |
| Allocation point                       | Virtual point at the transfer point of a connection, where the energy exchange between an installation and the system is administratively allocated to a market party as if measurement had taken place at the transfer point of the connection (Glossary Begrippencode Electriciteit 1.1 ).                                                                    |
| AMI                                    | Consumption with production                                                                                                                                                                                                                                                                                                                                     |
| AP                                     | Allocation point                                                                                                                                                                                                                                                                                                                                                |
| AZI                                    | Consumption without production                                                                                                                                                                                                                                                                                                                                  |
| BPMN                                   | BPMN (Business Process Modelling and Notation)                                                                                                                                                                                                                                                                                                                  |
| BRP                                    | Balance responsible party (formerly PV)                                                                                                                                                                                                                                                                                                                         |
| BRS                                    | Business Requirements Specification                                                                                                                                                                                                                                                                                                                             |
| Determined energy consumption          | Indication per connection whether there is consumption with production (AMI) or consumption without production (AZI).                                                                                                                                                                                                                                           |
| DIM                                    | Unmeasured connections for which profiles are drawn up in accordance with Appendix 16 of the Grid code dimensioned (DIM) profiles.                                                                                                                                                                                                                              |
| DSO                                    | Distribution system operator                                                                                                                                                                                                                                                                                                                                    |
| EDSN                                   | Energie Data Services Nederland B.V.                                                                                                                                                                                                                                                                                                                            |
| ELK                                    | Electricity                                                                                                                                                                                                                                                                                                                                                     |
| GDS                                    | Closed distribution system                                                                                                                                                                                                                                                                                                                                      |
| GV                                     | Large consumption                                                                                                                                                                                                                                                                                                                                               |
| Imbalance settlement period            | The unit of time used to calculate the imbalance of BRPs. In the past, this Imbalance Settlement Period (ISP) was also known as the Program Time Unit (PTE). The OVP is set at 15 minutes (TenneT Imbalance system).                                                                                                                                            |
| KV                                     | Small consumption                                                                                                                                                                                                                                                                                                                                               |
| MMC Hub                                | Market-Market-Communication Hub                                                                                                                                                                                                                                                                                                                                 |
| MRP                                    | Metering responsible party                                                                                                                                                                                                                                                                                                                                      |
| NVL                                    | Grid loss                                                                                                                                                                                                                                                                                                                                                       |
| OVP                                    | Imbalance settlement period                                                                                                                                                                                                                                                                                                                                     |
| PRF                                    | Profile<br>Identifier for KV or GV allocation points that are not allocated via measured quarter values, but via profile fractions, RCF and an SJI/SJA.                                                                                                                                                                                                         |
| Price period                           | A continuous period of normal hours or low hours.<br>The periodic volumes are fixed per price period.                                                                                                                                                                                                                                                           |
| Profile category                       | Profile category year 2021: A classification as registered in the Connection Register.<br><br>Profile category from go live Allocatie 2.0 tranche 2: A classification for connections based on objectively determined characteristics such as connection value, switching times, contracted transport capacity, determined consumption type and operating time. |
| SMA                                    | Smart Meter Allocation<br>Identifier for KV allocation points that are allocated with quarter values obtained from the smart meter.                                                                                                                                                                                                                             |
| SO                                     | System operator<br>All references to SO can also be read as distribution system operator, transmission system operator or GDS operator.                                                                                                                                                                                                                         |
| SUP                                    | Supplier                                                                                                                                                                                                                                                                                                                                                        |
| TMT                                    | Telemetry<br>Identifier for GV allocation points that are allocated with quarter values that are supplied by the MRP or calculated by the SO.                                                                                                                                                                                                                   |
| TSO                                    | Transmission system operator                                                                                                                                                                                                                                                                                                                                    |
| Volume                                 | A volume relating to a period of at least one calendar day. This may also include the terms "periodic volume" and "fixed volume".                                                                                                                                                                                                                               |
| Volume per imbalance settlement period | A volume relating to one imbalance settlement period.                                                                                                                                                                                                                                                                                                           |

## 2 Roles and responsibilities

### 2.1 Consumer

This service description describes how the consumers (BRP, SO) receive the settlement results.

### 2.2 Provider

This service description describes how the provider (TSO) offers the settlement results.

### 2.3 RACI

The RACI below shows the roles and responsibilities for service description *Exchange settlement results electricity*:

|                                           |                                                                                                 |
|-------------------------------------------|-------------------------------------------------------------------------------------------------|
| R (Responsible, NL: Verantwoordelijk)     | EDSN Business Integration                                                                       |
| A (Accountable, NL: Eindverantwoordelijk) | To be determined!                                                                               |
| C (Consulted, NL: Raadplegen)             | Core team system operators, BAS, A2.0 Working Group C1, EDSN, ebIX Technical Commission, TenneT |
| I (Informed, NL: Informeren)              | BAS, MFF, EDSN                                                                                  |

### 3 BPMN Exchange settlement results

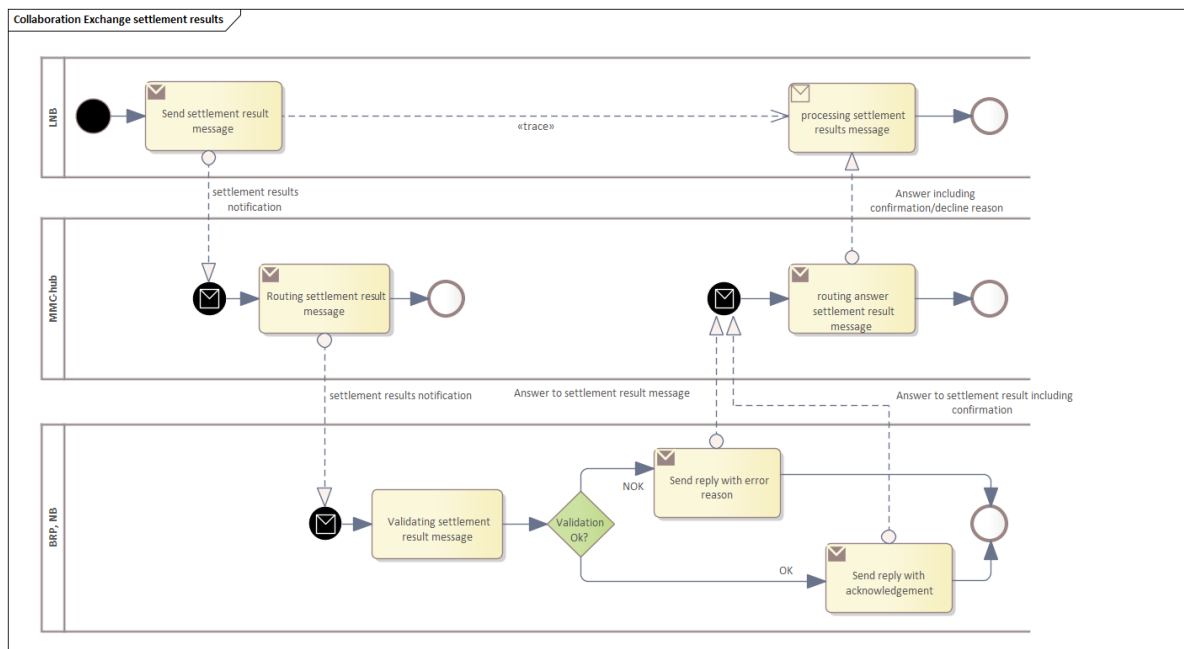


Figure 1 For detailed information about this process, see BRS Settlement results[1]

#### 3.1 Exchange settlement results

The process for exchanging settlement results follows the following scenario:

1. The TSO sends the notification "Notification settlement results"<sup>5</sup> to the MMC hub;
2. The MMC hub processes<sup>6</sup> the received "Notification settlement results" notification and routes the notification to the recipient<sup>7</sup>;
3. The receiver checks the notification "Notification settlement results"
4. The receiver sends the response "Confirmation/rejection notification settlement results" to the MMC hub:
  - a confirmation reply, or
  - an answer with one or more rejections
5. The MMC hub processes<sup>6</sup> the response and routes the notification to the TSO.

<sup>5</sup> A notification with settlement results and reconciliation results for aggregated volumes or a notification with settlement results for aggregated OVP volumes.

<sup>6</sup> A non-valid notification is rejected by the MMC hub, see section 3.2.

<sup>7</sup> Is the consumer (BRP, SO) of the settlement results.

### 3.2 Validations MMC hub

The MMC hub performs the following validations in response to the received notification "Notification settlement results" and received notification "Confirmation/rejection notification settlement results":

| Validation                                                             | Error notification              |
|------------------------------------------------------------------------|---------------------------------|
| XSD Validation: The notification adheres to the XSD rules              | TEN-500001: [Error detail]      |
| Unreadable notification: The notification must have 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 involved. For the functionality of the MMC-hub, please refer to the TenneT Web Services guide[3].

### 3.3 Checks on receiver

The recipient may perform the following checks after receiving the notification "Notification settlement results" and the notification "Confirmation/rejection notification settlement results"<sup>8</sup>:

| 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 settlement results" 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<br>Error notification: TEN-500021 – Incorrect notification signing                    |
| The technicalNotificationId in the SOAP header is unique.                                   | Error code: 999<br>Error notification: TEN-500023 – Unique identifier not unique or already processed |

<sup>8</sup> These validations are always carried out by the MMC hub. It is recommended that recipients also perform these validations themselves.

### 3.4 Checks receiver for notification “Settlement results and reconciliation results for aggregated volumes” (BSCMF0087)

The following checks and error notifications are available to the receiver in response to the notification "Settlement results and reconciliation results for aggregate volumes" and will be carried out insofar as they are mandatory or relevant for the processing by the receiver:

| Control                                                                                                                                                                      | Error notification                                                                                              | Role   | Code |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------|------|
| <b>Settlement results</b>                                                                                                                                                    |                                                                                                                 |        |      |
| The EAN code-18 of the grid area is a valid EAN code.                                                                                                                        | The EAN code-18 of the grid area is a valid EAN code.                                                           | BRP/SO | 651  |
| The EAN code-18 of the grid area is administered by the system operator.                                                                                                     | The grid area does not appear in the records of the system operator.                                            | SO     | 687  |
| The BRP was registered in the appropriate grid area for at least one allocation point and at least one calendar within this allocation group during the notification period. | The BRP is not active as BRP in the grid area for this allocation group.                                        | BRP/SO | 832  |
| 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  |
| The volume has a correct number of decimal places.                                                                                                                           | Volume has an incorrect number of decimal places.                                                               | BRP/SO | 776  |
| All volumes in the notification are positive numbers (or zero) <sup>9</sup> .                                                                                                | Volume with negative value.                                                                                     | BRP/SO | 686  |
| The type of volumes matches the notification.                                                                                                                                | The type of volumes does not match the notification.                                                            | BRP/SO | 810  |
| Each grid loss volume or volume difference features a to-be-settled amount.                                                                                                  | The to-be-settled amount is missing.                                                                            | BRP/SO | 831  |
| Price period is appropriate for the allocation group.                                                                                                                        | Price period does not fit the allocation group.                                                                 | BRP/SO | 828  |
| The notification contains the EAN 13 for a market party and the expected market role exactly once.                                                                           | Missing or incorrect EAN13.                                                                                     | SO     | 758  |
| The period to which the notification relates is exactly one calendar day.                                                                                                    | Invalid period.                                                                                                 | BRP/SO | 789  |
| The notification was not delivered too early.                                                                                                                                | The notification was delivered too early, not expected earlier than in month M+2.                               | BRP/SO | 792  |
| The settlement results identifier is unique.                                                                                                                                 | A settlement results notification with the same settlement result run identification has already been received. | SO     | 811  |
| The reference in the notification is unique.                                                                                                                                 | A notification with this reference has been received in the past.                                               | BRP/SO | 670  |
| <b>Notification header</b>                                                                                                                                                   |                                                                                                                 |        |      |
| 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 notification header 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  |

<sup>9</sup> All volumes are positive numbers (or zero) except volumes in the set of volume differences. This check thus does not apply to the set of volume differences and grid loss. See section 1.3 Starting points.

| Control                                                                                                                 | Error notification                                                                                           | Role   | Code |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------|------|
| The contentType <sup>10</sup> 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 <sup>11</sup> .                                 | [free text field] <sup>12</sup>                                                                              | BRP/SO | 999  |

<sup>10</sup> See Technical Guide - Measurements & Allocations Documents[8] for further information how to fill the contentType.

<sup>11</sup> 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.

<sup>12</sup> An explanation of error code 999 should be entered in this text field.

### 3.5 Checks receiver for notification “Settlement results for aggregated OVP volumes” (BSCMF0088)

The following checks and error notifications are available to the receiver in response to the notification "Settlement results for aggregated OVP volumes" and will be carried out insofar as they are mandatory or relevant for the processing by the receiver:

| Control                                                                                                                                                                      | Error notification                                                                                              | Role   | Code |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|--------|------|
| <b>Settlement results</b>                                                                                                                                                    |                                                                                                                 |        |      |
| The EAN code-18 of the grid area is a valid EAN code.                                                                                                                        | The EAN code-18 of the grid area is a valid EAN code.                                                           | BRP/SO | 651  |
| The EAN code-18 of the grid area is administered by the system operator.                                                                                                     | The grid area does not appear in the records of the system operator.                                            | SO     | 687  |
| The BRP was registered in the appropriate grid area for at least one allocation point and at least one calendar within this allocation group during the notification period. | The BRP is not active as BRP in the grid area for this allocation group.                                        | BRP/SO | 832  |
| 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  |
| The number of positions of all time series matches the period and the resolution.                                                                                            | The number of positions is incorrect.                                                                           | BRP/SO | 671  |
| The first position in a time series is "1".                                                                                                                                  | First position does not start with '1'.                                                                         | BRP/SO | 676  |
| The positions within a time series increase with an increment of '1'.                                                                                                        | The increment of a time series is not '1'.                                                                      | BRP/SO | 782  |
| The number of time series in the notification matches the allocation group.                                                                                                  | The number of time series in the notification does not match the allocation group.                              | BRP/SO | 764  |
| The volume has a correct number of decimal places.                                                                                                                           | Volume has an incorrect number of decimal places.                                                               | BRP/SO | 776  |
| All volumes in the notification are positive numbers (or zero) <sup>13</sup> .                                                                                               | Volume with negative value.                                                                                     | BRP/SO | 686  |
| The type of volumes matches the notification.                                                                                                                                | The type of volumes does not match the notification.                                                            | BRP/SO | 810  |
| Each grid loss volume or volume difference features a to-be-settled amount.                                                                                                  | The to-be-settled amount is missing.                                                                            | BRP/SO | 831  |
| The notification contains the EAN 13 for a market party and the expected market role exactly once.                                                                           | Missing or incorrect EAN13.                                                                                     | SO     | 758  |
| The period to which the notification relates is exactly one calendar day.                                                                                                    | Invalid period.                                                                                                 | BRP/SO | 789  |
| The settlement results identifier is unique.                                                                                                                                 | A settlement results notification with the same settlement result run identification has already been received. | SO     | 811  |
| The reference in the notification is unique.                                                                                                                                 | A notification with this reference has been received in the past.                                               | BRP/SO | 670  |
| <b>Notification header</b>                                                                                                                                                   |                                                                                                                 |        |      |
| 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 notification header 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  |

<sup>13</sup> All volumes are positive numbers (or zero) except volumes in the set of volume differences. This check thus does not apply to the set of volume differences and grid loss. See section 1.3 Starting points.

| Control                                                                                                                 | Error notification                                                                                           | Role   | Code |
|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------|------|
| 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 contentType <sup>14</sup> 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  |
| <b>Entire notification</b>                                                                                              |                                                                                                              |        |      |
| Notification is complete, correct and directed to the correct recipient <sup>15</sup> .                                 | [free text field] <sup>16</sup>                                                                              | BRP/SO | 999  |

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

15 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.

16 An explanation of error code 999 should be entered in this text field.



### 3.6 Application ProcessTypeID for exchange settlement results

As described in *the BRS Settlement results*[1], the notification specifications for settlement results are used for various applications. The application in question must be mentioned in the notification's EDSNBusinessDocumentHeader (functional header), under ProcessTypeID. Further explanation about the use of the EDSNBusinessDocumentHeader is included in the NEDU EDSN Ontwerpkeuzes[2].

See paragraph 1.4 for the overview of ProcessTypeID for settlement results.

## 4 Functional parameters

### 4.1 Notification for Exchange settlement results and reconciliation results for aggregated volumes (BSCMF0087)

*Exchange settlement results and reconciliation results for aggregated volumes* is an exchange for:

#### Allocation group SMA

1. volumes and volume differences for aggregated volumes of an SMA allocation group incl. settlement price and to-be-settled amount across all grid areas per BRP (national portfolio) for exchange with the BRP;
2. volumes and volume differences for aggregated volumes of an SMA allocation group incl. settlement price and to-be-settled amount per grid area per BRP for exchange with the BRP and DSO;
3. grid loss change SMA allocation group incl. settlement price and to-be-settled amount per grid area for exchange with the BRP Grid loss and DSO;

#### Allocation group TMT

4. volumes and volume differences for aggregated volumes of an TMT allocation group incl. settlement price and to-be-settled amount across all grid areas per BRP (national portfolio) for exchange with the BRP;
5. volumes and volume differences for aggregated volumes of an TMT allocation group incl. settlement price and to-be-settled amount per grid area per BRP for exchange with the BRP and BRP and SO;
6. grid loss change TMT allocation group incl. settlement price and to-be-settled amount per grid area for exchange with the BRP Grid loss and SO;

#### Allocation group PRF

7. volumes and volume differences for aggregated volumes of an PRF allocation group incl. reconciliation price and to-be-settled amount across all grid areas per BRP (national portfolio) for exchange with the BRP;
8. volumes and volume differences for aggregated volumes of an PRF allocation group incl. reconciliation price and to-be-settled amount per grid area per BRP for exchange with the BRP and DSO;
9. grid loss change PRF allocation group incl. reconciliation price and to-be-settled amount per grid area for exchange with the BRP Grid loss and SO;

The following information is exchanged per aggregate:

| Given                                  | Elec | 1/n | Note                                                                                                                                                                                                                                                                                                                      | XML code |
|----------------------------------------|------|-----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Notification Reference                 | V    | 1   | A UUID as a unique identifier of the notification.                                                                                                                                                                                                                                                                        |          |
| EAN code and market role BRP           | A    | 1   | EAN13 of the BRP.<br><br><u>Required</u> if it is a settlement or reconciliation result notification for the SO/DSO.<br><u>Must be empty</u> if it is a settlement result notification for the BRP <sup>17</sup> .<br><u>Must be empty</u> if it is a grid loss change notification for the BRP Grid loss <sup>17</sup> . |          |
|                                        | A    | 1   | Market role of the BRP <sup>18</sup> .                                                                                                                                                                                                                                                                                    | DDK      |
| EAN code and market role BRP Grid loss | A    | 1   | EAN13 of the BRP Grid loss.<br><br><u>Required</u> if it is a net change notification for the SO/DSO.<br><u>Must be empty</u> if it is a settlement result notification for the BRP/SO/DSO <sup>17</sup> .<br><u>Must be empty</u> if it is a grid loss change notification for the BRP Grid loss <sup>17</sup> .         |          |
|                                        | A    | 1   | Market role of the BRP Grid loss <sup>18</sup> .                                                                                                                                                                                                                                                                          | DDX      |
| EAN code grid area                     | A    | 1   | The identifying EAN18 code of the grid area.                                                                                                                                                                                                                                                                              |          |

<sup>17</sup> Must be empty means that the appropriate field is missing from the notification. Empty fields in the XML notification are not allowed based on the UN/CEFACT NDR.

<sup>18</sup> Market role as defined in ebIX Code list[6].

| Given                                    | Elec | 1/n      | Note                                                                                                                                                                                                                                                                                                                                                               | XML code                         |
|------------------------------------------|------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
|                                          |      |          | <p><u>Required</u> if it is a settlement or reconciliation result notification for the BRP/SO/DSO per grid area.</p> <p><u>Required</u> if it is a grid loss change notification for the BRP Grid loss.</p> <p><u>Must be empty</u> if a settlement or reconciliation result notification for the BRP across all grid areas<sup>17</sup>.</p>                      |                                  |
| Product type                             | V    | 1        | <p>Allowed values (from ebIX Code list[6] and including a leading zero):</p> <p>Electricity</p>                                                                                                                                                                                                                                                                    | 023                              |
| Allocation group                         | V    | 1        | <p>An identifier for the group to which the related settlement results belong.</p> <p>Allowed values:</p> <p>Settlement results for allocation points aggregated (allocation method SMA)</p> <p>Settlement results for allocation points aggregated (allocation method TMT)</p> <p>Reconciliation results allocation points aggregated (allocation method PRF)</p> | <p>SMA</p> <p>TMT</p> <p>PRF</p> |
| Settlement price or reconciliation price | V    | 1        | <p>The settlement or reconciliation price for the calendar month in question in Euro (excl VAT) per kWh as decimal number. Always to 2 decimal places.</p> <p>It is a settlement price if it is a settlement results notification.</p> <p>It is a reconciliation price if it is a reconciliation results notification.</p>                                         |                                  |
| Price period                             | A    | 1        | <p>Indication of the price period for the reconciliation price.</p> <p><u>Required</u> if it is allocation group PRF.</p> <p><u>Must be empty</u> if it is allocation group SMA or TMT<sup>17</sup>.</p> <p>Allowable values for electricity (from ebIX Code list[6]):</p> <p>Low</p> <p>Normal</p>                                                                | <p>E10</p> <p>E11</p>            |
| Settlement result run identification     | V    | 1        | <p>Unique identifier (UUID) for the settlement result run.</p> <p>Based on this identification, consumers may link the set of settlement results to each other for a given calendar month per allocation group. This settlement results run identification is identical for all receivers.</p>                                                                     |                                  |
| Start date period                        | V    | 1        | <p>Start date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ</p>                                                                                                                                                                                                                                                                 |                                  |
| End date period                          | V    | 1        | <p>End date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ</p> <p>Notification period from start date/time to end date/time is exactly 1 calendar month.</p>                                                                                                                                                                     |                                  |
| <b>Volume</b>                            |      | <b>n</b> |                                                                                                                                                                                                                                                                                                                                                                    |                                  |
| Volume                                   | V    | 1        | <p>Volume in whole numbers.</p> <p>If the volume is negative, then it is decrease grid loss for the SO/BRP grid loss.</p> <p>If the volume is positive, then it is increase grid loss for the SO/BRP grid loss.</p>                                                                                                                                                |                                  |
| Type volume                              | V    | 1        | <p>Type of volume and volume differences.</p> <p>There must always be 3 volumes in a settlement or reconciliation result notification for the BRP/SO. Two volumes (type A13, A14 or A20) for which differences are calculated and the volume difference (type A17) between the two volumes.</p> <p>A grid loss mutation notification must contain exactly</p>      |                                  |

| Given                 | Elec | 1/n | Note                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | XML code                                                                     |
|-----------------------|------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|
|                       |      |     | <p>one volume type A15.</p> <p>Permitted values (from ENTSO-E Code list[10]):</p> <p>Volume provided by SO's in the settlement process</p> <p>Volume provided by SO's in the reconciliation process</p> <p>Sum of the OVP volumes provided by SOs in settlement process</p> <p>Grid loss change</p> <p>Differences between both volumes</p> <p>Volume submitted by SOs for final imbalance determination</p> <p>Volume used by TSO in final imbalance determination</p>                                                                | <p>A13</p> <p>A13</p> <p>A14</p> <p>A15</p> <p>A17</p> <p>A20</p> <p>A20</p> |
| Product ID            | V    | 1   | <p>Allowed values (from ebIX Code list[6]):</p> <p>Electricity:</p> <p>Active energy</p>                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8716867000030                                                                |
| Energy unit           | V    | 1   | Permissible active energy value:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | KWH                                                                          |
| Energy direction      | V    | 1   | <p>Energy direction identifier.</p> <p>Allowed values (from ebIX Code list[6]):</p> <p>Consumption</p> <p>Production</p>                                                                                                                                                                                                                                                                                                                                                                                                               | <p>E17</p> <p>E18</p>                                                        |
| Price period          | A    | 1   | <p>Price period identifier.</p> <p><u>Required</u> if it is allocation group PRF.</p> <p><u>Must be empty</u> if it is allocation group SMA or TMT<sup>17</sup>.</p> <p>Allowable values for electricity (from ebIX Code list[6]):</p> <p>Low</p> <p>Normal</p>                                                                                                                                                                                                                                                                        | <p>E10</p> <p>E11</p>                                                        |
| To-be-settled amount. | A    | 1   | <p>The to-be-settled amount for the calendar month involved per energy direction (and for allocation group PRF also per price period) in Euro (excluding VAT) as a decimal number. Always to 2 decimal places.</p> <p><u>Mandatory</u> if type volume A15 or A17.</p> <p><u>Must be empty</u> if the type volume is A13, A14 or A20<sup>17</sup>.</p> <p>If the amount is negative, it will be an amount in favour of the BRP, SUP or DSO (receiver).</p> <p>If the amount is positive, it will be an amount in favour of the TSO.</p> |                                                                              |

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) when required for the related settlement data notification.

## 4.2 Notification for Exchange settlement results for aggregated OVP volumes (BSCMF0088)

Exchange settlement results for aggregated OVP volumes is an exchange for:

Allocation group TMT

1. volumes and volume differences for aggregated volumes of an TMT allocation group incl. settlement price and to-be-settled amount across all grid areas per BRP per OVP (national portfolio) for exchange with the BRP;
2. volumes and volume differences for aggregated volumes of an TMT allocation group incl. settlement price and to-be-settled amount per grid area per BRP per OVP for exchange with the BRP and DSO;
3. grid loss change TMT allocation group incl. settlement price and to-be-settled amount per grid area per OVP for exchange with the BRP Grid loss and DSO;

The following information is exchanged per aggregate:

| Given                                  | Elec | 1/n | Note                                                                                                                                                                                                                                                                                                                                                                  | XML code |
|----------------------------------------|------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Notification Reference                 | V    | 1   | A UUID as a unique identifier of the notification.                                                                                                                                                                                                                                                                                                                    |          |
| EAN code and market role BRP           | A    | 1   | EAN13 of the BRP.<br><br><u>Required</u> if it is a settlement result notification for the SO/DSO.<br><u>Must be empty</u> if it is a settlement result notification for the BRP <sup>19</sup> .<br><u>Must be empty</u> if it is a grid loss change notification for the BRP Grid loss <sup>19</sup> .                                                               |          |
|                                        | A    | 1   | Market role of the BRP <sup>20</sup> .                                                                                                                                                                                                                                                                                                                                | DDK      |
| EAN code and market role BRP Grid loss | A    | 1   | EAN13 of the BRP Grid loss.<br><br><u>Required</u> if it is a net change notification for the SO/DSO.<br><u>Must be empty</u> if it is a settlement result notification for the BRP/SO/DSO <sup>19</sup> .<br><u>Must be empty</u> if it is a grid loss change notification for the BRP Grid loss <sup>19</sup> .                                                     |          |
|                                        | A    | 1   | Market role of the BRP Grid loss <sup>20</sup> .                                                                                                                                                                                                                                                                                                                      | DDX      |
| EAN code grid area                     | A    | 1   | The identifying EAN18 code of the grid area.<br><br><u>Mandatory</u> if it concerns a settlement result notification for the BRP/NB/DSO per grid area.<br><u>Required</u> if it is a grid loss change notification for the BRP Grid loss.<br><u>Mandatory empty</u> if it concerns a settlement result notification for the BRP across all grid areas <sup>19</sup> . |          |
| Product type                           | V    | 1   | Allowed values (from ebIX Code list[6] and including a leading zero):<br>Electricity                                                                                                                                                                                                                                                                                  | 023      |
| Allocation group                       | V    | 1   | An identifier for the group to which the related settlement results belong.<br><br>Allowed values:<br>Settlement results for allocation points aggregated (allocation method TMT)                                                                                                                                                                                     | TMT      |
| Settlement result run identification   | V    | 1   | Unique identifier (UUID) for the settlement result run.<br><br>Based on this identification, consumers may link the set of settlement results to each other for a given calendar month per allocation group. This settlement results run identification is identical for all receivers.                                                                               |          |
| Start date period                      | V    | 1   | Start date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ                                                                                                                                                                                                                                                                           |          |
| End date period                        | V    | 1   | End date time is in UTC and in accordance with ISO                                                                                                                                                                                                                                                                                                                    |          |

<sup>19</sup> Must be empty means that the appropriate field is missing from the notification. Empty fields in the XML notification are not allowed based on the UN/CEFACT NDR.

<sup>20</sup> Market role as defined in ebIX Code list[6].

| Given                                              | Elec | 1/n      | Note                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | XML code                     |
|----------------------------------------------------|------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|
|                                                    |      |          | 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ<br><br>Notification period from start date/time to end date/time is exactly 1 calendar month.                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                              |
| <b>Volume<sup>21</sup></b>                         |      | <b>n</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |
| OVP (electricity)                                  | V    | 1        | Resolution is in accordance with ISO 8601 notation[7] for <i>Duration</i> .<br><br>Permissible values electricity:<br>15 minutes                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | PT15M                        |
| Type volume                                        | V    | 1        | Type of volume and volume differences.<br><br>A settlement result notification for the BRP/SO should always include three volumes. Two volumes (typing A14 or A20) for which differences are calculated and the volume difference (typing A17) between the two volumes.<br>A grid loss mutation notification must always include exactly one volume typed A15.<br><br>Permitted values (from ENTSO-E Code list[10]):<br><br>OVP volume provided by SOs for settlement process<br><br>Grid loss change<br><br>Differences between both volumes<br><br>OVP volume used by TSO in final imbalance determination | A14<br><br>A15<br>A17<br>A20 |
| Product ID                                         | V    | 1        | Allowed values (from ebIX Code list[6]):<br>Electricity:<br>Active energy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 8716867000030                |
| Energy unit                                        | V    | 1        | Permissible active energy value:<br>kWh                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | KWH                          |
| Energy direction                                   | V    | 1        | Energy direction identifier.<br><br>Allowed values (from ebIX Code list[6]):<br>Consumption<br>Production                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | E17<br>E18                   |
| <b>Volume per position</b>                         |      | <b>n</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |
| Position                                           | V    | 1        | Position in the series in whole numbers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                              |
| Volume                                             | V    | 1        | Volume in whole numbers.<br><br>If the volume is negative, then the decrease in grid loss will be for the SO/BRP grid loss.<br>If the volume is positive, then the increase in grid loss will be for the SO/BRP grid loss.                                                                                                                                                                                                                                                                                                                                                                                   |                              |
| <b>Price and to-be-settled amount per position</b> |      |          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                              |
| Settlement price per position                      | A    | 1        | The settlement price per OVP for the calendar month involved in Euro (excl VAT) as a decimal number. Always to 2 decimal places.<br><br><u>Mandatory</u> if type volume A17.<br><u>Must be empty</u> if type volume is A13, A15 or A20 <sup>19</sup> .                                                                                                                                                                                                                                                                                                                                                       |                              |
| To-be-settled amount per position                  | A    | 1        | To-be-settled amount per OVP for that calendar month in Euro (excl VAT) as a decimal number. Always to 2 decimal places.<br><br><u>Mandatory</u> if type volume A15 or A17.<br><u>Must be empty</u> if type volume is A13 or A20 <sup>19</sup> .<br><br>If the amount is negative, it will be an amount in                                                                                                                                                                                                                                                                                                   |                              |

21 Two complete time series:  
1. volume active energy (consumption);  
2. volume active energy (production).

| Given | Elec | 1/n | Note                                                                                                               | XML code |
|-------|------|-----|--------------------------------------------------------------------------------------------------------------------|----------|
|       |      |     | favour of the BRP, SUP or DSO (receiver).<br>If the amount is positive, it will be an amount in favour of the TSO. |          |

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) when required for the related settlement data notification.

#### 4.3 Response to notifications for Exchange settlement results

In this case, the response for all notifications has the same structure. The response consists of an acknowledgement or a rejection:

| Given                               | Elec            | 1/n | Note                                                                                                                                                                                   | XML code                                               |
|-------------------------------------|-----------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|
| Reference response notification     | V               | 1   | A UUID as a unique identifier of the notification.                                                                                                                                     |                                                        |
| Notification Notification Reference | A <sup>22</sup> | 1   | A UUID as unique identifier for the acknowledged or rejected notification message <sup>23</sup> .                                                                                      |                                                        |
| Date/time response notification     | V               | 1   | Date time is in UTC and in accordance with ISO 8601 notation[7]: YYYY-MM-DDThh:mm:ssZ                                                                                                  |                                                        |
| Confirmation/rejection code         | V               | n   | If confirmed (not rejected!), code "000" must be shared in the response.<br><br>If rejected, at least one code for rejection must be shared in the response (see paragraph 3.3 - 3.5). | 000<br><br>Code for rejection: see paragraph 3.3 - 3.5 |
| Explanation of the rejection        | A               | n   | Optional explanation of the rejection.<br><br><u>Only mandatory</u> for error code 999.                                                                                                |                                                        |

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) when required for the context of the the related settlement results notification.

#### 4.4 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 provider<sup>24</sup>;
2. Via the notification attribute (UUID), the mandatory process correlation between Notification and Acknowledgement is established. This attribute should also be used in a revisions request as a reference to the settlement results notification.

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

<sup>22</sup> 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. The receiver is requested to contact the relevant sender directly afterwards and so that they can examine the issue together and take any corrective action.

<sup>23</sup> Is the AggregatedVolumeSettlementResult\_Series.mRID or AggregatedSettlementResult\_Series.mRID for the related Notification notification.

<sup>24</sup> CorrelationID can be entered by the provider of settlement results (provider). If filled, the receiving party (consumer) must specify this CorrelationID in the response to the provider. See NEDU EDSN Ontwerpkeuzes[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 Ontwerpkeuzes[2].

## 5.2 Exchange settlement results and reconciliation results for aggregated volumes (BSCMF0087)

The sequence diagram below relates to the supply of *Settlement results and reconciliation results for aggregated volumes* by the transmission system operator to the MMC hub. The MMC hub takes care of routing, preparation and forwarding of the the related settlement results and reconciliation results for the receiver.

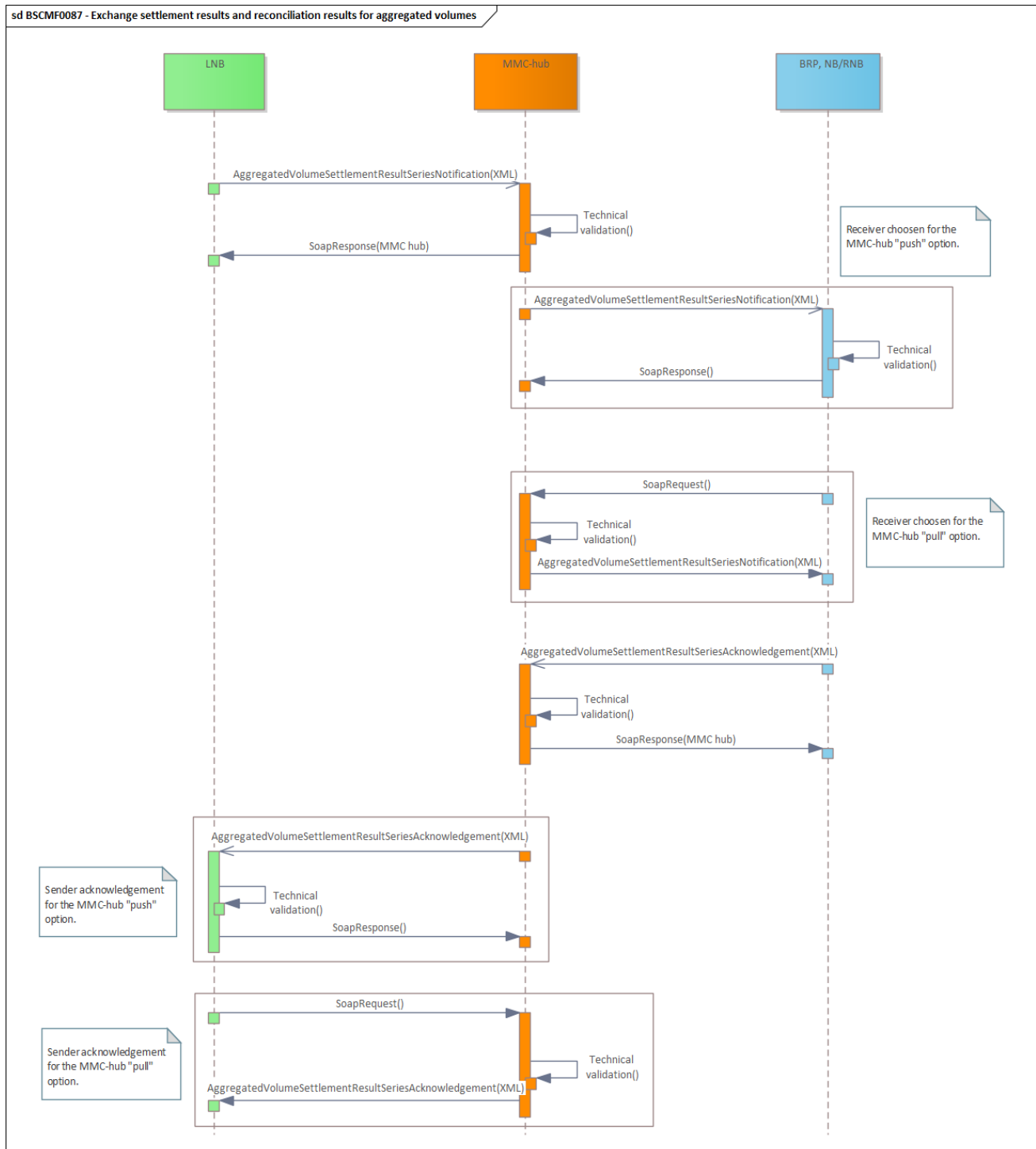


Figure 2 The sequence diagram for Exchange settlement results and reconciliation results for aggregated volumes between TSO and BRP and SO/DSO via the MMC hub

### 5.3 Exchange settlement results for aggregated OVP volumes (BSCMF0088)

The sequence diagram below relates to the supply of *Settlement results* for aggregated OVP volumes by the transmission system operator to the MMC hub. The MMC hub takes care of routing, preparing and forwarding the relevant settlement results to the receiver.

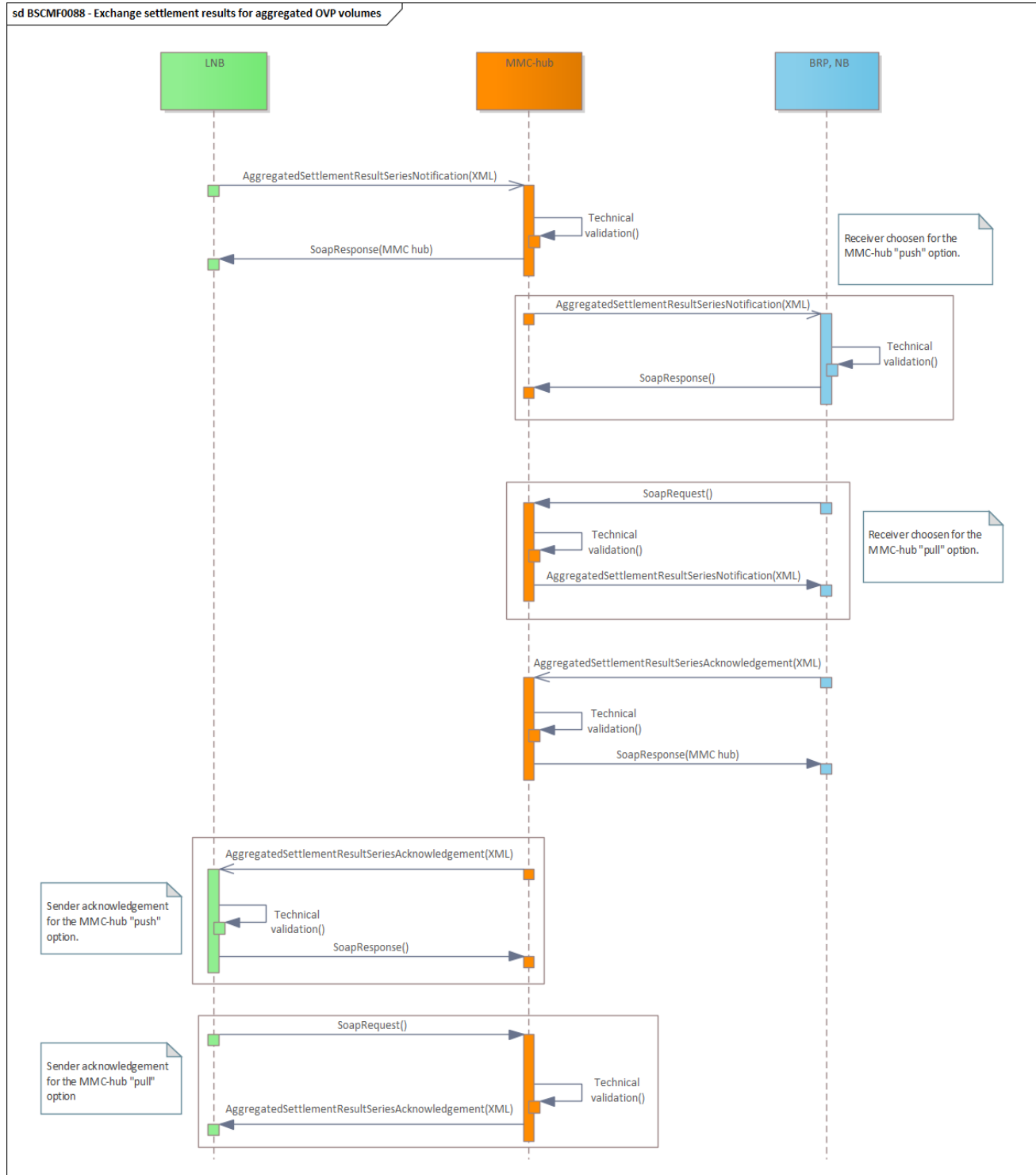


Figure 3 The sequence diagram for Exchange settlement results for aggregated OVP volumes between TSO and BRP and SO via the MMC hub

## 6 Properties service Settlement results

### 6.1 Exchange settlement results and reconciliation results for aggregated volumes (BSCMF0087)

| Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeries) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Service                                                                                                                | AggregatedVolumeSettlementResultSeries – Exchange settlement results and reconciliation results for aggregated volumes                                                                                                                                                                                                                                                                                                                                                                                        |
| Service ID                                                                                                             | BSCMF0087                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Description                                                                                                            | The exchange of settlement results and reconciliation results between TSO (provider) and the BRP, SO/DSO (consumer)                                                                                                                                                                                                                                                                                                                                                                                           |
| Service transaction pattern                                                                                            | Notification/Acknowledgement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Precondition(s)                                                                                                        | <i>Notification with settlement results</i> is submitted by a party that is authorized and authenticated to do so.                                                                                                                                                                                                                                                                                                                                                                                            |
| Trigger                                                                                                                | TSO offers <i>Notification with settlement results</i> to MMC hub.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Post condition(s)                                                                                                      | <ul style="list-style-type: none"> <li>Notification with settlement results rejected;</li> <li>or</li> <li>Notification with settlement results executed.</li> </ul>                                                                                                                                                                                                                                                                                                                                          |
| Service use <sup>25</sup>                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 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                                                                                            | 100% of the incoming Notifications must be answered by the consumer by means of an Acknowledgement within 15 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                                                                                                                  | <p>The sender (provider of the settlement results) only performs a 'retry' if he did not receive a positive HTTP response from de MMC hub.</p> <p>If the recipient (consumer of the settlement results) 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.</p> |
| 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].                                                                                                                                                                                                                                                                                                                                                                                                                                            |

<sup>25</sup> To be agreed with TenneT.

| Operation   |                                                                                                            |                                                           |
|-------------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|
| User        | SO                                                                                                         |                                                           |
| Function    | Submit notification <i>Aggregated settlement results and reconciliation results for aggregated volumes</i> |                                                           |
| Soap action | See WSDL                                                                                                   |                                                           |
|             | Input notification                                                                                         | AggregatedVolumeSettlementResultSeriesNotification        |
|             | XSD                                                                                                        | AggregatedVolumeSettlementResultSeriesNotification_1p0    |
|             | Output notification                                                                                        | AggregatedVolumeSettlementResultSeriesAcknowledgement     |
|             | XSD                                                                                                        | AggregatedVolumeSettlementResultSeriesAcknowledgement_1p0 |

## 6.2 Exchange settlement results for aggregated OVP volumes (BSCMF0088)

| Exchange settlement results for aggregated OVP volumes (AggregatedSettlementResultSeries) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Service                                                                                   | AggregatedSettlementResultSeries – Exchange settlement results for aggregated OVP volumes                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Service ID                                                                                | BSCMF0088                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Description                                                                               | The exchange of settlement results between TSO (provider) and the BRP, DSO (consumer)                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Service transaction pattern                                                               | Notification/Acknowledgement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Precondition(s)                                                                           | <i>Notification with settlement results</i> is submitted by a party that is authorized and authenticated to do so.                                                                                                                                                                                                                                                                                                                                                                                            |
| Trigger                                                                                   | TSO offers <i>Notification with settlement results</i> to MMC hub.                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Post condition(s)                                                                         | <ul style="list-style-type: none"> <li>Notification with settlement results rejected;</li> <li>or</li> <li>Notification with settlement results executed.</li> </ul>                                                                                                                                                                                                                                                                                                                                          |
| Service use <sup>26</sup>                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 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                                                               | 100% of the incoming Notifications must be answered by the consumer by means of an Acknowledgement within 15 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                                                                                     | <p>The sender (provider of the settlement results) only performs a 'retry' if he did not receive a positive HTTP response from de MMC hub.</p> <p>If the recipient (consumer of the settlement results) 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.</p> |
| 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].                                                                                                                                                                                                                                                                                                                                                                                                                                            |

<sup>26</sup> To be agreed with TenneT.

| Operation   |                                                                                     |                                                     |
|-------------|-------------------------------------------------------------------------------------|-----------------------------------------------------|
| User        | SO                                                                                  |                                                     |
| Function    | Submit notification Aggregated <i>settlement results for aggregated OVP volumes</i> |                                                     |
| Soap action | See WSDL                                                                            |                                                     |
|             | Input notification                                                                  | AggregatedSettlementResultSeriesNotification        |
|             | XSD                                                                                 | AggregatedSettlementResultSeriesNotification_1p0    |
|             | Output notification                                                                 | AggregatedSettlementResultSeriesAcknowledgement     |
|             | XSD                                                                                 | AggregatedSettlementResultSeriesAcknowledgement_1p0 |

## 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 Ontwerpkeuzes[2].

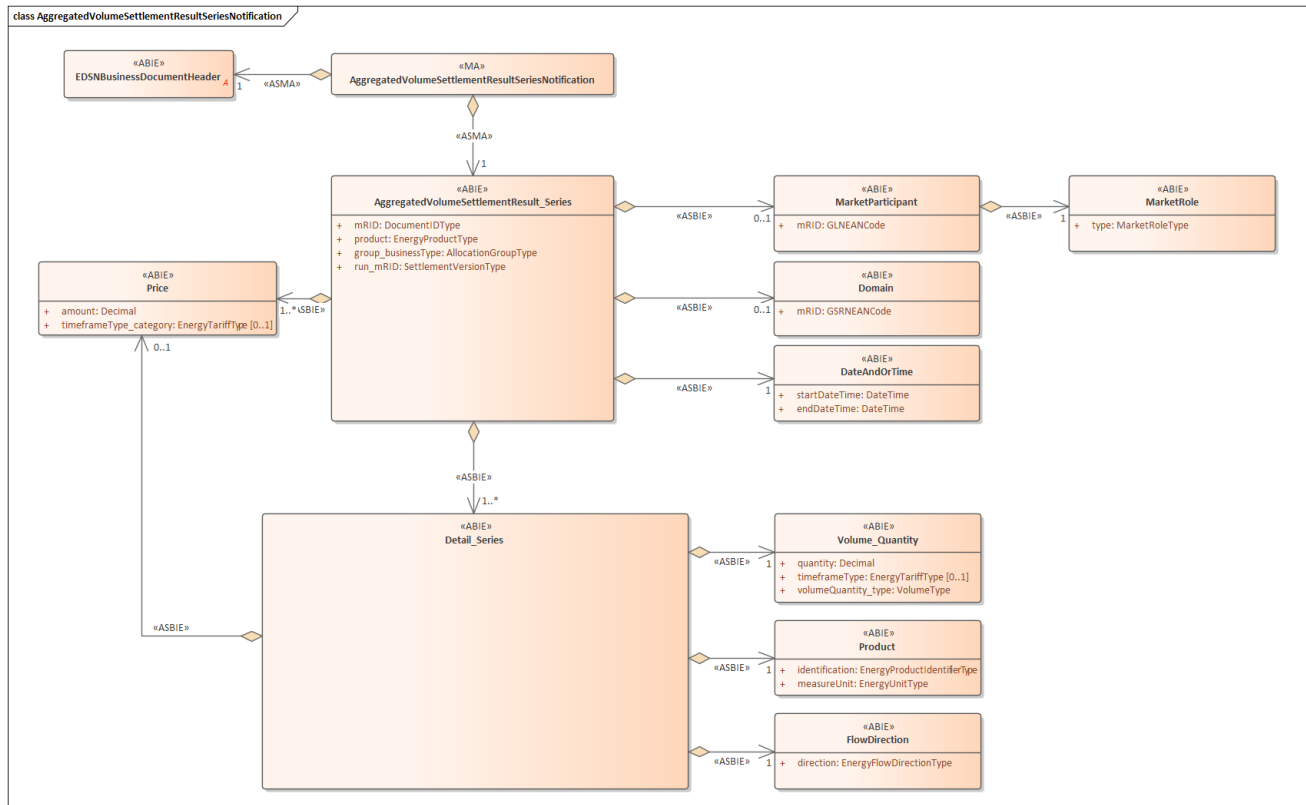
Detailed information on the values of the data types is available as a PDF document on mijnEDSN:

- 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 settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeriesNotification)



### AggregatedVolumeSettlementResult\_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                         |
| group_businessType | AllocationGroupType   | 1..1         | The identification of the nature of the time series.             | Allocation group                     |
| run_mRID           | SettlementVersionType | 1..1         | The identification of the version of the time series.            | Settlement result run identification |

### 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      |

### Detail\_Series

| XML element | Data type | Multiplicity | Description | Functional parameter |
|-------------|-----------|--------------|-------------|----------------------|
|-------------|-----------|--------------|-------------|----------------------|

#### 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     |

#### MarketParticipant

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

#### 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          |

#### Price

| XML element            | Data type        | Multiplicity | Description                                                                                                                | Functional parameter |
|------------------------|------------------|--------------|----------------------------------------------------------------------------------------------------------------------------|----------------------|
| amount                 | Decimal          | 1..1         | A number of monetary units specified in a unit of currency.                                                                | Amount               |
| timeframeType_category | EnergyTariffType | 0..1         | The category of a price to be used in a price calculation. The price category is mutually agreed between System Operators. | Price period         |

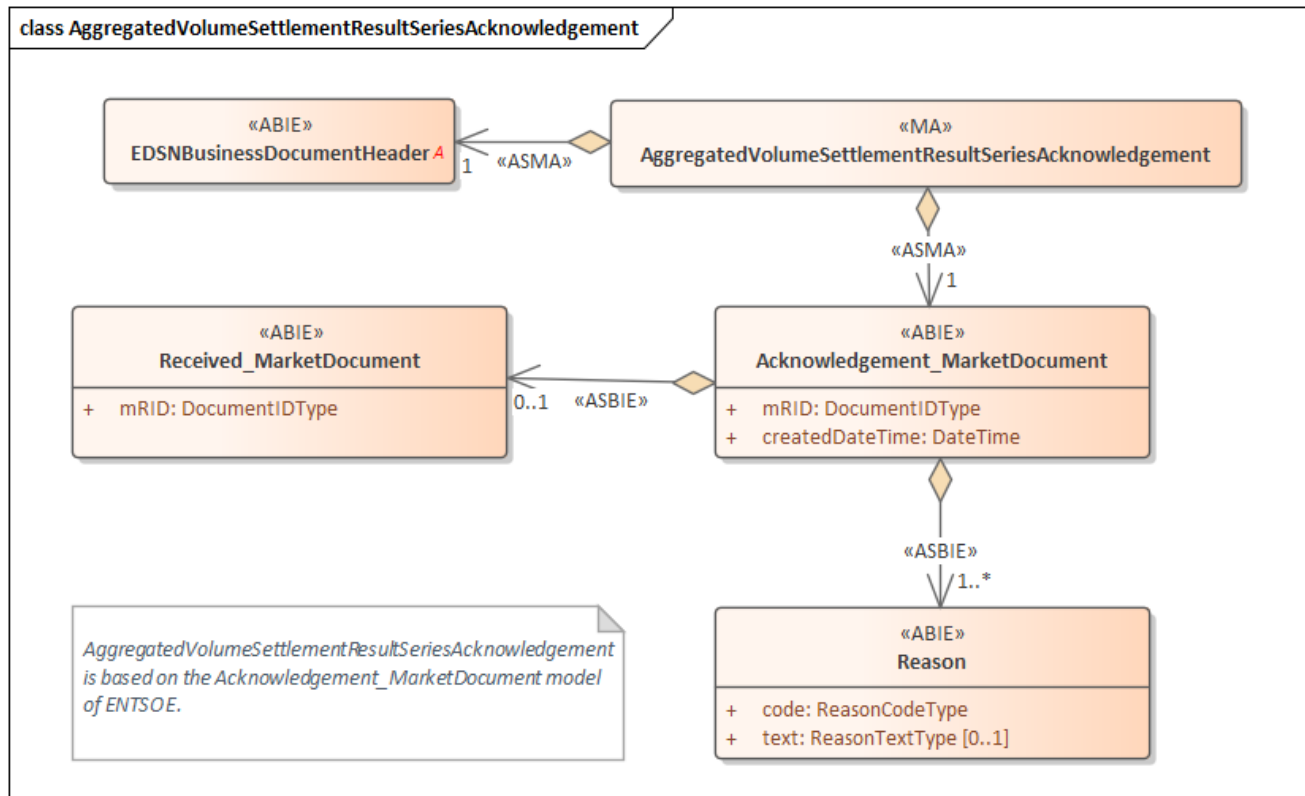
#### Product

| 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          |

#### 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 (electricity) |
| timeframeType       | EnergyTariffType | 0..1         | The coded identification of the timeframe.                                                 | Price period         |
| volumeQuantity_type | VolumeType       | 1..1         | The description of the type of the quantity.                                               | Type volume          |

### 7.3 Confirmation/rejection notification Exchange settlement results and reconciliation results for aggregated volumes (AggregatedVolumeSettlementResultSeriesAcknowledgement)



#### 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) |
| createdDateTime | DateTime       | 1..1         | The date and time of the creation of the document.                                        | Date/time notification         |

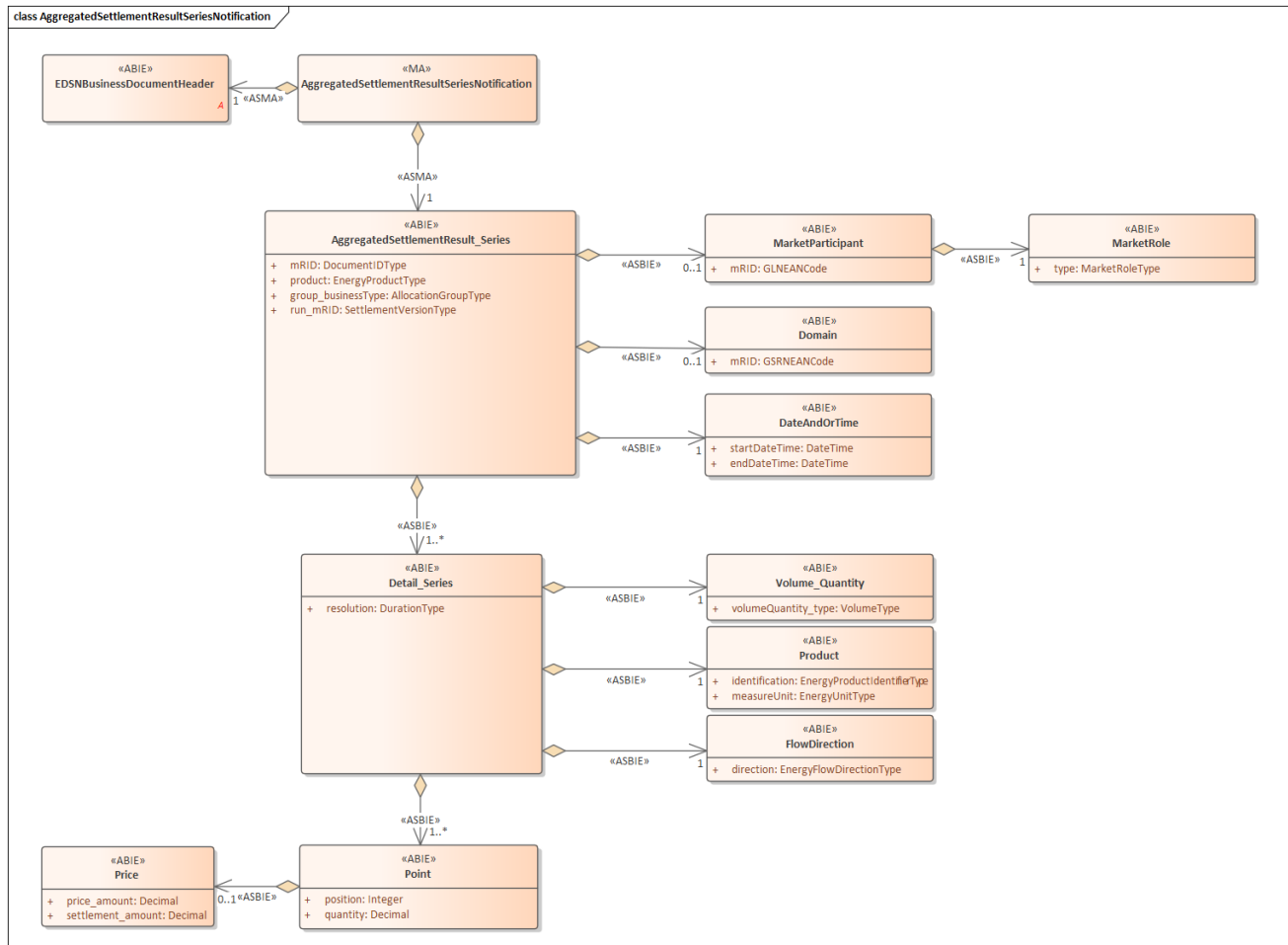
#### Reason

| 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 confirmation/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 message identifier (UUID) |

## 7.4 Notification Exchange settlement results for aggregated OVP volumes (AggregatedSettlementResultSeriesNotification)



### AggregatedSettlementResult\_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                         |
| group_businessType | AllocationGroupType   | 1..1         | The identification of the nature of the time series.              | Allocation group                     |
| run_mRID           | SettlementVersionType | 1..1         | The identification of the version of the time series.             | Settlement result run identification |

### 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      |

#### Detail\_Series

| XML element | Data type    | Multiplicity | Description                                                                                    | Functional parameter |
|-------------|--------------|--------------|------------------------------------------------------------------------------------------------|----------------------|
| resolution  | DurationType | 1..1         | The definition of the number of units of time that compose an individual step within a period. | OVP (electricity)    |

#### 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     |

#### MarketParticipant

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

#### Point

| XML element | Data type | Multiplicity | Description                                                                         | Functional parameter |
|-------------|-----------|--------------|-------------------------------------------------------------------------------------|----------------------|
| position    | Integer   | 1..1         | A sequential value representing the relative position within a given time interval. | Position             |
| quantity    | Decimal   | 1..1         | The principal quantity or the accepted offer quantity identified for a point.       | Volume               |

#### Price

| XML element       | Data type | Multiplicity | Description                                                 | Functional parameter              |
|-------------------|-----------|--------------|-------------------------------------------------------------|-----------------------------------|
| price_amount      | Decimal   | 1..1         | A number of monetary units specified in a unit of currency. | Settlement price per position     |
| settlement_amount | Decimal   | 1..1         | A number of monetary units specified in a unit of currency. | To-be-settled amount per position |

#### Product

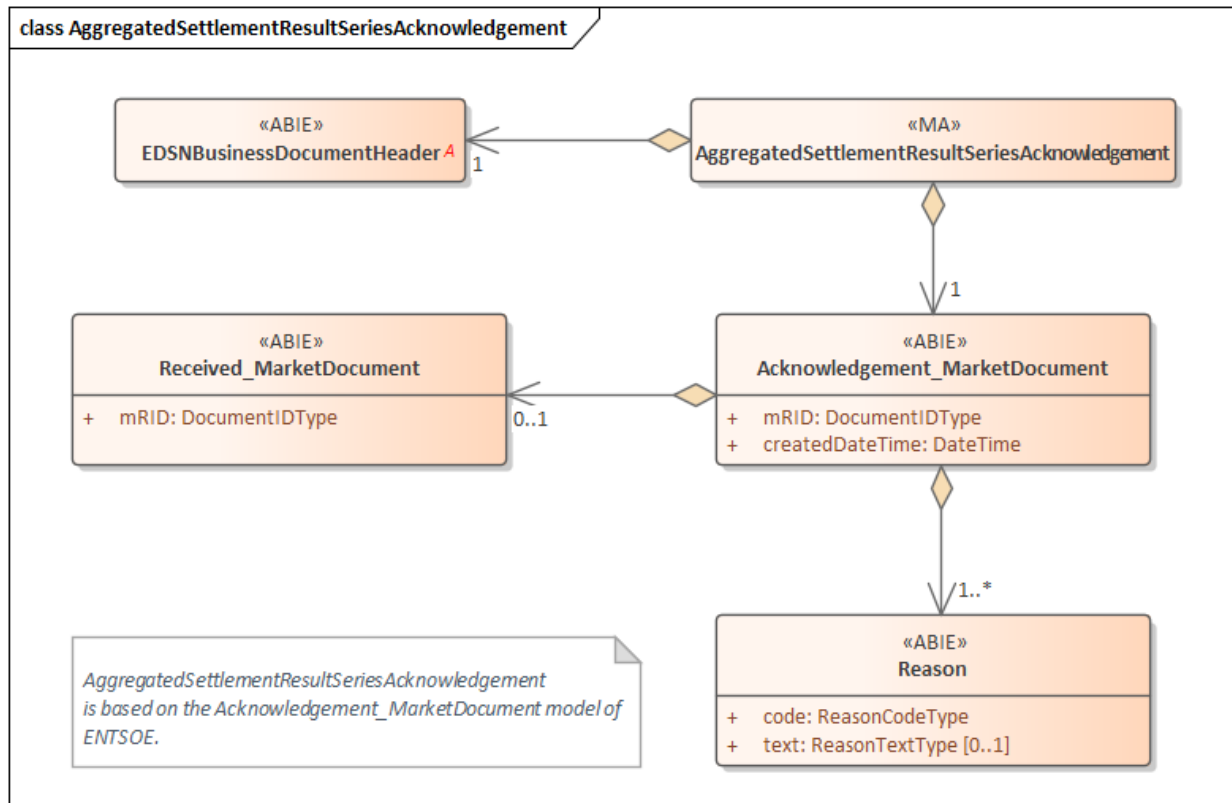
| XML element    | Data type                   | Multiplicity | Description                               | Functional parameter |
|----------------|-----------------------------|--------------|-------------------------------------------|----------------------|
| identification | EnergyProductIdentifierType | 1..1         | The unique identification of the product. | Product ID           |

| XML element | Data type      | Multiplicity | Description                             | Functional parameter |
|-------------|----------------|--------------|-----------------------------------------|----------------------|
| measureUnit | EnergyUnitType | 1..1         | The identification of the measure unit. | Energy unit          |

#### Volume\_Quantity

| XML element         | Data type  | Multiplicity | Description                                  | Functional parameter |
|---------------------|------------|--------------|----------------------------------------------|----------------------|
| volumeQuantity_type | VolumeType | 1..1         | The description of the type of the quantity. | Type volume          |

## 7.5 Confirmation/rejection notification Exchange settlement results for aggregated OVP volumes (AggregatedSettlementResultSeriesAcknowledgement)



### 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) |
| createdDateTime | DateTime       | 1..1         | The date and time of the creation of the document as per ISO 8601 YYYY-MM-DDThh:mm:ssZ.   | 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 confirmation/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 message identifier (UUID) |