

Business Service

Requesting reconciliation prices

Please note: the Dutch version is leading.

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Document management

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0.3	03-10-2023	Further elaborated and supplemented following decision to have this service prepared by EDSN	EDSN
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0.7	18-01-2024	'Peer Review' Messaging team MFF BAS processed	EDSN
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Referenced documents

Requirements model

No.	Description	Version	Date	Author
1.	IC 279 Settlementprijzen	1.0	18-10-2022	BAS
2.	BRS Reconciliatiegegevens	2.0	19-01-2024	Messaging team MFFBAS
3.	NEDU API strategie	1.0	16-12-2020	NEDU TC/WG API
4.	MFF BAS API Ontwerprichtlijnen	4.0	27-09-2023	MFF BAS/WG API
5.	MFF BAS URI Richtlijnen	2.0	01-05-2023	MFF BAS/WG API
6.	ebIX® Code list	1.3 rev.A	16-10-2023	ebIX TC
7.	ISO 8601 voor datum- en tijdsnotatie	1:2019	2019	ISO
8.	Aggregated Imbalance Information to BRPs	01:13	20-06-2023	TenneT
9.	Gebruikershandleiding API Aether	v5	02-11-2023	TenneT

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

You can also contact EDSN for more information about this document in the following ways.

EDSN B.V.	Telephone 033 - 422 46 20
Van Asch van Wijckstraat 55	E-mail servicedesk@edsn.nl
3811 LP Amersfoort	Internet www.edsn.nl

1 Introduction

1.1 Purpose and Scope service description

The service description describes the arrangements for requesting reconciliation prices. This service supports the process whereby the TSO supplies the reconciliation prices¹ per calendar month.

The reconciliation prices relate to:

- Price per calendar month (without distinction by tariff period);
- Price per calendar month for "normal" tariff period;
- Price per calendar month for "low" tariff period;
- Prices per calendar month per imbalance settlement period.

The scope of this data corresponds to sections a, b and c of the use case *UC A20.251 Publish market and public domain reconciliation prices* from the *Business Requirement Specification Reconciliation Data document*[2].

Goal Business Service Request reconciliation prices:

- Insight into reconciliation prices;
- Billing reconciliation volumes;
- Billing settlement volumes.

To give the reader a good idea of the exchange, a detailed process description is included as well as an indication of the information exchange to be used. For a functional description of the process, please refer to the document *Business Requirement Specification Reconciliation Data*[2].

1.2 Reading guide

This document describes the following aspects, including:

- Request reconciliation prices process;
- Check on the request;
- Approval/rejection of the request;
- Information model in the form of a class diagram.

¹ The applicable allocation and upward regulation volumes for the reconciliation and settlement processes will be supplied by another TenneT service.

1.3 Starting points

The following principles were used when designing the *Request reconciliation prices* service:

Date/time notation in XML notifications according to *MFF BAS API Design Guidelines*[4]

- The start and end dates in the request must include exactly one calendar month;
- The start and end date in the request must comply with the notation: YYYY-MM-DD;
 - Example start and end date/time in the request for calendar month (February 2025): 2025-02-01 / 2025-03-01²;
- The start and end date in the response is in UTC and in accordance with the notation: YYYY-MM-DDThh:mm:ssZ;
 - Example start and end date/time in the response for calendar month (February 2025, winter time): 2025-01-31T23:00:00Z / 2025-02-28T23:00:00Z;
- If reconciliation prices are requested that are not available and the query is correct, the requesting market party (the consumer) will receive an empty response;
- If reconciliation prices are requested and the request is not correct, the requesting market party (the consumer) will only receive a status code (see section 3.2);
- The reconciliation price per OVP is modelled as a separate time series.

1.4 Use of the service Requesting reconciliation prices

The table below shows the exchange of reconciliation prices from the transmission system operator to the market parties. The table also contains a reference to the relevant use cases from *Business Requirement Specification Reconciliation Data*[2].

Exchange	Provider	Consumer	BRS Use case
Reconciliation prices per calendar month			
Publish reconciliation prices for market parties	TSO	Market parties	A20.351

1.5 List of terms and abbreviations

Term	Description
BAS	Beheerder Afsprakenstelsel
BRS	Business Requirements Specification
EDSN	Energy Data Services Netherlands
EIC	Energy Identification Codes
ENTSO-E	European Network of Transmission System Operators for Electricity
TSO	Transmission system operator
MFF	Market Facilitating Forum

² IC048 clearly defines how to interpret date fields in notifications. In concrete terms: A start date is a “from” date (including the date itself). An end date is a “to” date (excluding the date itself).

2 Roles and responsibilities

2.1 Consumer

This service description describes how the consumers of this service (the market parties in the energy sector) request and receive the reconciliation prices.

2.2 Provider

This service description describes how the provider of this service (the transmission system operator, TSO) offers the reconciliation prices.

2.3 RACI

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

R (Responsible)	EDSN Business Integration
A (Accountable)	To be determined!
C (Consulted)	TenneT, Messaging team MFF BAS
I (Informed)	BAS, MFF, EDSN

3 BPMN Requesting reconciliation prices

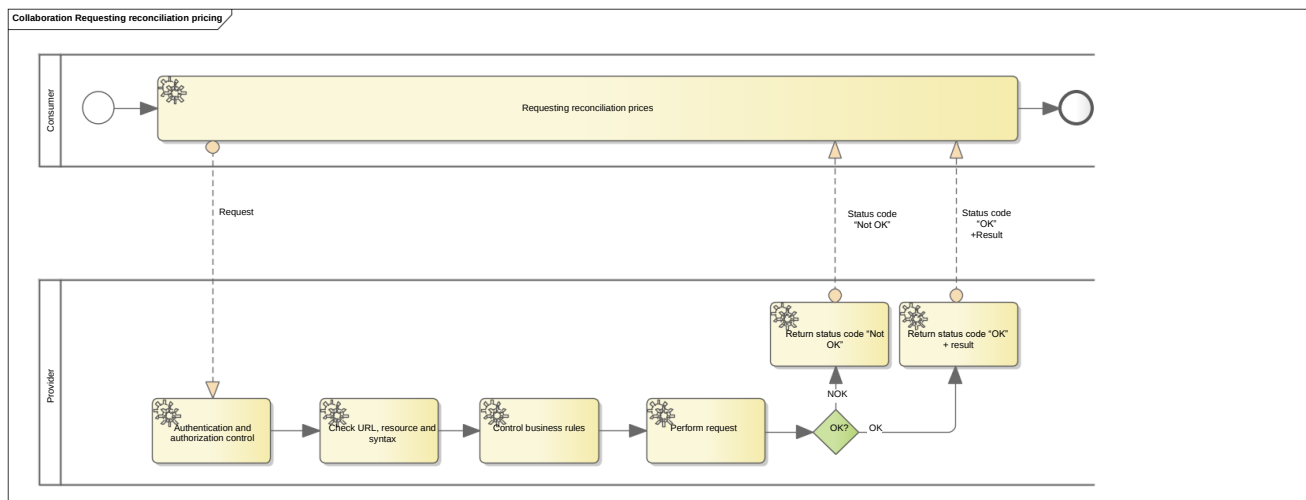


Figure 1 For detailed information about this process, see BRS Reconciliation results[2]

3.1 Process description Request reconciliation prices

The process for requesting reconciliation prices is based on the following scenario:

1. The consumer³ submits a "Request reconciliation prices" request by initiating the "Request reconciliation prices" service;
2. The provider⁴ will check the received request, as described in paragraph 3.2; The request will be rejected if there are inaccuracies;
3. If the received request is correct, the request will be executed and the provider will respond to the consumer with the requested reconciliation prices. If reconciliation prices are requested that are not available and the request is correct, the requesting market party (the consumer) will receive an empty response.

³ Is the requester (a market party) of reconciliation prices.

⁴ Is the supplier (TSO) of reconciliation prices.

3.2 Provider checks

Before the provider carries out the request "Request reconciliation prices", the provider will first carry out a number of checks. If one or more of these checks fail, the consumer will receive an error message saying why the request could not be executed.

The checks associated with the HTTP status codes 500 and 503 are not specifically a pre-check, but for run-time errors that can occur during the execution of the request. These situations also lead to the inability to comply with the request and the consumer is informed about it.

Control	HTTP status notification	HTTP status code
The consumer is authenticated for this service	Unauthorized	401
The consumer is authorized for this service	Forbidden	403
The resource with reconciliation prices is available	Not Found	404
The parameters in the request are valid	Bad request	400
The period from start date to end date is exactly one calendar month	Unprocessable Entity	422
The service for requesting reconciliation prices can handle the request	Internal Server Error	500
The service for requesting reconciliation prices is operational	Service Unavailable	503

4 Functional parameters

4.1 Request for reconciliation prices

Parties can request the reconciliation prices for a certain period by way of the RESIDUAL API. The period for the request is stipulated using a start and end date.

The following functional parameters apply when requesting the 4 different types of reconciliation prices (see Section 1.1):

Entry	Optionality	Multiplicity	Note	Enumeration/encoding
Product type	V	1..1	Permitted value (from ebIX® Code list[6]) and incl. a leading zero: Electricity	023
Bidding zone	V	1..1	For the time being, the Netherlands only consists of one bidding zone. Encoding is in accordance with the EIC Scheme	10YNL-----L[8]
Period Start Date	V	1..1	Start date complies with ISO 8601 notation[7]	YYYY-MM-DD
Period End Date	V	1..1	End date complies with ISO 8601 notation[7]	YYYY-MM-DD

Multiplicity explanation:

- Notation 0..1 means that the entry is optional or occurs at most once;
- Notation 1..1 means that the entry may occur once (mandatory);
- Notation 0..* means that the entry is optional or may occur more than once;
- Notation 1..* means that the entry may occur one or more times (mandatory).

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

4.2 Response Request reconciliation prices

The following functional parameters apply to the response to the *Request reconciliation prices*:

Entry	Optionality	Multiplicity	Note	Enumeration/encoding
Notification identification	V	1..1	A UUID as a unique identifier of the notification.	UUID
Product type	V	1..1	Permitted value (from ebIX® Code list[6]) and incl. a leading zero: Electricity	023
Bidding zone	V	1..1	The bidding zone in which the returned reconciliation prices are valid.	10YNL-----L
Start date period	V	1..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..1	End date/time is in UTC and in accordance with ISO 8601 notation[7].	YYYY-MM-DDThh:mm:ssZ

Reconciliation price per calendar month 3				
Price period	V	1..1	Permitted values (from ebIX® Code list[6]): Low Normal Total ⁵	E10 E11 E29
Product ID	V	1..1	Permitted value (from ebIX® Code list[6]): Active energy	8716867000030
Energy unit	V	1..1	Permitted values: Megawatt hours	MWh
Reconciliation price	V	1..1	Reconciliation price per calendar month.	Euros per MWh (with 2 decimal places)
Reconciliation price per position				
Resolution	V	1..1	Resolution is in accordance with ISO 8601 notation[7] for Duration: 15 minutes	PT15M
Product ID	V	1..1	Permitted value (from ebIX® Code list[6]): Active energy	8716867000030
Energy unit	V	1..1	Permitted values: Megawatt hours	MWh
Position	V	1..1	Position in the series in whole numbers. The first position in a series is "1".	Whole number
Reconciliation price	V	1..1	Reconciliation price per OVP.	Euros per MWh (with 2 decimal places)

Multiplicity explanation:

- Notation 0..1 means that the entry is optional or occurs at most once;
- Notation 1..1 means that the entry may occur once (mandatory);
- Notation 0..* means that the entry is optional or may occur more than once;
- Notation 1..* means that the entry may occur one or more times (mandatory).

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

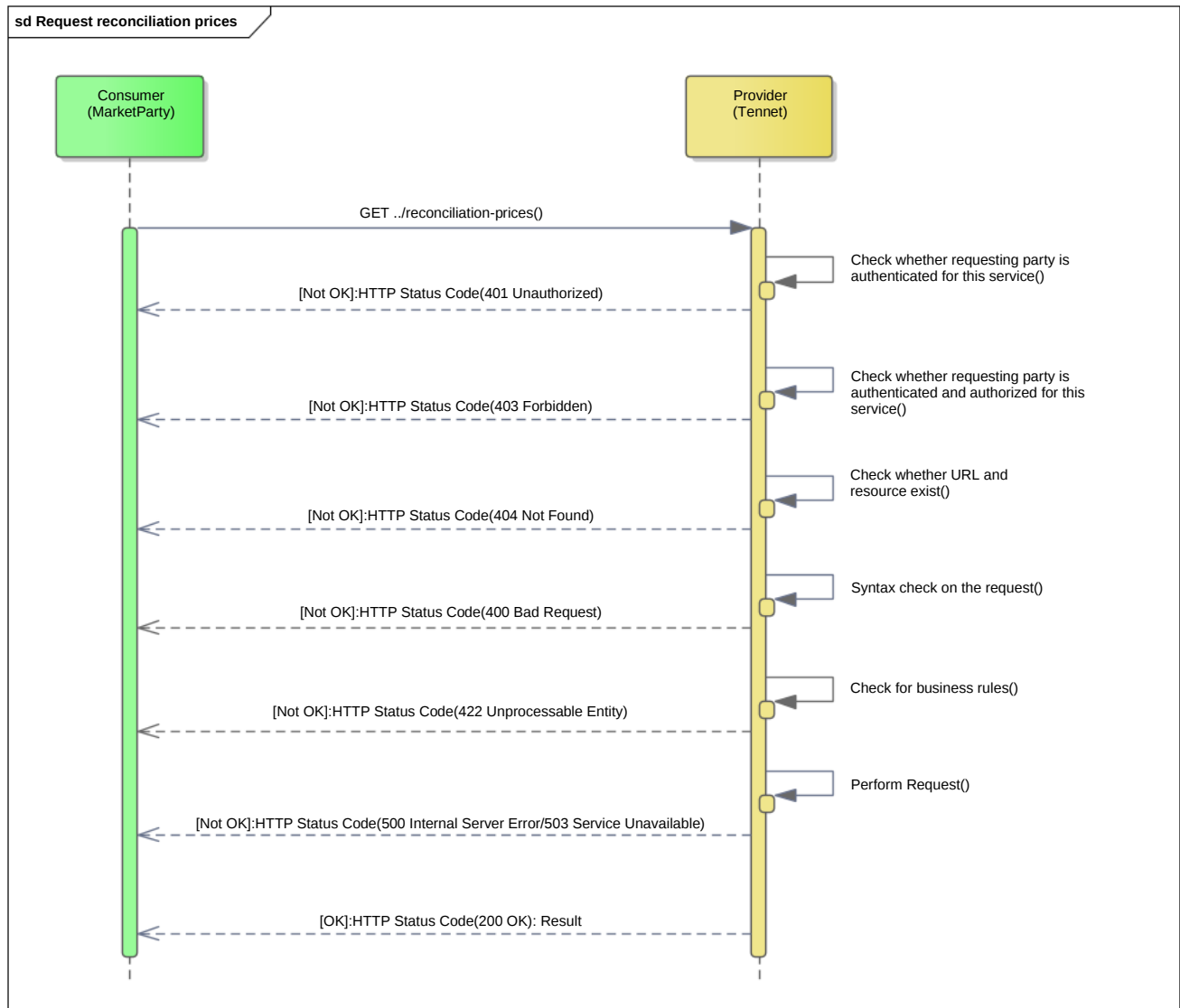
⁵ For identifying the reconciliation price without distinction by tariff period.

⁶ The 'n' is a minimum of 2688 positions (month February with 28 days) and a maximum of 2980 positions (month October with transition to winter time).

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.



6 Properties service Request Reconciliation Prices

Request Reconciliation Prices (ReconciliationPrices)	
Service	ReconciliationPrices
Service ID	BSCMF0089
Description	Service for requesting reconciliation prices by market parties.
Service transaction pattern	Request/Response (RESIDUAL operation GET) Request reconciliation prices: GET../energy-market/market-process/energy-exchange/reconciliation-prices-retrieval/v1/reconciliation-prices?bidding-zone=10YNL-----L&start-date=2025-01-31&end-date=2025-02-28&product=023
Precondition(s)	Request is be submitted by a consumer that is authorised and authenticated to do so.
Trigger	Request for reconciliation prices
Post condition(s)	- Request results in supply of reconciliation prices (HTTP status code 200); - Or - Request results in am empty response (HTTP status code 200); - Or - Request results in rejection (see paragraph 3.2 HTTP status codes).
Property	
Version	1.0.0
Date	08-03-2024
Availability (within SLA)	Calendar days from 08:00 – 17:00 (local time resp CET or CEST). Source: Tennet
Availability (outside SLA)	Calendar days from 17:00 – 08:00 (local time resp CET of CEST): submitted requests will be handled to "best effort". Source: Tennet
Average load	1000 requests per month. Source: Messaging team
Peak load	1 request per second. Source: User guide API Aether[9]
Period peak load	After the 11 th working day. Source: Messaging team
Time-out	N/a.

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.

The multiplicity shall be indicated as follows:

- Notation 0..1 means that the entry is optional or occurs at most once;
- Notation 1..1 means that the entry may occur once (mandatory);
- Notation 0..* means that the entry is optional or may occur more than once;
- Notation 1..* means that the entry may occur one or more times (mandatory).

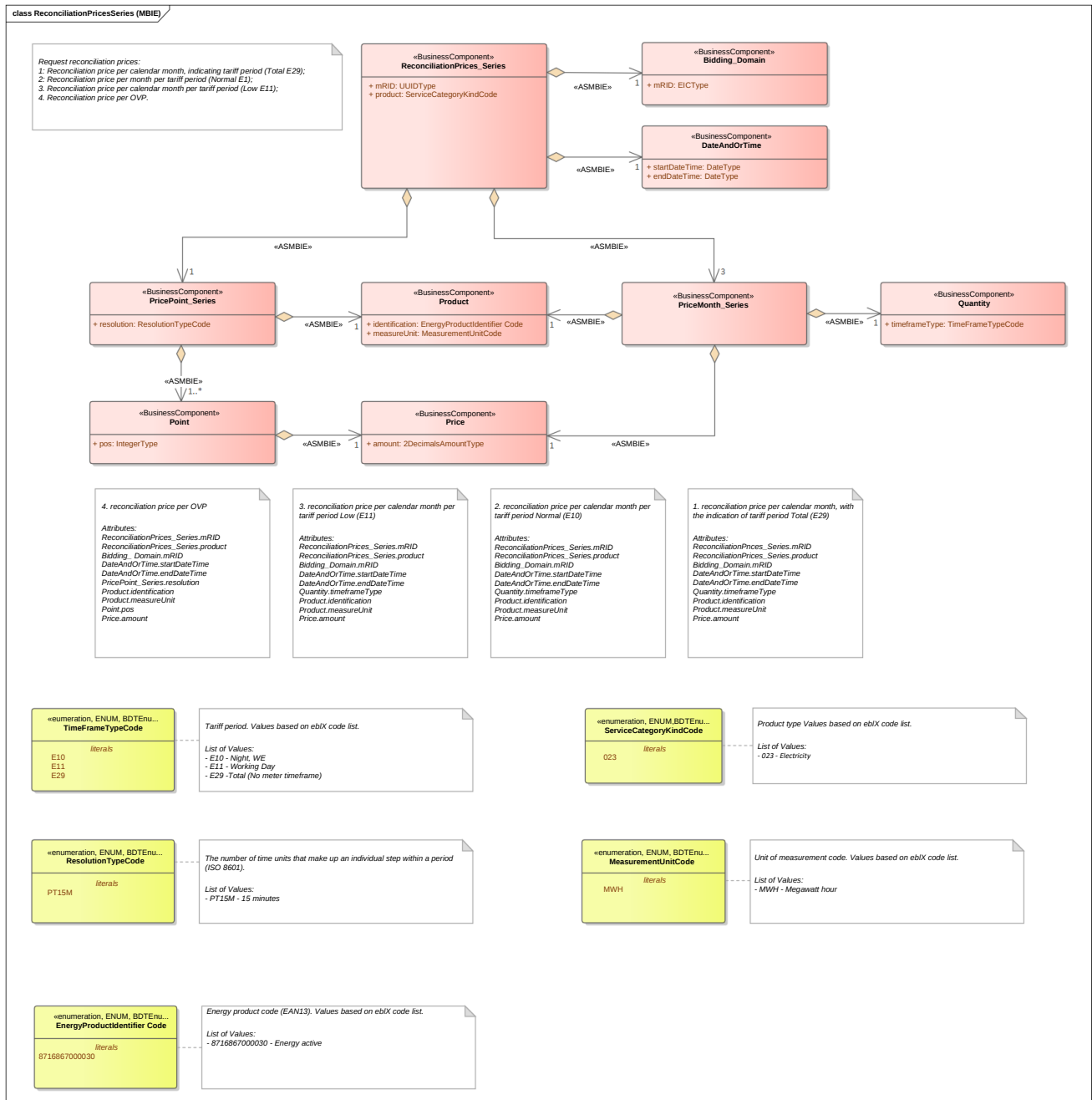
7.2 Request Reconciliation Prices (ReconciliationPrices)

The request Request Reconciliation Prices is a GET operation with parameters in the URL.
See Chapter 6, Service transaction pattern.

7.3 Response Request reconciliation prices (ReconciliationPrices)

The response for an unsuccessful request is an HTTP status code, see paragraph 3.2.

The response for a successful request is an HTTP 200 with the requested reconciliation prices in the *message body*, in accordance with the template below. If reconciliation prices are requested that are not available, the response will be empty (an HTTP 200 with an empty *message body*).



7.4 Classes and attributes List

Bidding_Domain

Attribute	Data type	Multiplicity	Description	Functional parameter
mRID	EIDType	1..1	Bidding Zone means the largest geographical area within which Market Participants are able to exchange energy without Capacity Allocation. Source: REGULATION (EU) 2019/943 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 5 June 2019 on the internal market for electricity Article 2, definition 65 Example: 10YNL-----L	Bidding zone

DateAndOrTime

Attribute	Data type	Multiplicity	Description	Functional parameter
startDateTime	DateTimeType	1..1	Start date/time of the period as per ISO 8601 YYYY-MM-DDThh:mm:ssZ Example: 2025-01-31T23:00:00Z	Start date period
endDateTime	DateTimeType	1..1	End date/time of the period as per ISO 8601 YYYY-MM-DDThh:mm:ssZ Example: 2025-02-28T23:00:00Z	End date period

Point

Attribute	Data type	Multiplicity	Description	Functional parameter
pos	IntegerType	1..1	A sequential value representing the relative position within a given time interval. The full attribute name "position" is because of efficiency changed into "pos". Example: 1	Position

Price

Attribute	Data type	Multiplicity	Description	Functional parameter
amount	2DecimalsAmountType	1..1	A number of monetary units specified in a unit of currency. Example: 10:22	Amount

PriceMonth_Series

Attribute	Data type	Multiplicity	Description	Functional parameter
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PricePoint_Series

Attribute	Data type	Multiplicity	Description	Functional parameter
resolution	ResolutionTypeCode	1..1	The definition of the number of units of time that compose an individual step within a period. Example: PT15M	Resolution

Product

Attribute	Data type	Multiplicity	Description	Functional parameter
identification	EnergyProductIdentifierCode	1..1	The unique identification (EAN13) of the product. Example: 8716867000030	Product ID
measureUnit	MeasurementUnitCode	1..1	The identification of the measure unit. Example: MWH	Energy unit (MWh)

Quantity

Attribute	Data type	Multiplicity	Description	Functional parameter
timeframeType	TimeFrameTypeCode	1..1	The coded identification of the timeframe. Example: E11	Price period

ReconciliationPrices_Series

Attribute	Data type	Multiplicity	Description	Functional parameter
mRID	UUIDType	1..1	A unique identification of the time series notification. Example: e3d5ced9-3b0a-4e46-ba55-4cad6cdf2e56	Notification identifier (UUID)
product	ServiceCategoryKindCode	1..1	The identification of the energy product (electricity, gas, etc.), from ebIX Code list incl. a leading zero. Example: 023	Product type