

Business Service

Request profile fractions electricity

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Document management

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0.83	15/11/2021	NEDU API Working group Working group C1
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1.9	17/01/2023	Working group C1 SI MFF BAS Design Authority MFF BAS SSG A2.0 MFF BAS
2.0	03/02/2023	MFF BAS

Referenced documents

Requirements model

No.	Description	Version	Date	Author
1.	BRS Allocatiegegevens elektriciteit	2.0	03/02/2023	Working group C1

Design frameworks and guidelines

No.	Description	Version	Date	Author
2.	NEDU API strategie	1.0	16/12/2020	NEDU TC/WG API
3.	NEDU API ontwerprichtlijnen	3.0	26/05/2021	MFF CoP-A/WG API
4.	NEDU API URI richtlijnen	1.0	16/12/2020	NEDU TC/WG API

Service descriptions and data model

No.	Description	Version	Date	Author
5.	ebIX® Code list	1.0A	June 2019	ebIX TC
6.	ISO 8601 for date and time stamping	1:2019	2019	ISO

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1 Introduction

1.1 Service description

The service description describes the arrangements for requesting the dynamic profile fractions for all grid areas and relevant profile categories, and for requesting the standard profile fractions for all profile categories for a given period¹.

To give the reader a good idea of the exchange, a detailed process description is included as well as an indication of the messages to be used. For a functional description of the process, please refer to the Business Requirement Specification Allocation Data electricity [1].

1.2 Reading guide

This document describes the following aspects, including:

- Process *Request profile fractions electricity*;
- Check on the request;
- Confirmation/rejection of the request;
- JSON data models.

1.3 Starting points

The following principles were used when designing the service *Request profile fractions electricity*:

- Date and date/time format is in accordance with ISO 8601[6] as prescribed in *the NEDU API Design Guidelines*[3];
- The start and end date period in the **request** are compliant with the notation: YYYY-MM-DD;
 - Example start and end date period for **a calendar day** (February 9, 2020):
2020-02-09 / 2020-02-10²;
 - Example start and end date period for **a month** (February 2020):
01/02/2020 / 01/03/2020³;
- The start and end date period in the **response** is in UTC and compliant with notation: YYYY-MM-DDThh:mm:ssZ;
 - Example start and end date time **calendar day** (9 February 2020, winter time):
2020-02-08T23:00:00Z / 2020-02-09T23:00:00Z;
 - Example start and end date time **calendar day** (29 March 2020, change winter time to summer time): 2020-03-28T23:00:00Z / 2020-03-29T22:00:00Z;
 - Example start and end date time **calendar day** (09 June 2020, summer time):
2020-06-08T22:00:00Z / 2020-06-09T22:00:00Z;
 - Example start and end date time **calendar day** (25 October 2020, change summer time to winter time): 2020-10-24T22:00:00Z / 2020-10-25T23:00:00Z;
 - Example start and end date time **month** (February 2020, winter time):
2020-01-31T23:00:00Z / 2020-02-29T23:00:00Z;
 - Example start and end date time **month** (June 2020, summer time):
2020-05-31T22:00:00Z / 2020-06-30T22:00:00Z;
- Where this service description refers to "distribution system operator", "system operator", "DSO" or "SO", this can also be read as "GDS operator";
- If standard profile fractions or dynamic profile fractions are requested that are not yet available, the requesting party (the consumer) will receive a status code (see paragraph 3.2). If part of the requested standard profile fractions or dynamic profile fractions are already available, only this part will be returned;
- Profile category from go live Allocation 2.0 tranche 2: A classification for connections based on objectively determined characteristics such as connection value, switching times, contracted transport

¹ Period is a minimum of 1 full calendar day and a maximum of 31 full calendar days.

² IC048 clearly defines how to interpret date fields in messages. 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).

³ IC048 clearly defines how to interpret date fields in messages. 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).

capacity, defined acquisition type and operating time.

1.4 Use of the service *Request profile fractions electricity*

The table below shows the exchange of the profile fractions from the regional grid operator to the requesting parties. The table also contains a reference to the relevant use cases from the BRS[1].

Exchange	Provider of profile fractions	Consumer of profile fractions	BRS Use case
Dynamic profile fractions			
Publish dynamic profile fractions for market parties- and public parties	DSO	Market parties Public parties	A20.221
Default profile fractions			
Publish standard profile fractions for market parties and public parties	DSO ⁴	Market parties Public parties	A20.231

1.5 List of abbreviations

Abbreviation	Description
AMI	Acquisition with infeed
ASIA	Acquisition without infeed
BRP	Balance responsible Party (formerly PV)
BRS	Business Requirements Specification
CVP	User Profiles Committee
EDSN	Energy Data Services Nederland B.V.
GDS	Closed distribution system
GV	Large consumption
KV	Small consumption
TSO	Transmission System Operator
LV	Supplier
SO	System operator All references to SO can also be read as TSO or DSO
DSO	Distribution System Operator

1.6 Disclaimer

The terms of this disclaimer apply to this English service description.

In the event of any conflict between this English service description and the Dutch version of this service description, the Dutch service description will prevail.

⁴ Standard profile fractions are drawn up by the User Profiles Committee. Publishing the standard profile fractions on a publicly accessible location is not part of the scope for this service.

2 Roles and responsibilities

2.1 Consumer

This service description describes how the consumers (market parties and public parties) request and receive the profile fractions.

2.2 Provider

This service description describes how the provider (supplier DSO) offers the profile fractions.

2.3 RACI

The RACI below shows the roles and responsibilities for service description *Request profile fractions electricity*:

R (Responsible, NL: Verantwoordelijk)	EDSN Business Integratie
A (Accountable, NL: Eindverantwoordelijk)	To be determined!
C (Consulted, NL: Raadplegen)	NEDU-ICWE, ebIX Technical Committee, NEDU API work group
I (Informed, NL: Informeren)	NEDU General Meeting of Members, EDSN, Platform User profiles

3 BPMN Request profile fractions electricity

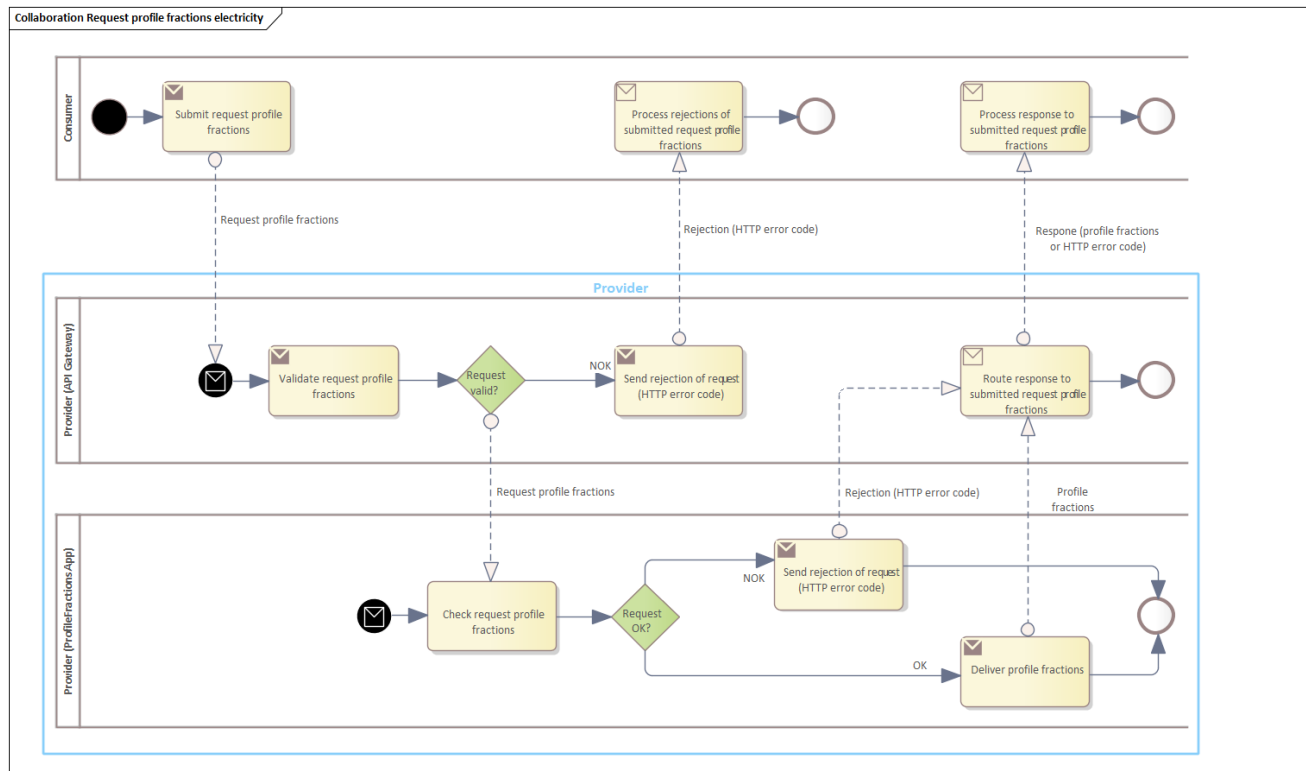


Figure 1 For detailed information about this process, see BRS Allocation data electricity[1]

3.1 Request profile fractions electricity

The process for requesting profile fractions follows the following scenario:

1. The consumer⁵ submits a request "Request for profile fractions electricity" via request GET ProfileFractions;
2. The provider⁶ first syntactically validates the received request (message). In the event of errors, the message is immediately rejected and the applicant is expected to correct the errors and to resubmit the message;
3. If the received request (message) is syntactically valid, it will be handled;
4. The provider⁷ will check the actual content of the request, as described in "checks"⁸ paragraph;
5. If the request is approved, the provider will send the profile fractions to the consumer via reply ProfileFractions;
6. If the request is functionally rejected, the provider will send a rejection to the consumer.

⁵ Is the requester (a market party) of profile fractions.

⁶ Is the provider (DSO) of profile fractions.

⁷ Is the provider (DSO) of profile fractions.

⁸ If standard profile fractions or dynamic profile fractions are requested that are not yet available, the requesting market party (the consumer) will receive an error message. If part of the requested standard profile fractions or dynamic profile fractions are already available, only this part will be returned.

3.2 Provider checks

Following the message “Request profile fractions electricity”, the provider will have the following checks and notifications at his disposal and carries out these checks:

Control	HTTP status message	HTTP status code
The consumer is authorized and authenticated for this service.	Unauthorized	401
The syntax of the message is valid.	Bad request	400
The EAN code 18 for the grid area is administered by the regional grid operator.	Bad request	400
The requested dynamic profile fractions or standard profile fractions are available ⁹ .	Not Found	404
The start date of the period is before the end date of the period.	Unprocessable Entity	422
The requested period is a minimum of 1 full calendar day and a maximum of 31 full calendar days.	Forbidden	403
The requested period for dynamic profile fractions of all grid areas is a maximum of 1 calendar day.	Forbidden	403
The service for requesting profile fractions electricity can handle the query.	Internal Server Error	500
The service for requesting profile fractions electricity is operational.	Service Unavailable	503

⁹ If part of the requested standard profile fractions or dynamic profile fractions are already available, then this part will be returned.
Also see paragraph 1.3 Starting points

4 Functional parameters

4.1 Request for profile fractions electricity

The following combinations of dynamic profile fractions can be obtained:

1. The latest version of dynamic profile fractions per calendar day, for all grid areas and all relevant profile categories¹⁰;
2. The latest version of dynamic profile fractions over maximum 31 calendar days, for one grid area for all relevant profile categories.

You can also request standard profile fractions:

1. The latest version of standard profile fractions over a maximum of 31 calendar days, for all profile categories.

The following functional parameters apply to a request for dynamic profile fractions/standard profile fractions:

Name	Elek	1/n	Note	Enumeration
Profile fraction	V	1	Indicates whether it is a request for dynamic profile fractions or standard profile fractions.	DYNAMIC STANDARD
Product type	V	1	Allowed values (from eblX Code list[5] and including a leading zero): Electricity	023
EAN code grid area	O	1	The identifying EAN18 code of the grid area. If included in the dynamic profile fractions request, the dynamic profile fractions for the concerned grid area over the requested period are returned in the response. If NOT included in the dynamic profile fractions request, the dynamic profile fractions for all grid areas will be returned in the response provided that the requested period is a maximum of 1 calendar day. Ignored if included in the request for standard profile fractions.	
Period Start Date	V	1	Start date is compliant with ISO 8601 notation[6]: YYYY-MM-DD	
Period End Date	V	1	End date is compliant with ISO 8601 notation[6]: YYYY-MM-DD Period Start date to End Date is a minimum of 1 full calendar day and a maximum of 31 full calendar days ¹¹ .	

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) if required for the context of the concerned message.

¹⁰ Profile categories E1A, E1B, E1C, E2A and E2B.

¹¹ IC048 clearly defines how to interpret date fields in messages. 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).

4.2 Response to Request for profile fractions electricity

The following functional parameters apply to the Request for profile fractions electricity:

Name	Elek	1/n	Note	JSON code
Message Reference	V	1	A UUID as a unique identifier of the message.	
Profile fraction	V	1	Indicates whether it is a response to a request for dynamic profile fractions or standard profile fractions.	DYNAMIC STANDARD
Product type	V	1	Allowed values (from eblX Code list[5] and including a leading zero): Electricity	023
Start date period	V	1	Start date time is in UTC and in accordance with ISO 8601 notation[6]: YYYY-MM-DDThh:mm:ssZ	
End date period	V	1	End date time is in UTC and in accordance with ISO 8601 notation[6]: YYYY-MM-DDThh:mm:ssZ	
Profile fraction¹²		n		
Date/time profile fraction series	V	1	When requesting dynamic profile fractions: Date/time stamp on which the dynamic profile fractions were determined, even if the determination resulted in the use of standard profile fractions. When requesting default profile fractions: Date/Time stamp on which the default profile fractions were determined by the Platform User Profiles. Date/time compliant with ISO 8601 format[6]: YYYY-MM-DDThh:mm:ssZ	
Calendar day	V	1	Date of day to which the profile fraction series relates. Date is compliant with ISO 8601 notation[6]: YYYY-MM-DD	
EAN code grid area	A	1	The identifying EAN18 code of the grid area. Only included for dynamic profile fractions.	
Profile category	V	1	Profile category identifier. For dynamic profile fractions: For standard profile fractions:	E1A E1B E1C E2A E2B E1A E1B E1C E2A E2B E3A E3B E3C E3D E4A
Determined acquisition type	A	1	Indicates whether there is acquisition with infeed or acquisition without infeed. Only included for profile category E1A, E1B, E1C, E2A or E2B. Allowed values: Acquisition with infeed Acquisition without infeed	AMI ASIA
Energy direction	V	1	Allowed values (from eblX Code list[5]): Decrease Feed	E17 E18
Imbalance settlement period (electricity)	V	1	Resolution is in accordance with ISO 8601 notation[6] for <i>Duration</i> . Permissible values electricity: 15 minutes	PT15M
Status profile fractions	V	1	When requesting dynamic profile fractions:	

12 Time series for profile fractions per calendar day/grid area (if applicable)/profile category/defined acquisition type/energy direction.

Name	Elek	1/n	Note	JSON code
			Indication of whether it is a profile series that has been calculated based on the method and calculation rules defined for determining the dynamic profile fraction or whether one has fallen back on the standard profile fractions. Allowed values: Dynamic profile fractions Fallback dynamic profile fractions (reference area) Fallback dynamic profile fractions (rural) Default profile fractions For a request for standard profile fractions:	DYN FBR FBL STD STD
Profile fraction per position		n		
Position	V	1	Position in the series in whole numbers. The first position in a series is "1".	
Profile fraction value	V	1	Profile fraction as a decimal number, always to 8 decimal places.	

Mandatory fields (V) are always filled; optional fields (O) or dependent fields (A) if required for the context of the concerned message.

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 if one or more messages between objects. The messages in the sequence diagram are explained in more detail in the chapter Information Model.

The following sequence diagram relates to a request for profile fractions:

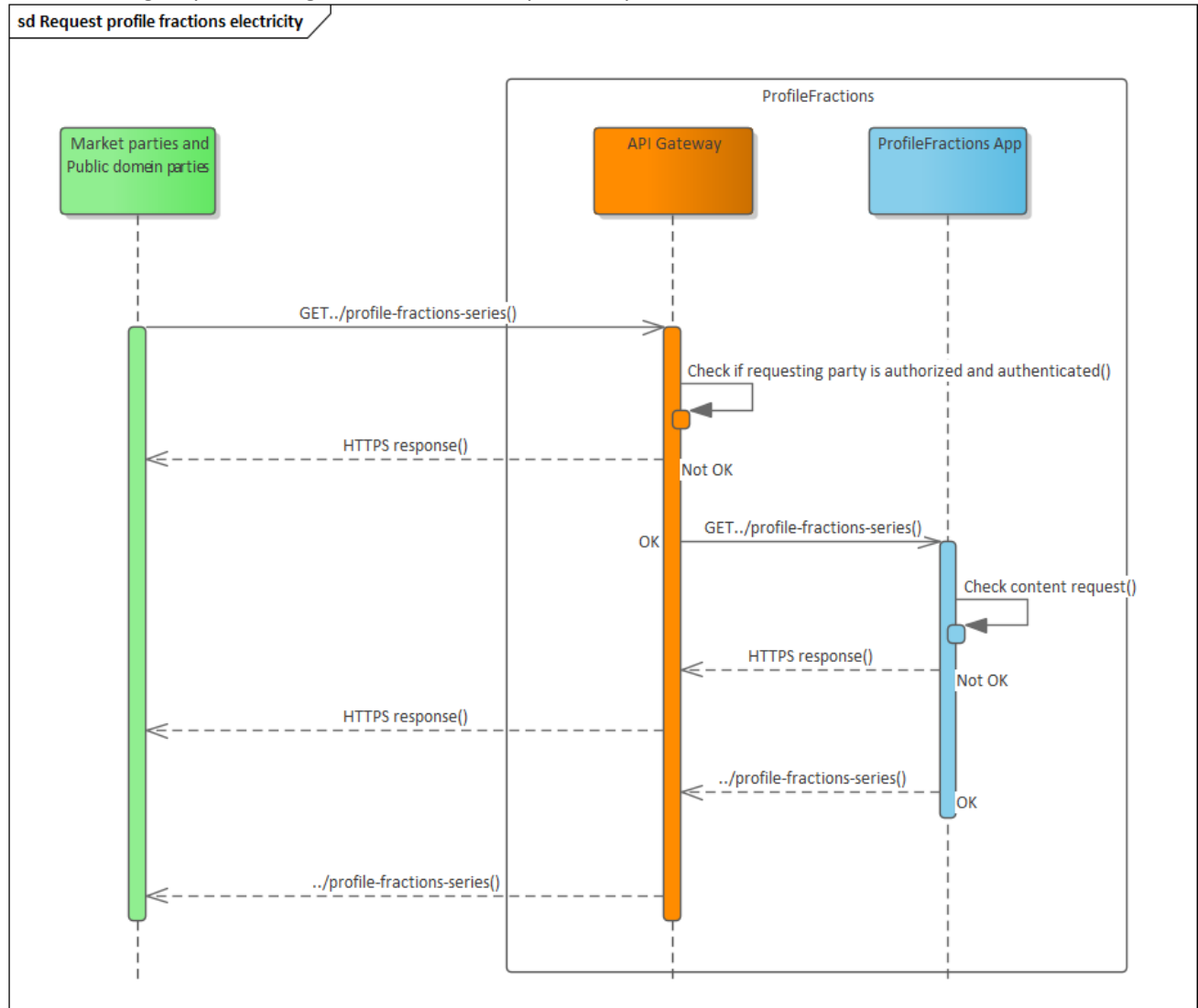


Figure 2 The sequence diagram for Request profile fractions electricity

6 Properties service Request profile fractions electricity

Request profile fractions electricity	
Service	ProfileFractions
Service ID	BSCMF0077
Description	Request profile fractions electricity
Service transaction pattern	Request/Response (REST operation GET¹³) Request dynamic profile fractions: GET ../energyvalues/profile-fractions-series/v1/profile-fractions?domain={EAN18}&enddate={YYYY-MM-DD}&pftype=DYNAMIC&product=023&startdate={YYYY-MM-DD} Request standard profile fractions: GET ../energyvalues/profile-fractions-series/v1/profile-fractions?enddate={YYYY-MM-DD}&pftype=STANDARD&product=023&startdate={YYYY-MM-DD}
Precondition(s)	Request is be submitted by a consumer that is authorised and authenticated to do so.
Trigger	Request for profile fractions electricity
Post condition(s)	- Request results in profile fractions being supplied; - or - Request results in rejection (see HTTP status codes).
ProfileFractions	
REST APO	profile-fractions-series
Version	1.0.0
Date	16/12/2021
Availability (within SLA)	Calendar days from 08:00 am – 22:00 pm (local time resp. CET or CEST)
Average load	N/a.
Peak load	N/a.
Period peak load	N/a.
Availability (outside SLA)	Calendar days from 22:00 – 08:00 pm (local time resp. CET of CEST): submitted Request <i>for profile fractions electricity</i> is handled to "best effort".
Max. response time	N/a.
Time-out	N/a.

¹³ Used as read to request a resource from the server. Data is only requested and not modified.

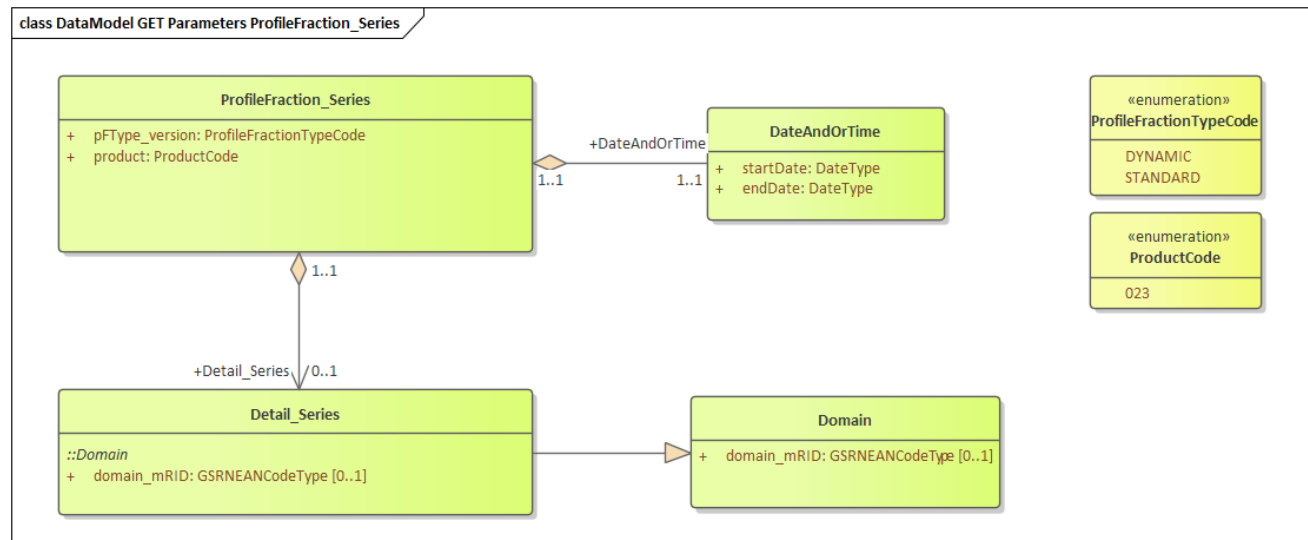
7 Information model

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" messages exchanged for acknowledgement.

Multiplicity is indicated for 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 1 or more times (mandatory).

7.2 Request for electricity profile fractions (ProfileFractions)



DateAndOrTime

JSON element	Data type	Multiplicity	Description	Functional parameter
startDate	DateType	1..1	Start date of the requested period as per ISO 8601 YYYY-MM-DD.	Period Start Date
endDate	DateType	1..1	End date of the requested period as per ISO 8601 YYYY-MM-DD.	Period End Date

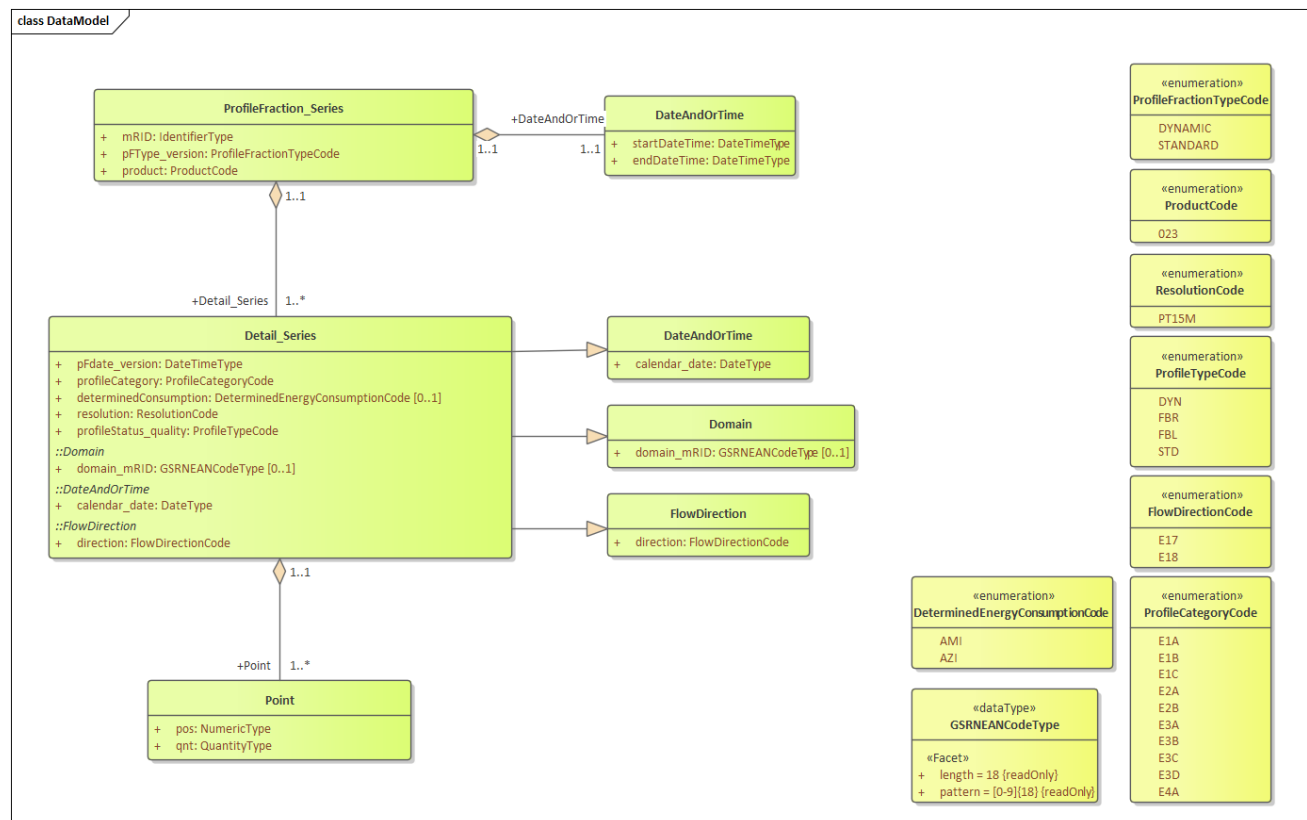
Detail_Series

JSON element	Data type	Multiplicity	Description	Functional parameter
domain_mRID	GSRNEANCodeType	0..1	The unique identification of the domain.	EAN code grid area

ProfileFraction_Series

JSON element	Data type	Multiplicity	Description	Functional parameter
pFType_version	ProfileFractionTypeCode	1..1	The identification of the type of the profile fractions time series. The full attribute name "profileFractionType_version" is because of efficiency changed into "pFType_version".	Profile fraction (indication whether it is a request for dynamic profile fractions or standard profile fractions)
product	ProductCode	1..1	The identification of the energy product (electricity, gas etc.), from ebIX Code list incl. additional zero (electricity is 023).	Product type

7.3 Response to request for Request profile fractions electricity (ProfileFractions)



DateAndOrTime

JSON element	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.	Start date period
endDateTime	DateTimeType	1..1	End date/time of the period as per ISO 8601 YYYY-MM-DDThh:mm:ssZ.	End date period

Detail_Series

JSON element	Data type	Multiplicity	Description	Functional parameter
pFdate_version	DateTimeType	1..1	Date/time stamp of the calculation or fixation for the profile fractions time series as per ISO 8601 YYYY-MM-DDThh:mm:ssZ.	Date/time profile fraction series
profileCategory	ProfileCategoryCode	1..1	The identification of the profile category that is the common denominator used to aggregate a time series. The full attribute name "profileCategory_objectAggregation" is because of efficiency changed into "profileCategory".	Profile category

JSON element	Data type	Multiplicity	Description	Functional parameter
determinedConsumption	DeterminedEnergyConsumptionCode	0..1	The identification of the determined energy consumption that is the common denominator used to aggregate a time series. The full attribute name "determinedEnergyConsumption_objectAggregation" is because of efficiency changed into "determinedConsumption".	Determined acquisition type
resolution	ResolutionCode	1..1	The definition of the number of units of time that compose an individual step within a period.	Imbalance settlement period (electricity)
profileStatus_quality	ProfileTypeCode	1..1	The quality of the information being provided.	Status profile fractions
calendar_date	DateType	1..1	Date as per ISO 8601 YYYY-MM-DD.	Calendar day
domain_mRID	GSRNEANCodeType	0..1	The unique identification of the domain.	EAN code grid area
direction	FlowDirectionCode	1..1	The coded identification of the direction of energy flow.	Energy direction

Point

JSON element	Data type	Multiplicity	Description	Functional parameter
pos	NumericType	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".	Position
qnt	QuantityType	1..1	The principal quantity or the accepted offer quantity identified for a point. The full attribute name "quantity" is because of efficiency changed into "qnt".	Profile fraction value

ProfileFraction_Series

JSON element	Data type	Multiplicity	Description	Functional parameter
mRID	IdentifierType	1..1	A unique identification of the profile fractions time series.	Message Reference

JSON element	Data type	Multiplicity	Description	Functional parameter
pFType_version	ProfileFraction TypeCode	1..1	The identification of the type of the profile fractions time series. The full attribute name "profileFractionType_version" is because of efficiency changed into "pFType_version".	Profile fraction (indication whether it involves dynamic profile fractions or standard profile fractions)
product	ProductCode	1..1	The identification of the energy product (electricity, gas etc.), from ebIX Code list incl. additional zero (electricity is 023).	Product type