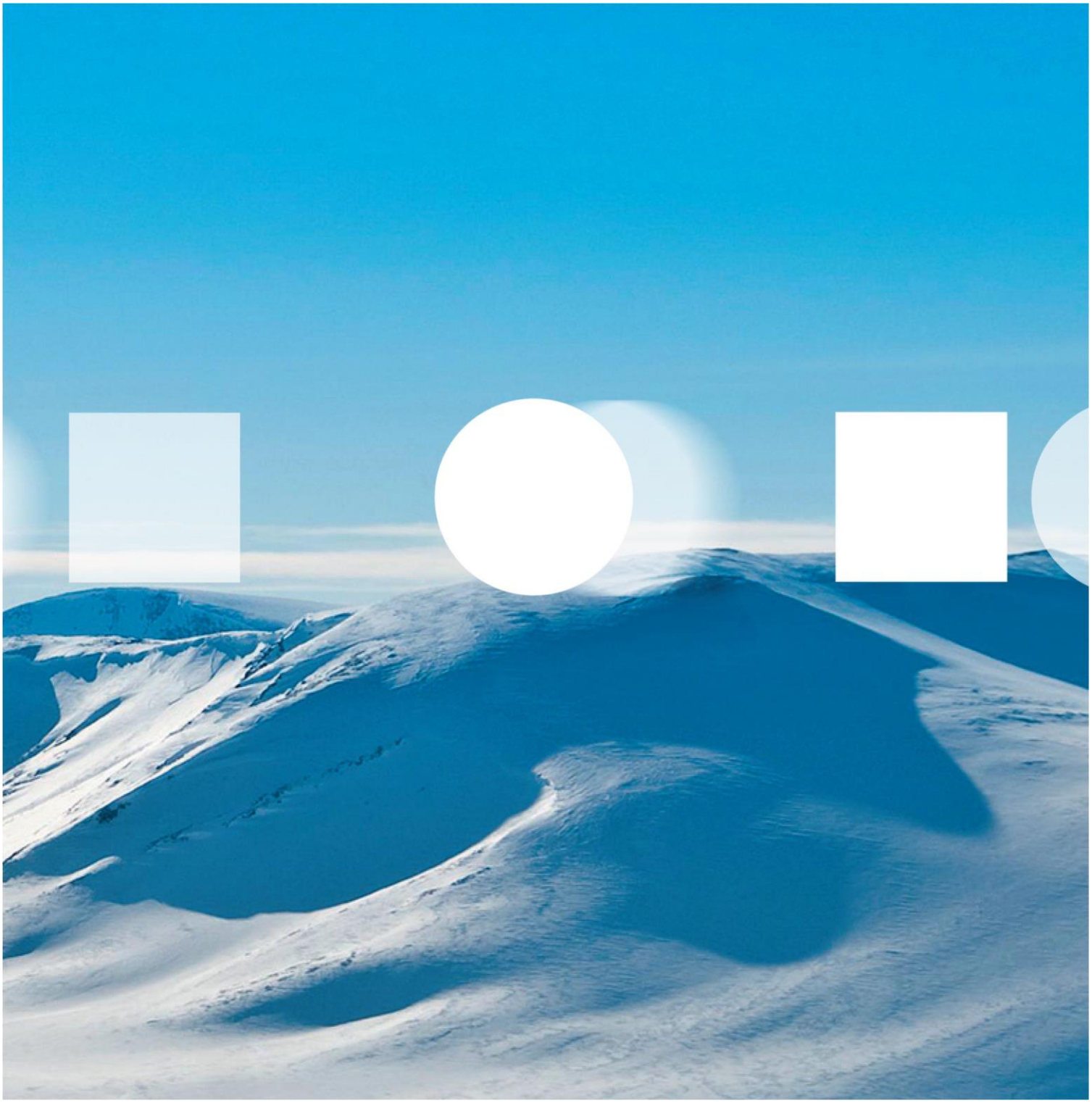
Elhub

Elhub Business Information Model (BIM)



Versjon 1.8 | 08.08.2019

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1 Background

1.1 About this document

This document specifies the information exchanged between the parties in the electrical energy industry and Elhub. It contains specifications of all electronic messages exchanged between Elhub, Balance Suppliers, Grid Access Providers and other parties.

1.2 BIM References

1. Forskrift om måling, avregning og samordnet opptreden ved kraftomsetning og fakturering av nettjenester av 11. mars 1999 med til en hver tid siste endring, NVE, www.nve.no
2. Information regarding GS1 (EAN) measuring point ID and GLN, www.gs1.no
3. Rolemodel for the norwegian energy market, www.ediel.no
4. NordREG recommendations, www.nordicenergyregulators.org/
5. NordREG report: NordREG Rapport 4/2011 Rights and obligations of DSOs and suppliers in the customer interface.
6. ebIX® Business Requirement Specifications, www.ebix.org
7. ENTSO-E implementation guides, see https://www.entsoe.eu/publications/electronic-data-interchange-edi-library/

1.3 BIM Change log

Date	Version	Change
19.05.2014	1.0	Initial version
04.07.2014	1.1	Completed chapter 6 and 7
12.12.2014	1.2	Added 3 new elements in Metering Point Characteristics: 1. Installed capacity 2. Start Date Metering Read 3. Priority Removed element ReportToNECS in Metering Point Characteristics. The above changes affect the following messages: 9 – NotifyMeteringPointCharacteristics 10 – PortfolioOverview 17 – ResponseUpfrontMeteringPointCharacteristics 21 – RequestUpdateMasterDataMeteringPoint Added possibility for 2 instances of customer address connected to a MeteringPoint. Added AddressType to CustomerAddress element. Adjusted valid codes for BusinessType.

Date	Version	Change
		NACE division code (Næringskode) to be used for both company and household customers. Removed Consumption code. Changed cardinality on Communication class from 0..* to 0..99. Included version in message table in chapter 4.1. Included version and acknowledgement messages in process component table in chapter 4.2. Included Version and TestFlag as attributes in the root element on all messages. Described in chapter 3.2 and 3.3. Adjusted Dependencies matrix in chapter 5.22.2.1. Added Dependencies matrix in chapter 5.2.2.1. Changes in 3.5 and.6.1.3 regarding Acknowledgement message. Changes in 5.38, 6.2.32 and 7.2.32 regarding Produced volume to NECS. The NBS project has specified the content of this message since the NBS system will send it to NECS post NBS production start and pre Elhub production start.. The message is based on the ebIX® message ValidatedDataForLabelingForCertificateIssuer and the Elhub message is adjusted according to the NBS specification and renamed.
07.08.2015	1.3	Removed the following process components due to merging and deletion of BRSs: 12, 17, 18, 20, 42, 43, 44, 45, 46, 47, 48. Renumbered the following process components: 46 to 41 and 44 to 40. Removed element PhysicalStatusType and changed cardinality from optional to mandatory on element MeteringPointAccountable and BlockedForSwitching in the MPDetailMeteringPointCharacteristics class in message 21 – RequestUpdateMasterDataMeteringPoint. New elements MeteringPointTypeLastChanged, MeterReadingCharacteristicsLastChanged, SettlementMethodLastChanged in the MPDetailMeteringPointCharacteristics class and element LastChanged in the MeterInstallationMeterFacility class added in the following messages: 9 – NotifyMeteringPointCharacteristics 10 – PortfolioOverview New element ExtendedStoreageMeteringValues in the ConsumerInvolvedCustomerParty class in the following messages: 1- RequestStartOfSupply 4-NotifyStartOfSupply 9 – NotifyMeteringPointCharacteristics 10 – PortfolioOverview 24-RequestUpdateCustomerInformation 27-NotifyCustomerInformation (Changed name of payload class from PayloadMPEvent to PayloadMasterDataMPEvent) 34-UpdateThirdPartyAccess

Date	Version	Change
		New class MeasurementProfile in message 21 – RequestUpdateMasterDataMeteringPoint and 9-NotifyMeteringPointCharacteristics Changes in the Header class used which is used in all messages: New elements: • PhysicalSenderEnergyParty • RequestPositiveAcknowledgement Renamed elements: • SenderEnergyParty to JuridicalSenderEnergyParty • RecipientSenderEnergyParty to JuridicalRecipientEnergyParty Replaced positive acknowledgement messages (Confirm...), except ConfirmStartOfSupply and ConfirmEndOfSupply, with the Acknowledgement message with status 39-Accepted. Replaced negative acknowledgement messages (Reject... and NegativeResponse...), except RejectStartOfSupply and RejectEndOfSupply, with the Acknowledgement message with status 41-Rejected. Renamed message RequestThirdPartyAccess to UpdateThirdPartyAccess. Added period and UpdateIndicator to the message. Changed cardinality from 9999 to 1. Extended message NotifyStartOfSupply according to §§ 2-5 and 2-6 in regulation 301. All elements of type dataTime must include TimeZone. Identification in the Header class of all messages and OriginalDocumentReference in the Payload class of some messages must be an UUID (Universally Unique Identifer). Namespace changed to Elhub namespace instead of ebIX namespace for all messages. Content of element ProcessEnergyContext/EnergyBusinessProcess changed from ebIX codes to Elhub BRS numbers in all messages. Restructured the Observation class in the messages handling metering values: 14-CollectedData 20-NotifyValidatedDataForBillingEnergy 30-PriceVolumeCombinationForReconcilation Added new element Description in the Communication class and new element ConsumptionCode in the ConsumerInvolvedCustomerParty class. Changed enumeration for address type from 1 and 2 to postaldr and invoiceadr. Renamed attribute schemeAgencyIdentifier to listAgencyIdentifier on element CountryCode. Used in the following messages: 1- RequestStartOfSupply 4-NotifyStartOfSupply 5-RequestEndOfSupply 8-NotifyEndOfSupply 9 – NotifyMeteringPointCharacteristics 10 – PortfolioOverview 17 – ResponseUpfrontMeteringPointCharacteristics 24-RequestUpdateCustomerInformation 27-NotifyCustomerInformation (Changed name of payload class from PayloadMPEvent to PayloadMasterDataMPEvent)

Date	Version	Change
		Removed Version and TestFlag attributes in the root element of all messages Changes in class MPDetailMeteringPointCharacteristics: Split element MeteringPointSubType in two elements: MeteringPointSubTypeConsumption and MeteringPointSubTypeProduction. Renamed element MeteringMethodType to MeterReadingCharacteristics. New elements: MeasurementProfile and BlockedForSwithcing. Used in the following messages: 9 – NotifyMeteringPointCharacteristics 10 – PortfolioOverview 17 – ResponseUpfrontMeteringPointCharacteristics 21 – RequestUpdateMasterDataMeteringPoint Corrected sequence diagram in chapter 5.6.1. Replaced message NotifyCustomerInformation with message NotifyStartOfSupply in the Start of Supply, after deadline for cancellation frame. Corrected class name PayloadMPEvent in message RequestUpdateCustomerInformation to PayloadMasterDataMPEvent. Adjusted Dependencies matrix in chapter 5.6.2.1 and chapter 5.10.2.4. Reason for transaction codes. Ref. chapter 7.1.22.
22.10.2015	1.4	Content of element VAT in Taxation profile changed from VAT share to VAT percentage. Changes in messages regarding metering values, ie. CollectedData and NotifyValidatedDataForBillingEnergy: • "Trimmed" by redefining the Sequence element to an attribute and removing the Quantity level in Observation and ProfiledObservation class. • Added element Stipulated in ProfiledObservation class. • Removed elements Estimated (CollectedData only) and Temporary in ProfilesObservation class. • Added element Calculated in Observation class (NotifyValidatedDataForBillingEnergy only). • Withdrawn element in ProfiledObservation class changed from integer to Boolean with true as fixed value. • Removed element BusinessType from CollectedData. Changed cardinality from Mandatory to Optional for element BlockedForSwitching and removed element MeteringPointAccountable in message NotifyMeteringPointCharacteristics, PortfolioOverview, ResponseUpfrontMeteringPointCharacteristics, RequestUpdateMasterDataMeteringPoint. Code Z01 - Unsettled, added to SettlementMethod. Removed A72 and B28 from ConsumptionType. Removed MiddleName in ConsumerInvolvedCustomerParty class. Extended length of GivenName in the same class from 40 to 80 characters. Added new address element i EndUser Address: OnBehalf. Used in the follwing messages: RequestStartOfSuppy, NotifyStartOfSupply, RequestEndOfSuppy,

Date	Version	Change
		ConfirmEndOfSupply, NotifyEndOfSupply, NotifyMeteringPointCharacteristics, PortfolioOverview, RequestUpdateCustomerInformation, NotifyCustomerInformation. Removed Balance Responsible in messages regarding market processes, ie. RequestStartOfSuppy, ConfirmStartOfSupply, NotifyStartOfSupply, RequestEndOfSuppy, ConfirmEndOfSupply, NotifyEndOfSupply, NotifyMeteringPointCharacteristics Removed possibility to use GSRN code to identify metering grid areas. The only valid code is EIC-Y issued by ENTSO-E. Removed possibility to use EIC code to identify market parties. The only valid code is GLN issued by GS1. Included Balance Supplier in message PriceVolumeCombinationForReconciliation Included Balance Supplier and Balance Responsible in message NotifyValidatedDataForBillingEnergy
04.02.2016	1.5	Added valid request category values regarding Request to Elhub and Request to Grid Access Provider. Added ReminderType in message RequestCollectedData. Added BusinessType and removed TransactionID from message RequestDataFromElhub Removed BalanceSupplierInvolvedEnergyParty from message ConfirmStartOfSupply and ConfirmEndOfSupply Cardinality of element ConsumerInvolvedCustomerParty/Identification changed from mandatory to optional in message NotifyCustomerInformation and NotifyMeteringPointCharacteristics. Element VAT renamed to VATCode and changed datatype to enumeration in class TaxationProfile in message RequestUpdateMasterDataMeteringPoint, NotifyMeteringPointCharacteristics, NotifyStartOfSupply and PortfolioOverview. Added CalculationMethod in class AnnualPeriodEstimatedMetrics in message RequestUpdateMasterDataMeteringPoint, NotifyMeteringPointCharacteristics and NotifyStartOfSupply. Changed cardinality from Mandatory to Optional for element QueryCategory, Subject and MeteringPointUsedDomainLocation in message ResponseFromGridAccessProvider. Added element EndOfOccurrence and renamed element SnapShotOccurrence to StartOfOccurrence in message NotifyMeteringPointCharacteristics and PortfoliOverview. Changed cardinality from Mandatory to Optional for Balance Supplier in message RequestEndOfSupply. Added NACE_DivisionCode and changed cardinality from Mandatory to Optional for Balance Supplier in message RequestStartOfSupply. Added NACE_DivisionCode and full metering point information in message NotifyStartOfSupply. Use of element Start in class ObservationPeriodTimeSeriesPriod in message CollectedData for MeterIndex and Estimated Annual Consumption in BRS-NO-311.

Date	Version	Change
		Removed the following elements in message ResponseUpfrontMeteringPointCharacteristics, PortfolioOverview and NotifyMeteringPointCharacteristics: • MpDetailMeteringPointCharacteristic/MeteringPointTypeLastChanged • MpDetailMeteringPointCharacteristic/MeterReadingCharacteristicsLastChanged • MpDetailMeteringPointCharacteristic/SettlementMethodLastChanged • MeteringInstallationMeterFacility/LastChanged BRS-NO-317 will not support positive Acknowledgement. Changed datatype of metering value elements from integer to decimal in message: CollectedData, NotifyValidatedDataForBillingEnergy and PriceVolumeCombinationForReconciliation. Redefined the Sequence element to an attribute in the Observation class in PriceVolumeCombinationForReconciliation. UnitOfMeasure for active and reactive energy reduced to: kWh and kvarh. Added Identification element and repeating payload in RequestUpdateMasterDataMeteringPoint and NotifyMeteringPointCharacteristics. Extended EAC to 12 digits. Removed element ValuesIndicator in MeasurementDefinition class in RequestUpdateMasterDataMeteringPoint and NotifyMeteringPointCharacteristics. Reintroduction of PhysicalStatusType for metering point in message RequestUpdateMasterDataMeteringPoint to be used in BRS-NO-402 (Metering point changes, including activation, back in time). Included MeteringGridArea, BalanceSupplier and StartOfOccurrence in PortfolioOverview. Included description of rules related to updating and clearing elements. Ref. chapter 3.7. Removed Period and ConsumerInvolvedCustomerParty/Identification and changed cardinality of ExtendedStorageMeteringValues from Mandatory to Optional in message UpdateThirdPartyAccess. Removed Estimated Annual Consumption from message RequestUpdateCustomerInformation.
31.05.2016	1.6	Removed message 10 - PortfolioOVerview. Message RequestDataFromElhub and NotifyValidatedDataForBillingEnergy: Changed Business types, ref. Business type, Message CollectedData and NotifyValidatedDataForBillingEnergy: • Added optional attribute EstimationCode to element Temporary in Observation class. • Changed Meter read reason codes, ref. Meter read reason code, Message NotifyValidatedDataForBillingEnergy: Added optional attribute ImbalanceSettlement to element Calculated in Observation class. Set to true when the Observation is the same as used in Imbalance settlement (D+5) and sent to NBS. Message UpdateThirdPartyAccess: Document type changed from E58 to E10.

Date	Version	Change
		Possible to order copy of reconciliation ATAM or APAM in Query - from Market parties. Version attribute in root element of all messages (XSDs only) set to 1.6.
13.01.2017	1.7	Explicitly stated that it is possible to request positive acknowledgement for BRS-NO-311 in General. Clarified the usage of MeteringPointSubTypeConsumption A15, Losses. Ref Subtype Consumption New error messages used in negative acknowledgement. (From grid owner regarding metering values is invalid and to third party if end user did not accept access request): • EH085 Rejection reason not specified • EH086 OriginalPayloadReference missing or invalid • EH087 Incorrect Status Type • EH088 End user did not accept third party access request • EH089 Reported meter reading index is equal to estimated meter reading index • EH090 Meter is automatically read Extended format for meter constant from decimal (8.5) to decimal(12.5) in the following messages: • ResponseUpfrontMeteringPointCharacteristics: • RequestUpdateMasterDataMeteringPoint • NotifyMeteringPointCharacteristics • NotifyStartOfSupply Adjusted description of meter reading start, meter reading end, observation and profiled observation in the CollectedData and NotifyValidatedDataForBillingEnergy messages Version part (last part of the namespace) of all namespaces changed from v1 to v2. Version attribute in root element of all messages (XSDs only) set to 2.0. Changes in message RequestUpfrontMeteringPointCharacteristics: • New complex type MeteringInstallationMeterFacility containing element MeterIdentification • Change of cardinality from mandatory to optional for the elements in the MPAddressMeteringPointAddress class: ○ StreetName ○ BuildingNumber ○ Postcode Change in message ResponseUpfrontMeteringPointCharacteristics: • New complex type TaxationProfile containing elements NACE_DivisionCode and ConsumptionCode • New complex type AnnualPeriodEstimatedMetrics containing element Total Changes in message PriceVolumeCombinationForReconciliation: • Add mandatory element in PayloadEnergyTimeSeries: ReconciliationDate, type DateTime

Date	Version	Change
		• Add optional element in PayloadEnergyTimeSeries: RequestReference, type UUID • Remove MeteringPointUsedDomainLocation • Change cardinality of Identification element in PayloadEnergyTimeSeries to mandatory • Change cardinality of SettlementMethodType element in MPDetailMeasurementMeteringPointCharacteristic to mandatory • Change cardinality of MeteringGridAreaUsedDomainLocation class to mandatory • Change cardinality of BalanceSupplierInvolvedEnergyParty class to mandatory • Change elementname EnergyQuantity in Observation to BalanceVolume • Change elementname EnergyPrice in Observation to BalanceAmount Length of Metering Grid Area changed from 16 to between 1 and 16 due to support for Virtual grid areas and foreign grid areas. Added Metering Grid Area in message NotifyStartOfSupply. New Business Role QRY which may be used when sending the message RequestUpfrontMeteringPointCharacteristics from a Balance Supplier. Removed process component 40 and 41 (Report settlement basis per MGA to Balance Responsible party and Balance Supplier). Replaced by process component 8 (Settlement - to Market Parties) as they were identical. Removed messages regarding production and consumption to NECS as these messages are defined by the vendor of NECS, Grexel. Harmonized names of process components in chapter "Elhub messages per process component" with names of process components in table of contents.
08.08.2019	1.8	Minor error corrections and clarifications. New error messages: • EH091 Metering point is linked to a sub grid • EH092 Invalid use of payload • EH093 Grid Area has changed Balance Supplier of Last Resort Minor clarifications in the Validation chapter. Clarified that it is not allowed to send negative acknowledgement to Elhub **in the context of polling messages**, it might be allowed in other situations. Removed mention of outgoing document type for Acknowledgement messages as this is context dependent. Removed erroneous "date of birth" from *Identification* element description in RequestUpfrontMeteringPointCharacteristics. Code List corrections • *Production Code* renamed *Subtype Production* • *Consumption Code* renamed *Subtype Consumption* • *Consumption Code* (sluttbrukergruppe) added BRS-NO-602 references and messages has been removed from docs (still part of BIM XSD and EMIF WSDL). Added some details on Boolean and Decimal. Correct defininition for BalanceSupplierInvolvedEnergyParty in NotifyEndOfSupply from *new* to *old* balance supplier.

Date	Version	Change
		The field Description in the class MPDetailMeteringPointCharacteristics has been updated as it should contain the name of production unit for metering points of type production and combined. Updated the change log for version 1.7 to not mention negative Acknowledgement for EAC as that was not introduced

2 Introduction.

2.1 Purpose

The purpose of this document is to describe the choreography and content of the electronic messages exchanged between the parties in the energy industry and Elhub. The document is closely tied to the Business Requirements Specifications (BRS) for market processes and metering processes due to use of the individual processes as a base for the message specifications. It is also closely tied to Elhub Messaging Interface (EMIF) that us used to transmit the messages to and from Elhub.

2.2 Audience

The audience for this document is IT professionials responsible for implementing message exchange for parties who will communicate with Elhub electronically. In addition this document is relevant for any potential software vendor to Elhub.

3 XML messages - General

All messages described in this document, except the Acknowledgement message, are based on the ebIX® message standard, ref. [6].
The content of the messages are extended according to the recommendations in the Harmonised Nordic Retail project (HNR) and the Elhub requirements. In addition the messages are slightly reorganized compared to ebIX® to promote more reuse in the customer switching processes.
The Acknowledgement message is defined by the Elhub project due to that this message is missing in ebIX®.

3.1 Namespace

XML namespaces are used for providing uniquely named elements and attributes in an XML document.
In Elhub message collaboration all XML instance documents must contain a namespace definition (xmlns) with prefix rsm in the root element.
The content of the namespace definition must be urn:no:elhub:emif:<Package>:<Message name>:<Major version>.

Package is one of the following:

- market - Messages supporting the market processes
- masterdata - Messages regarding masterdata
- metering - Messages supporting the metering processes
- necs - Messages reporting data to the Norwegian Energy Certificate System.
- query - Messages regarding query processes
- thirdpartyacces - Messages handling thirdparty access

Message name is one of the messages specified in Elhub messages – Overall.

Major version is the major version number of the message with prefix v.

In addition a namespace with prefix abie must be added in the root element with the following content: urn:no:elhub:emif:common:AggregatedBusinessInformationEntities:<Major version>
This in order to reuse business data types, aggregated business information entities and code lists in the messages.

Example:
< rsm:RequestStartOfSupply xmlns:rsm= "urn:no:elhub:emif:market:RequestStartOfSupply:v1"
xmlns:abie= "urn:no:elhub:emif:common:AggregatedBusinessInformationEntities:v1"……>
<rsm: Header >
< abie:Identification >123e4567-e89b-12d3-a456-426655440000 </abie: Identification >
…

3.2 Versioning of messages

3.2.1 Major versions

Versioning of XML instance documents is implemented through the last part of the namespace with prefix rsm in the root element. This will contain the major version of the message.

Any changes to messages that breaks backward compatibility requires a new major version, ie. a new namespace.

A major version of an Elhub message constitutes significant non-backward compatible changes.
If any XML instance document based on an older major version of an Elhub message attempts validation against a newer version, it may experience validation errors.
A new major version will be produced whenever non-backward changes occur. This will include the following changes:

- Adding, removing or changing values in enumerations
- Changing of element names, type names and attribute names
- Changes to the message structure or sequence
- Deleting or adding mandatory elements or attributes
- Changing cardinality from optional to mandatory

3.2.2 Minor versions

Minor versions represent changes to Elhub messages within a major version which do not break backward compatibility, ie.:

- Add optional elements
- Optional extensions

Minor versions will be declared using the xsd:version attribute of the XML schema definition (XSD) file.

3.2.3 schemaLocation

Attribute in the root element to reference the XML schema the XML instance document is based on. The attibute is constructed of two elements separated by a space: Namespace and filename.
Example: xmlns:xsi =" http://www.w3.org/2001/XMLSchema-instance " xsi:schemaLocation ="urn:no:elhub:emif:market:RequestStartOfSupply:v1 RequestStartOfSupply.xsd">

3.3 Structure

All ebIX® messages are constructed according to the following structure:

- Header. Heading information regarding the message.
- Process. Process information regarding the message.
- Payload. One or more classes containing business specific information.

3.3.1 Header

Heading information regarding the message

- Creation date and time
- Documenttype (Ref. Document type)
- Identification
- Recipient
- Sender

For detailed description of the header class, ref. General.

3.3.2 Process

Processs information regarding the message

- Code for business process (Ref. Elhub BRS identifications)

- Code for business process role (Ref. Roles and domains)
- Code for energy classification (23 = Electricity)

For detailed description of the process class, ref. General.

3.3.3 Payload

The business specific information contained in a message. May consist of one or more classes.

3.4 Description of selected information in the messages

3.4.1 Code list agencies

Codes and code lists are frequently used in the messages. To identify the issuer of a code list the listAgencyIdentifier attribute is used.

List Agency	Identifier
UN/CEFACT	6
ISO	5
ebIX	260
Elhub	89

Example:
Document type, 392 Notification of change of supplier, defined by UN/CEFACT:
< DocumentType listAgencyIdentifier ="6">392</ DocumentType >
Business process code, 101, Start of supply, Change of supplier, defined by Elhub:
< EnergyBusinessProcess listAgencyIdentifier ="89">101</ EnergyBusinessProcess >

3.4.2 Scheme agencies

All identifiers in the messages, except identification of the message itself, i.e. parties, metering pointIDs, metering grid areas, etc. must contain an attribute, schemeAgencyIdentifier, defining the agency responsible for issuing of the identifier.

Scheme Agency	Identifier
GS1	9
Brønnøysundregistrene	82
ENTSO-E	305
Folkeregisteret (Norwegian social security no.)	Z01

Example:
Customer with Norwegian Org. no:
< ConsumerInvolvedCustomerParty >
< Identification schemeAgencyIdentifier ="82">999123765</ Identification >
</ ConsumerInvolvedCustomerParty >

3.4.3 Parties

All parties in the messages are identified by using Global Location Number (GLN).
GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2].

Example:
< SenderEnergyParty >
< Identification schemeAgencyIdentifier ="9">4723876387213</ Identification >
</ SenderEnergyParty >

3.4.4 Metering point ID

All metering points IDs in the messages are identified by using GSRN (Global Service Relation Number) issued by GS1, ref. [2]. These are unique identifiers containing 18 digit numbers.
Example:
< MeteringPointUsedDomainLocation >
< Identification schemeAgencyIdentifier ="9">857643212345678921</ Identification >
</ MeteringPointUsedDomainLocation >

3.4.5 DateTime elements

All elements of type dateTime must be specified by using the following format:

YYYY-MM-DDTHH:MM:SS[+-][TimeZone] or YYYY-MM-DDTHH:MM:SS[Z] (Zulu time, meaning UTC + 0)

Example:2015-04-30T14:32:00+02:00 or 2015-04-30T14:32:00Z

Note that the TimeZone part of the element is given in hours and minutes relative to UTC. (+02:00 is correct for daylight saving time in Noway)

3.4.6 Periods

Definition of periods:

Start: From dateTime where the dateTime is **included** in the period.
End: To dateTime where the dateTime is **excluded** from the period.

Example. Period for 24 hours starting at midnight on may 1st 2015:

Start: 2015-05-01T00:00:00+02:00
End: 2015-05-02T00:00:00+02:00

3.4.7 Identification of messages

The Identification of the messages must use Universally Unique Identifiers (UUID) in its canonical textual representation: 32 hexadecimal (base-16) digits, displayed in 5 groups separated by hyphens, in the form 8-4-4-4-12 for a total of 36 characters.

Example: **123e4567-e89b-12d3-a456-426655440000**

Note that the only legal characters in an UUID is 0-9 and a-f.

The element OriginalDocumentReference used to refer from one message to another must also contain an UUID.

3.4.8 Boolean

Elhub only accepts "*true*" and "*false*" on boolean information elements. This is stricter than the XSD primitive which also allows "0" and "1".

3.4.9 Decimal

This documentation uses Decimal(x,y) notation on some XML elements. This is a reference to xsd:decimal, where *x* is *totalDigits* and *y* is *fractionDigits*.

3.5 Validation

All incoming messages to Elhub are validated in three steps:

1. Validation against XML schema
2. Validation av process specific rules
3. Validation against business rules

3.5.1 XML schema

Validation against XML schema. Structure, naming, sequence, data types and legal values (enumeration) are validated. If the validation fails, a "SOAP fault" (ref. SOAP Fault Definition in document Elhub Messaging Interface) is returned to the sender of the message.

3.5.2 Process specific rules

Validation against process specific rules. These validations are described in the document "Elhub BRS Prosesspesifikke Meldingsvalideringer" (only available in Norwegian). Violation of these rules will be handled in the same way as violation of Business rules described below.

3.5.3 Business rules

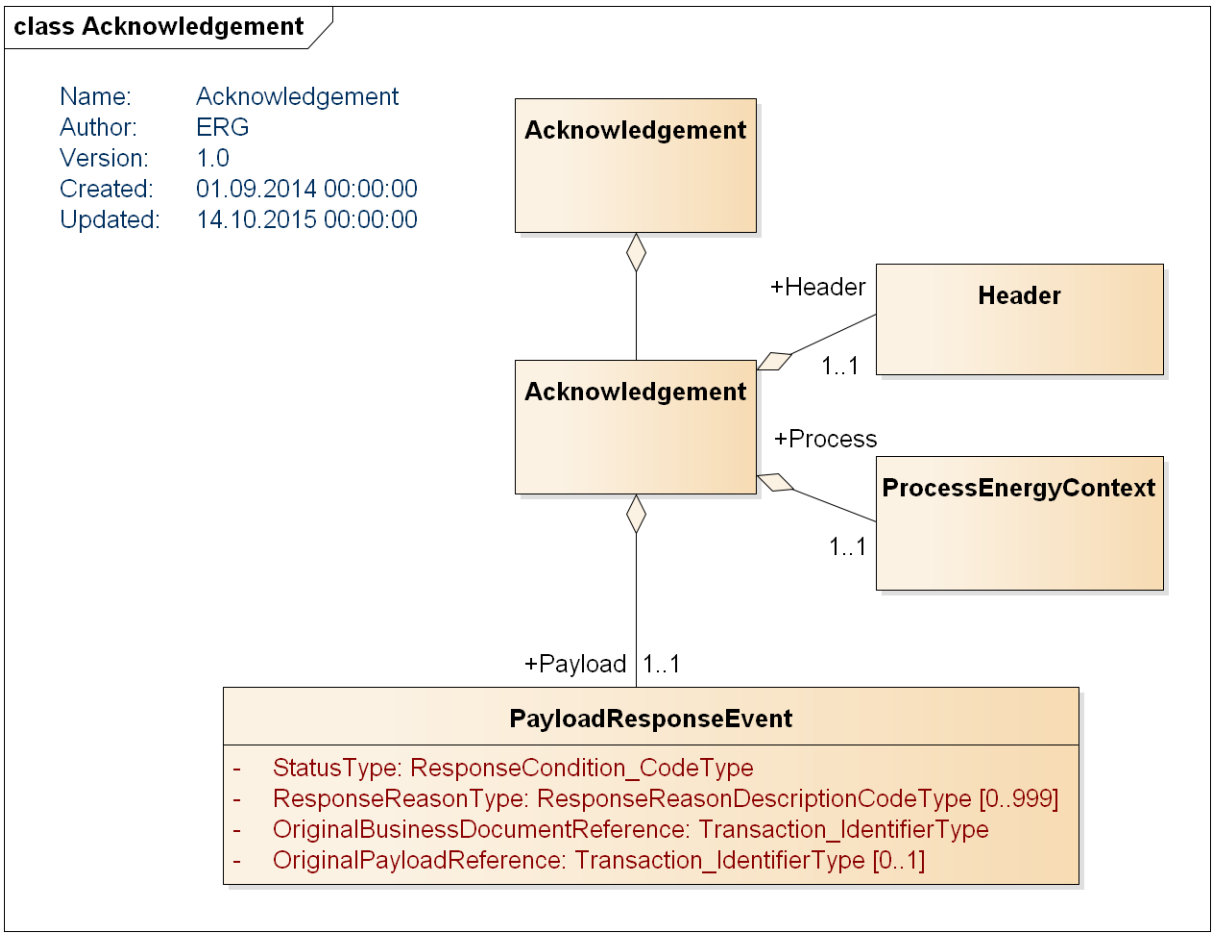
Business rules described in the Business Requirement Specification are applied to the incoming message. If the validation fails, a negative Acknowledgement message (Status 41-Rejected) is returned to the sender of the message except for RequestStartOfSupply and RequestEndOfSupply. For these messages the messages RejectStartOfSupply and RejectEndOfSupply are returned as negative acknowledgement messages.

3.6 Acknowledgements

3.6.1 Acknowledgement of received Messages

Elhub will only send positive Acknowledgement message back to the sender of the message if it is requested in the header of the incoming message.

For negative Acknowledgement, ref. Validation



Ref. Acknowledgement for a complete description of the content of the acknowledgement message.

3.6.2 Acknowledgement of "polled" message

Elhub must know that data that has been returned as a response to a PollForData message has been successfully received. After the received data has been persisted in the receiving system, a positive Acknowledgement message must be sent to Elhub. The Acknowledgement message must specify the outer "Identification" value from the polling result in "Original Business Document Refrence" in the Acknowledgement message. The identification from the polling result will be an identification that applies to all business messages returned from a polling as a polling can return more than one business message.

Partial Acknowledgement of the result from a PollForData by specifying the identification of one of the inner business message in the polling result is not allowed.

Sending a negative Acknowledgement message to Elhub is not allowed in the context of polling messages.

3.6.2.1 Code usage

Element name	Code	Code list responsible	Description
Document Type	21	UN/CEFACT	Query
Business Process	Ref. Description	Elhub	The same code as on the original business document is returned in the Acknowledgement document

Element name	Code	Code list responsible	Description
Business Process Role	Ref. Description	UN/CEFACT	The same code as on the original business document is returned in the Acknowledgement document

3.7 Updating/clearing of element content

3.7.1 Rules

There are four general rules related to what sending an element or not means

1. If an element is not allowed to be updated according to the specified BRS, the element is to be omitted. This will result in the element keeping its original value. If an invalid element is specified, the message will be rejected.
2. If all values in a class (complex type in XSD) are to be kept, you can omit specifying the class. Alternatively you can specify the class with all current values.
3. If the value of a single element (simple type in XSD) is to be cleared, do not specify the element. This also implies that to avoid having the value cleared, you must send the current value. Note that this rule only apply if the class the element is a part of is specified and also only if the element is relevant for the BRS as described in rule 1. Exception: BRS-NO-402 does not allow clearing elements. This means you are only to send the values you intend to change in a BRS-NO-402.
4. If a class is repeating (list), not specifying the class will keep all current repetitions, specifying at least one list element will replace the current list with the new list

3.7.2 Examples

Examples are from RequestUpdateMasterDataMeteringPoint. The numbering of the examples matches the numbering in the rules

1. In BRS-NO-306 you are not allowed to specify the Meter Reading Characteristics element. This means it is not allowed to specify this element in this BRS.
2. In order to keep all address information in a BRS-NO-302 you can omit the Metering Point Address class. Alternatively all elements within the Metering Point Address class which currently have values must be specified.
3. In order to clear the Floor Identification in a BRS-NO-302, you must specify the Metering Point Address class and omit the Floor Identification element.
4. If you are to keep the current Measurement Definitions in a BRS-NO-306, you can omit the class. If you are to change one Measurement Definition, you must specify all Measurement Definitions the metering point is to have after the change, not only the one to change.

3.7.3 Comments

Some elements that are initially optional cannot be cleared. In RequestUpdateMasterDataMeteringPoint, the Metering Point Address Cadastral class is optional. This means you can create a new metering point without any cadastral information in BRS-NO-121. But if the wrong cadastral information was specified, it will not be possible to remove it as not specifying the Metering Point Address Cadastral class means all underlying values are to be kept and if the class is specified, two of the values are mandatory and cannot be cleared.

Optional lists cannot be cleared as not specifying the list means all instances are to be kept, and when the list element is specified, there will be at least one mandatory element in it. This apply to communication information (email addresses and phone numbers) and measurement definitions.

4 Elhub messages

4.1 Elhub messages – Overall

All messages used by Elhub are listed below.

No	Name	Message	Flow	Version
1	Request start of supply	RequestStartOfSupply	In/Out	2.0
2	Request start of supply – positive acknowledgement	ConfirmStartOfSupply	Out	2.0
3	Request start of supply – negative acknowledgement	RejectStartOfSupply	Out	2.0
4	Notification start of supply	NotifyStartOfSupply	Out	2.0
5	Request end of supply	RequestEndOfSupply	In	2.0
6	Request end of supply – positive acknowledgement	ConfirmEndOfSupply	Out	2.0
7	Request end of supply – negative acknowledgement	RejectEndOfSupply	Out	2.0
8	Notification end of supply	NotifyEndOfSupply	Out	2.0
9	Notify metering point characteristics	NotifyMeteringPointCharacteristics	Out	2.0
11	Query to Grid Access Provider	RequestToGridAccessProvider	In/Out	2.0
12	Response from Grid Access Provider	ResponseFromGridAccessProvider	In/Out	2.0
13	Request for metering values	RequestCollectedData	Out	2.0
14	Metering values	CollectedData	In/Out	2.0
16	Request upfront metering point characteristics	RequestUpfrontMeteringPointCharacteristics	In	2.0
17	Response upfront metering point characteristics	ResponseUpfrontMeteringPointCharacteristics	Out	2.0
19	Request data from Elhub (Query)	RequestDataFromElhub	In	2.0
20	Notify metering values	NotifyValidatedDataForBillingEnergy	Out	2.0
21	Request for update of master data metering point	RequestUpdateMasterDataMeteringPoint	In	2.0
24	Request for update of customer information	RequestUpdateCustomerInformation	In	2.0
27	Notify customer information	NotifyCustomerInformation	Out	2.0
30	Report Reconciliation volumes	PriceVolumeCombinationForReconciliation	Out	2.0
34	Update third party access	UpdateThirdPartyAccess	In	2.0
37	Acknowledgement	Acknowledgement	Out	2.0

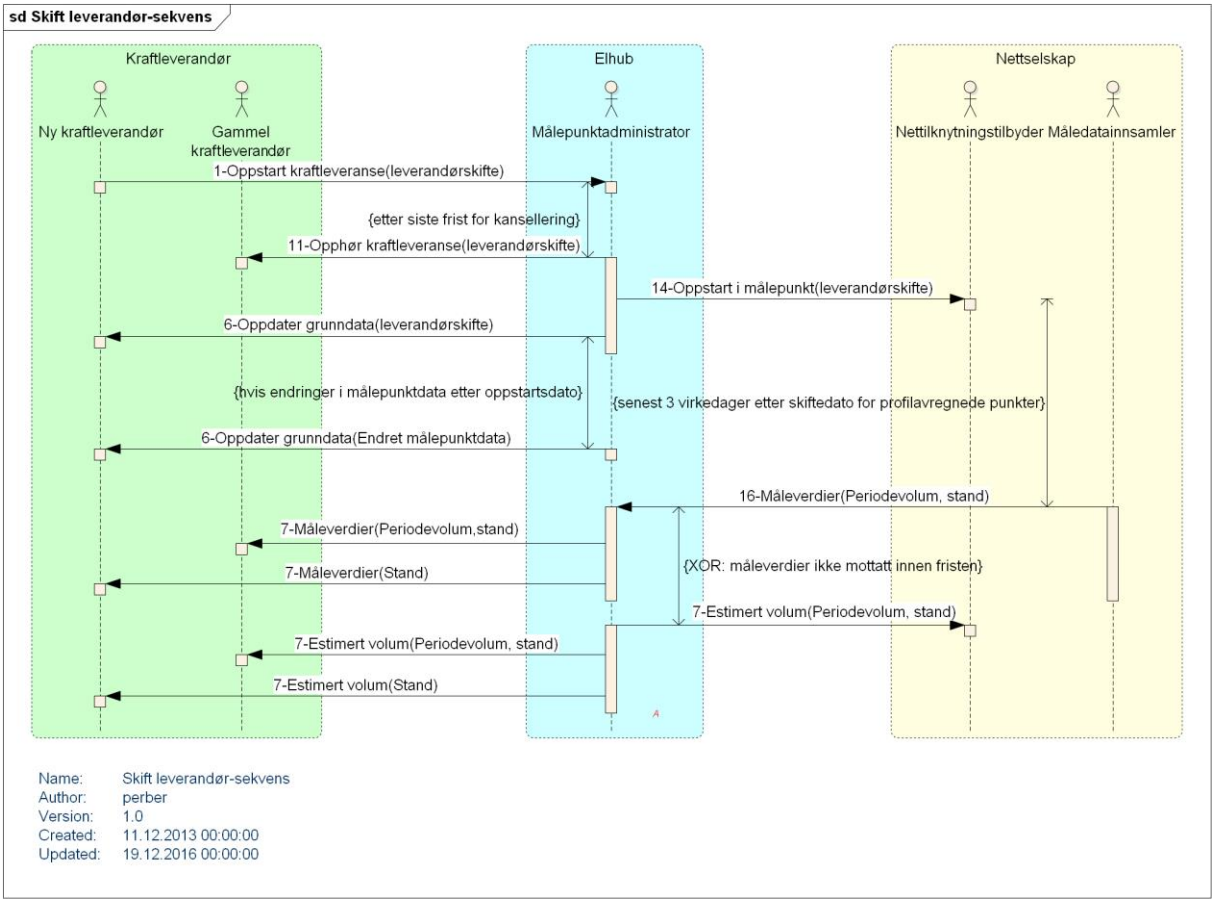
4.2 Elhub messages per process component

The business processes are described in separate Business Requirements Specifications (BRS) documents for market and metering value processes. Each process is described by a sequence

diagram, in addition to a textual description, showing the parties involved in the process, the messages involved and the sequence of the messages.

Example:

The first message in the sequence diagram below regarding Change of Supplier is number 1 – Start of Supply.



The table below shows the "mapping" between the process components defined in the diagrams above and the Elhub messages used. Note that the same Elhub messages may be used by several process components.

The messages written with grey font color are acknowledgement (positive or negative) messages returned to the sender of the first message mapped to the process component. Ref. the sequence diagrams in chapter 5 below for a detailed description of the message flow between Elhub and the market parties for each process component.

Process comp.	Version	Name	Elhub Message
1	2.0	Start of supply – from Balance Supplier	1 – RequestStartOfSupply 2 – ConfirmStartOfSupply 3 – RejectStartOfSupply
2	2.0	Start of supply – to Balance Supplier	1 – RequestStartOfSupply
3	2.0	Update of masterdata – from Balance Supplier	24 – RequestUpdateCustomerInformation 37 – Acknowledgement
4	2.0	Meter reading – from Balance Supplier	14 – CollectedData 37 – Acknowledgement

Process comp.	Version	Name	Elhub Message
5	2.0	Query – from Market parties	19 – RequestDataFromElhub 37 – Acknowledgement
6	2.0	Update of master data – to Balance Supplier - Grid Access Provider - Third Party	4- NotifyStartOfSupply 9 – NotifyMeteringPointCharacteristics 27 – NotifyCustomerInformation
7	2.0	Metering Values – to Market parties	20 – NotifyValidatedDataForBillingEnergy
8	2.0	Settlement – to Market parties	20 – NotifyValidatedDataForBillingEnergy
9	2.0	Reconciliation – to Balance Supplier	30 – PriceVolumeCombinationForReconcilation
10	2.0	End of supply – from Balance Supplier	5 – RequestEndOfSupply 6 – ConfirmEndOfSupply 7 – RejectEndOfSupply
11	2.0	End of supply – to Balance Supplier	8 – NotifyEndOfSupply
13	2.0	Start in metering point – from Grid Access Provider	1 – RequestStartOfSupply 2 – ConfirmStartOfSupply 3 – RejectStartOfSupply
14	2.0	Start in metering point – to Grid Access Provider	4 – NotifyStartOfSupply
15	2.0	Update of masterdata – from Grid Access Provider	21 - RequestUpdateMasterDataMeteringPoint 37 – Acknowledgement
16	2.0	Metering Values – from Metered Data Collector	14 – CollectedData 37 – Acknowledgement
19	2.0	Meter index_Estimated yearly consumption from Balance Supplier - to Metered Data Responsible and Grid Acces Provider	14 – CollectedData 37 – Acknowledgement
21	2.0	Reconcilation – to Grid Access Provider	30 – PriceVolumeCombinationForReconcilation
22	2.0	End in metering point – from Grid Access Provider	5 – RequestEndOfSupply 6 – ConfirmEndOfSupply 7 – RejectEndOfSupply
23	2.0	End in metering point – to Grid Access Provider	8 – NotifyEndOfSupply
24		Not in use	
25	2.0	Request to Grid Access provider - from Balance Supplier	11 – RequestToGridAccessProvider 37 – Acknowledgement
26	2.0	Request to Grid Access Provider	11 – RequestToGridAccessProvider
27	2.0	Feedback from Grid Access Provider	12 – ResponseFromGridAccessProvider

Process comp.	Version	Name	Elhub Message
28	2.0	Feedback from Grid Access Provider - to Balance Supplier	12 – ResponseFromGridAccessProvider
29		Not in use	
30		Not in use	
31	2.0	Verify Masterdata Metering Point from Balance Supplier	16 – RequestUpfrontMeteringPointCharacteristics 17 – ResponseUpfrontMeteringPointCharacteristics
32	2.0	Reminder to Metered Data Responsible / Grid Access Provider	13 – RequestCollectedData
34	2.0	Update of Third Party access	34 – UpdateThirdPartyAccess 37 – Acknowledgement
35	2.0	Report structure data to Settlement responsible	Message must be defined and specified by the NBS project
36	2.0	Report settlement basis per MGA to Balance Settlement Responsible	Message: 2.2 ebIX AggregatedData per MGA in NBS User Guide 1r2A
37	2.0	Report settlement basis per neighboring grid to Balance Settlement Responsible	Message: 2.3 ebIX AggregatedData per Neighboring Grid for Settlement Responsible in NBS User Guide 1r2A
38	2.0	Report produsedvolume to NECS	Message is defined by the vendor of NECS, Grexel.
39	2.0	Report consumption to NECS	Message is defined by the vendor of NECS, Grexel.

4.3 Cancellation/Rollback

4.3.1 Cancellation

Cancellation of a message is implemented by resending the message with a different document type with reference to the original message. Document type E02 is used for cancellation of start and end of supply and E67 for cancellation/rollback in general.
A message may be cancelled until it is executed. The execution time is dependant of the type of message and is described in the Business Requirement Specification.
Cancellation of a message will simply prevent the process from being executed.

4.3.2 Rollback

Rollback of a message is implemented by resending the message with a different document type with reference to the original message. Document type E02 is used for rollback of start and end of supply and E67 for rollback in general.
A rollback of a message is performed after the message is executed and implies that all events triggered by the original message must be reversed.
In contrast to cancellation, a rollback is performed by using tailormade business processes.

5 Messages per process component

In this chapter the message exchanges related to the business processes are described. The message exchanges are described by sequence diagrams, class diagrams and message implementation guides. Note that the sequence diagrams are colour coded. Messages with yellow background are optional to use while messages with green background are mandatory.

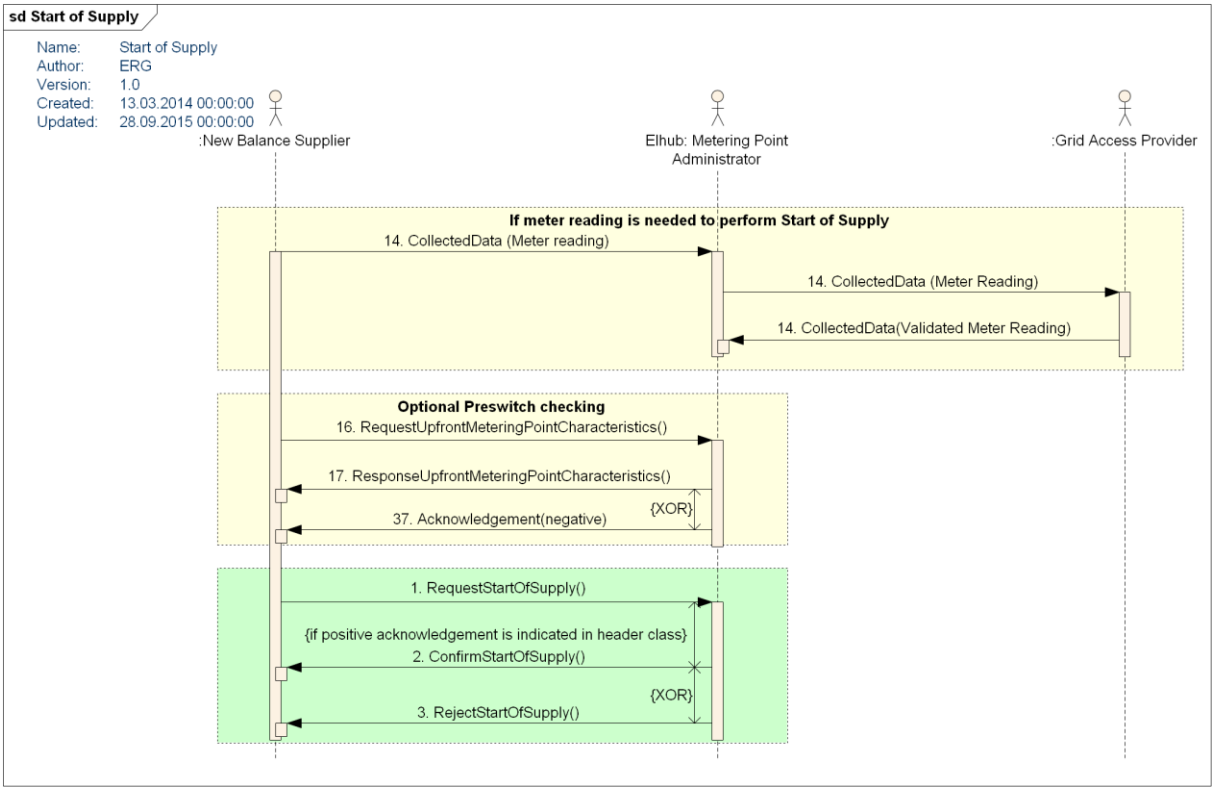
5.1 Start of supply – from Balance Supplier

The process is generally used for start of supply of energy in a metering point. The following business processes are supported:

1. Change of balance supplier
2. Customer move in
3. Cancellation/rollback of 1 and 2 above

If a meter read is needed to perform the start of supply, the message CollectedData could be sent from the New balance supplier to Elhub. Prior to the startup of this process, it is recommended that the new balance supplier performs a preswitch check, ref.Verify masterdata Metering Point ID from Balance Supplier and Grid Access Provider to verify metering point masterdata.
The process starts with the message Request start of supply from the new balance supplier to Elhub. If the validation of the message is OK and the element regarding positive acknowledgement is set in the Header class, the message ConfirmStartOfSupply is returned. If the message violates the validation rules the message RejectStartOfSupply is returned.

5.1.1 Sequence diagram start of supply – from balance supplier

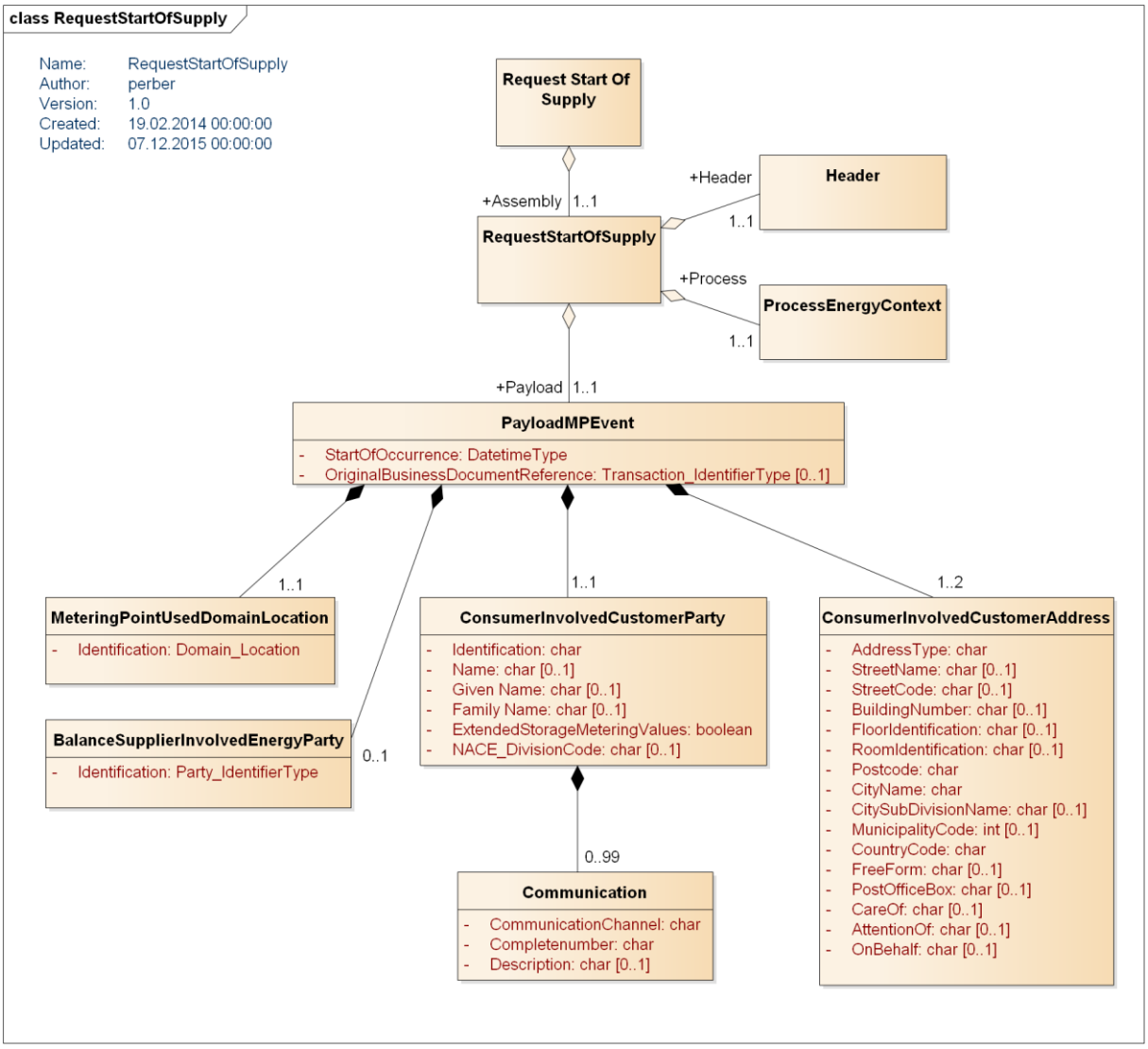


5.1.2 Messages Start of supply – from Balance Supplier

The main messages used in the process are described below.

5.1.2.1 Request Start of Supply

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	392	UN/CEFACT	Request change of supplier
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-101	Elhub	Start of supply - Change of supplier
	BRS-NO-102	Elhub	Start of supply - move in - in the future
	BRS-NO-103	Elhub	Start of supply - move in - back in time
	BRS-NO-104	Elhub	Change of supplier from last resort

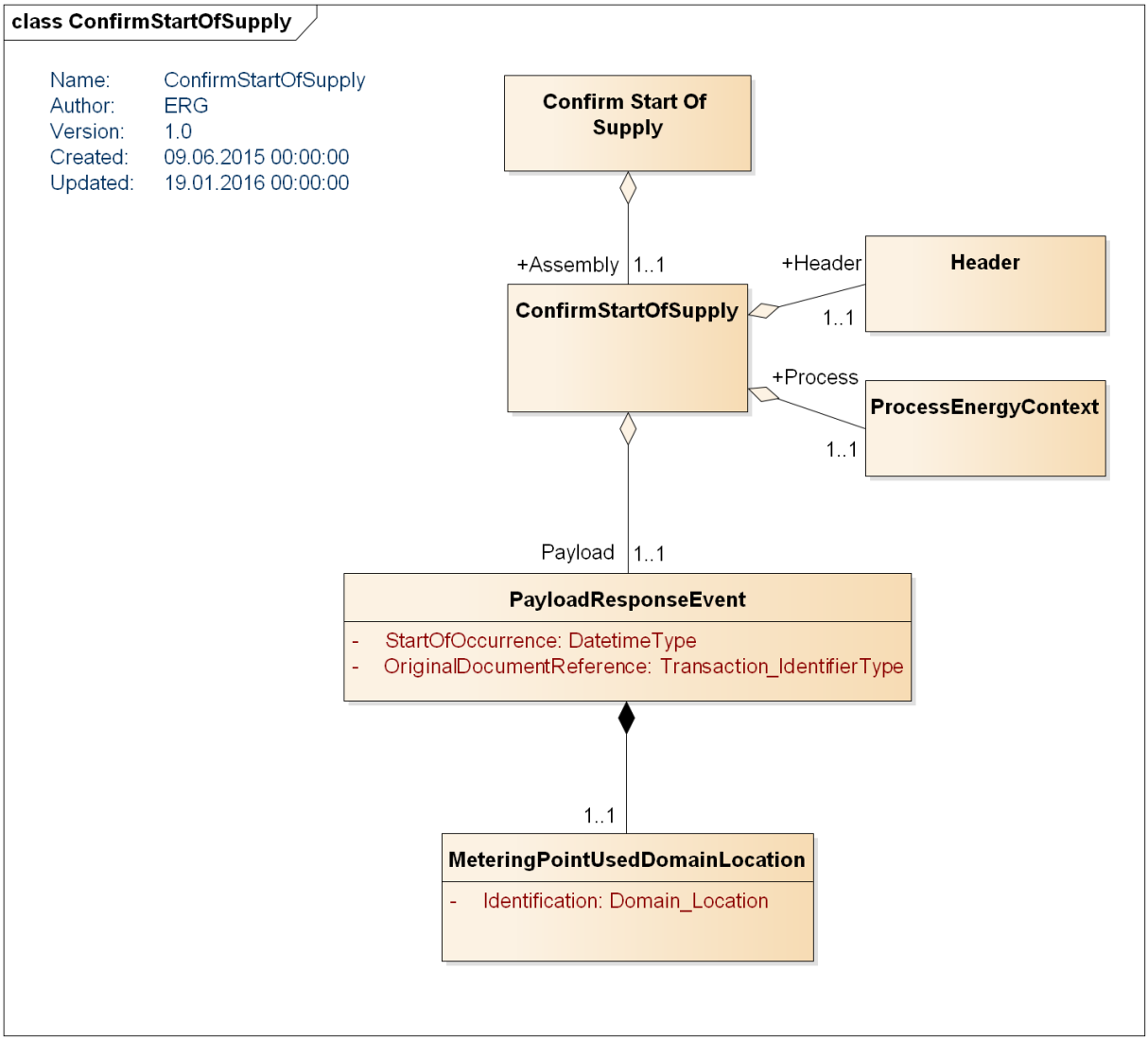
Element name	Code	Code list responsible	Description
	BRS-NO-111	Elhub	Rollback - start of supply
Business Process Role	DDQ	UN/CEFACT	Balance supplier

Message Implementation Guide

Ref. RequestStartOfSupply

5.1.2.2 ConfirmStartOfSupply

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	414	UN/CEFACT	Acknowledgement of change of supplier
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-101	Elhub	Start of supply - Change of supplier

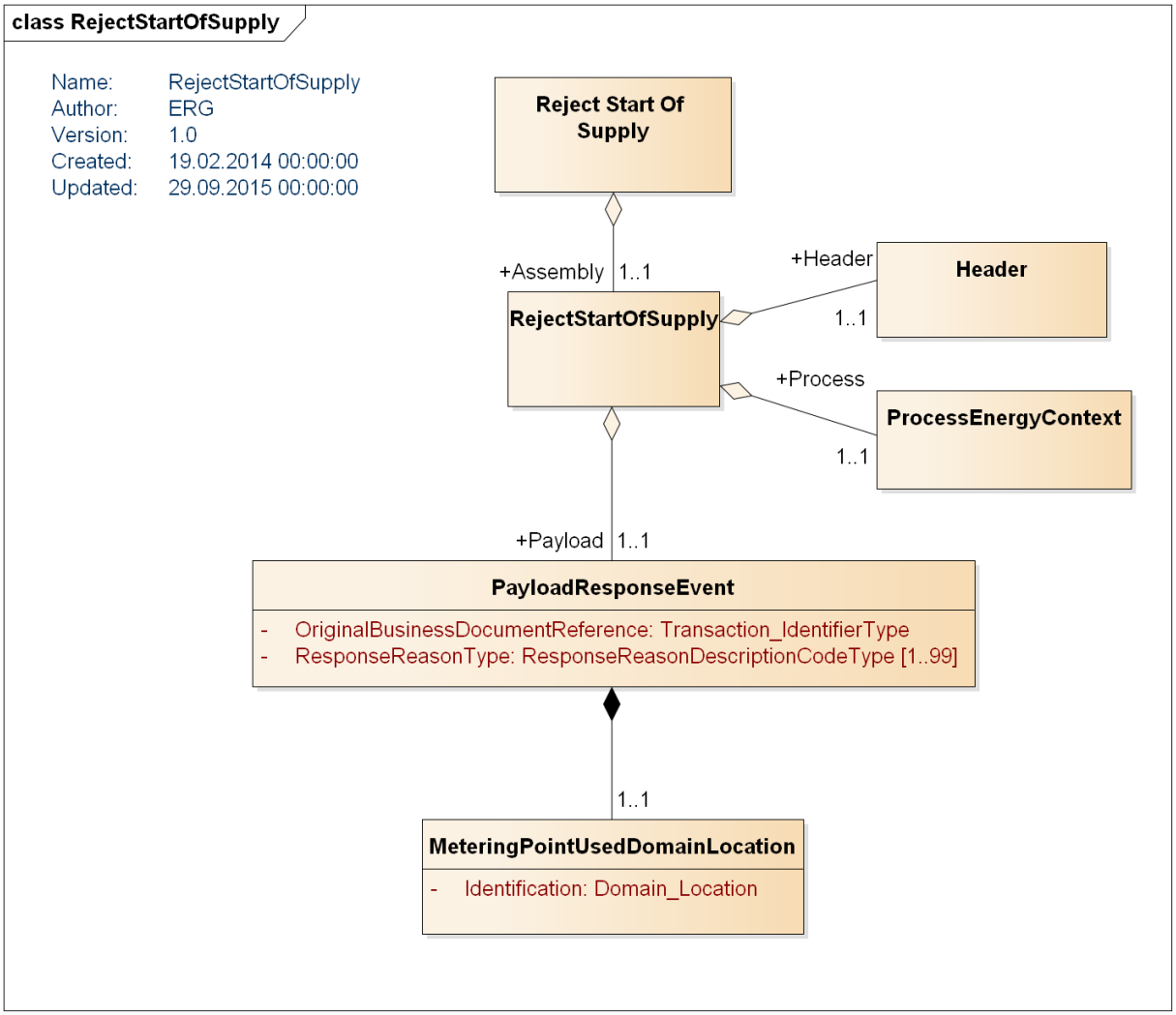
Element name	Code	Code list responsible	Description
	BRS-NO-102	Elhub	Start of supply - move in - in the future
	BRS-NO-103	Elhub	Start of supply - move in - back in time
	BRS-NO-104	Elhub	Change of supplier from last resort
	BRS-NO-111	Elhub	Rollback - start of supply
Business Process Role	DDQ	UN/CEFACT	Balance Supplier

Message implementation guide

Ref. ConfirmStartOfSupply

5.1.2.3 Reject start of supply

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	414	UN/CEFACT	Acknowledgement of change of supplier
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-101	Elhub	Start of supply - Change of supplier
	BRS-NO-102	Elhub	Start of supply - move in - in the future
	BRS-NO-103	Elhub	Start of supply - move in - back in time
	BRS-NO-104	Elhub	Change of supplier from last resort
	BRS-NO-111	Elhub	Rollback - start of supply
Business Process Role	DDQ	UN/CEFACT	Balance Supplier
ResponseReason	E10	ebIX	Metering point not identifiable
	E16	ebIX	Unauthorized balance supplier
	E17	ebIX	Requested switch date not within time limits
	E22	ebIX	Metering point blocked for switching
	EH049	Elhub	End User transferred to Balance Supplier of Last Resort

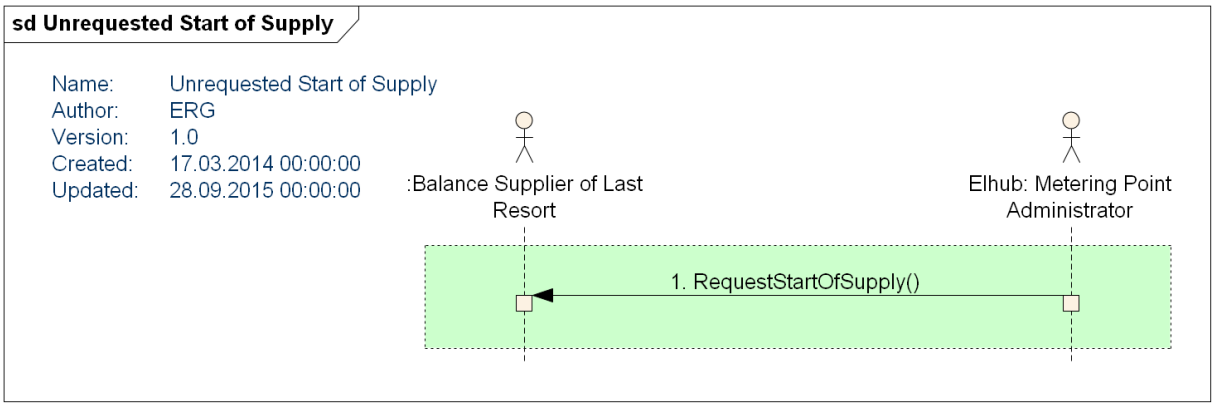
Message Implementation Guide

Ref. RejectStartOfSupply

5.2 Start of supply – to Balance Supplier

The process is used for unrequested change of supplier to the balance supplier of last resort for a metering point. It is used after a termination of a supply contract by a balance supplier or after a start of a metering point – move in without balance supplier.

5.2.1 Sequence diagram start of supply – to balance supplier



5.2.2 Messages start of supply – to balance supplier

The messages used in the process are described below.

5.2.2.1 RequestStartOfSupply

Class diagram
Ref. Request Start of Supply

Code usage

Element name	Code	Code list responsible	Description
Document Type	392	UN/CEFACT	Request change of supplier
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-103	Elhub	Start of supply - move in - back in time
	BRS-NO-123	Elhub	New grid access contract - move in
	BRS-NO-133	Elhub	Rollback of new grid access contract
	BRS-NO-202	Elhub	End of supply
	BRS-NO-221	Elhub	Rollback of end of supply
	BRS-NO-305	Elhub	Changes to meteringpoint initiated by Elhub
Business Process Role	DDQ	UN/CEFACT	Balance Supplier
	SLR	Elhub	Balance Supplier of Last Resort

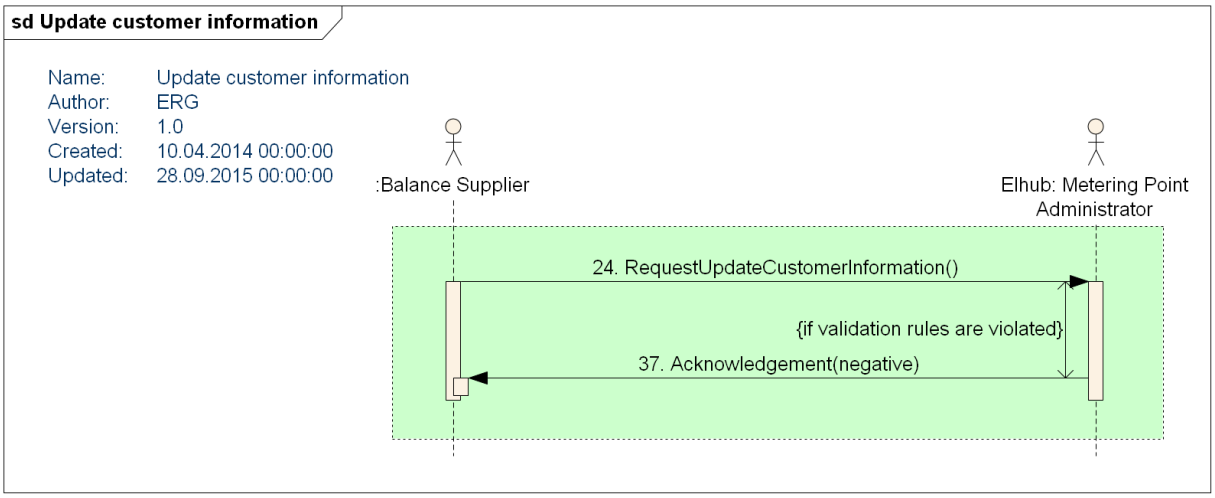
Message Implementation Guide

Ref. RequestStartOfSupply

5.3 Update of masterdata – from Balance Supplier

This process is used to update customer information for a metering point. The process starts with the message RequestUpdateCustomerIformation from the balance supplier to Elhub. If the content of the message violates the validation rules, the Acknowledgement message with Status 41 - Rejected is returned.

5.3.1 Sequence diagram update of masterdata – from balance supplier

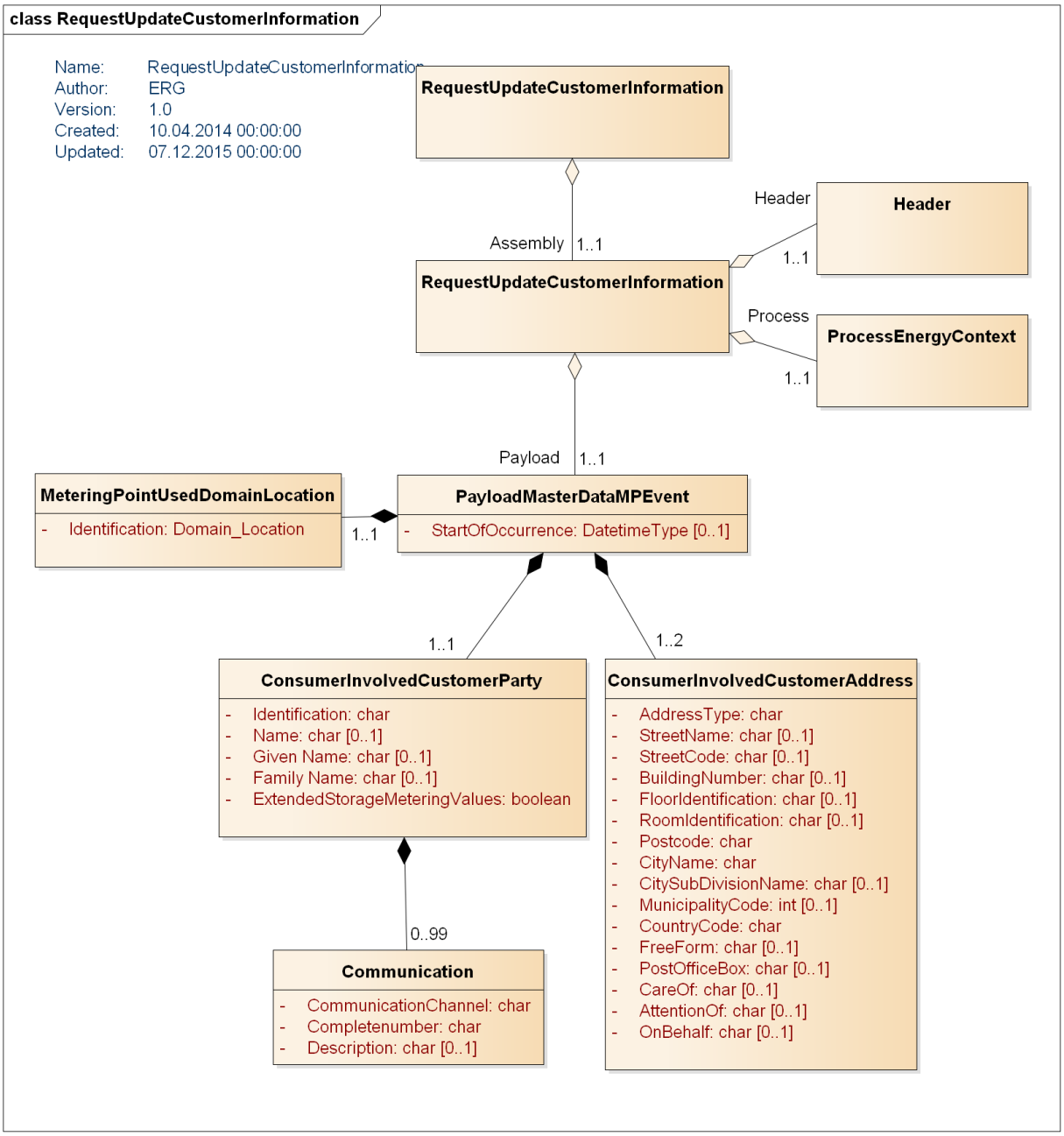


5.3.2 Messages update of masterdata – from balance supplier

The message used in the process is described below.

5.3.2.1 RequestUpdateCustomerInformation

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	E10	ebIX	Request for change of Master data, Metering point
Business Process	BRS-NO-301	Elhub	Update master data from balance supplier
Business Process Role	DDQ	UN/CEFACT	Balance supplier
	SLR	Elhub	Balance Supplier of Last Resort

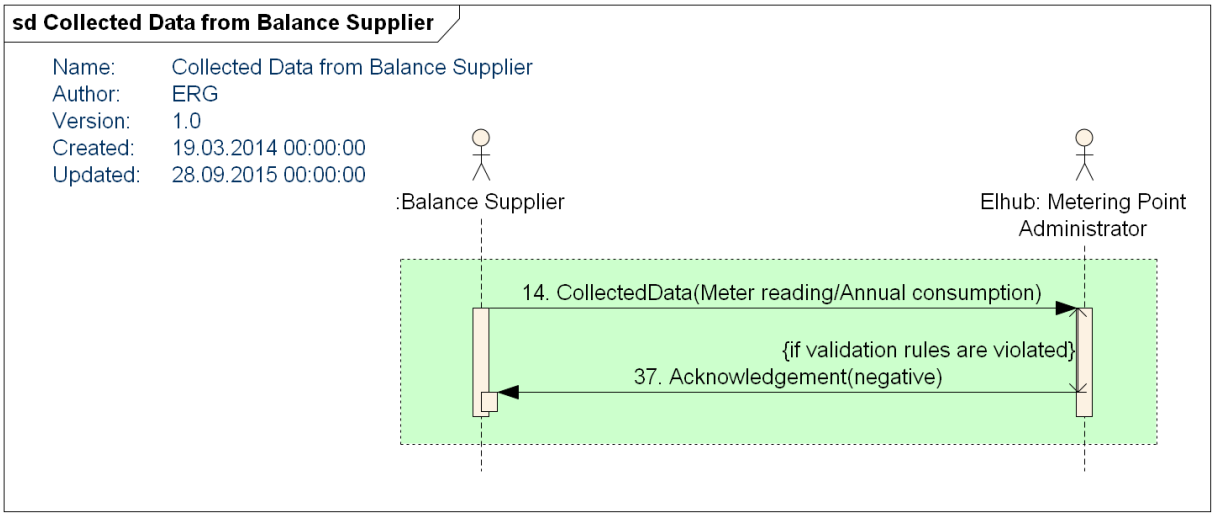
Message Implementation Guide

Ref. RequestUpdateCustomerInformation

5.4 Meter reading - from Balance Supplier

The process is used in conjunction with change of supplier, move in move out, etc. to update Elhub as a Metered Data Administrator with meter reading and/or estimated annual consumption for a specific metering point. Note that metering values for hourly read meters are not allowed in this process.

5.4.1 Sequence diagram meter reading – from balance supplier



5.4.2 Message

The message used in the process is described below.

5.4.2.1 Collected data

Class diagram
Ref. Class diagram

Code usage

Element name	Code	Code list responsible	Description
Document Type	E65	ebIX	Validated metered data, meter index
Business Process	BRS-NO-311	Elhub	Metering reading and expected annual consumption from balance supplier
Business Process Role	DDQ	UN/CEFACT	Balance supplier

Message Implementation Guide
Ref. CollectedData

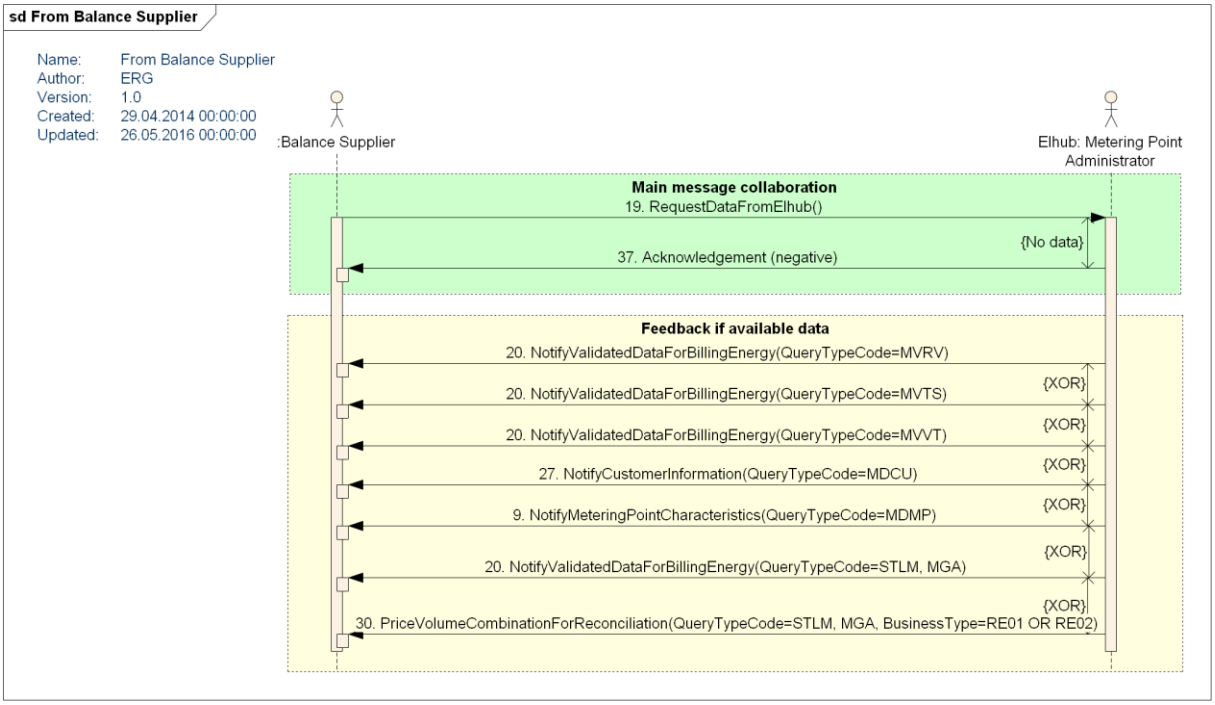
5.5 Query – from Market Parties

This process is used by the Balance Supplier/Balance Responsible/Party/Grid Access Provider/Third Party to query various types of data in Elhub. The QueryTypeCode element in the message (ref. Class diagram below) is used to specify the type of data the market parties are looking for.
The following query types are defined:

- MVRV - Metering values, meter read and volume. Period and Metering Point ID must be included in the message.
- MVTS - Metering values, time series. Period and Metering Point ID must be included in the message.
- MVVT - Metering values, both meter read and volume and time series. Period and Metering Point ID must be included in the message.
- MDCU - Masterdata, customer. Metering Point ID must be included the message.
- MDMP - Masterdata metering point.
- STLM - Settlement. Period and Metering Grid Area must be included in the message. If BusinessType in the query is RE01 (ATAM) or RE02 (APAM) the message returned to the sender is PriceVolumeCombinationForReconciliation otherwise the message returned is NotifyValidatedDataForBillingEnergy.

5.5.1 Sequence diagram query – from market parties

The sequence diagram is identical for all market parties. Balance supplier is used as an example.

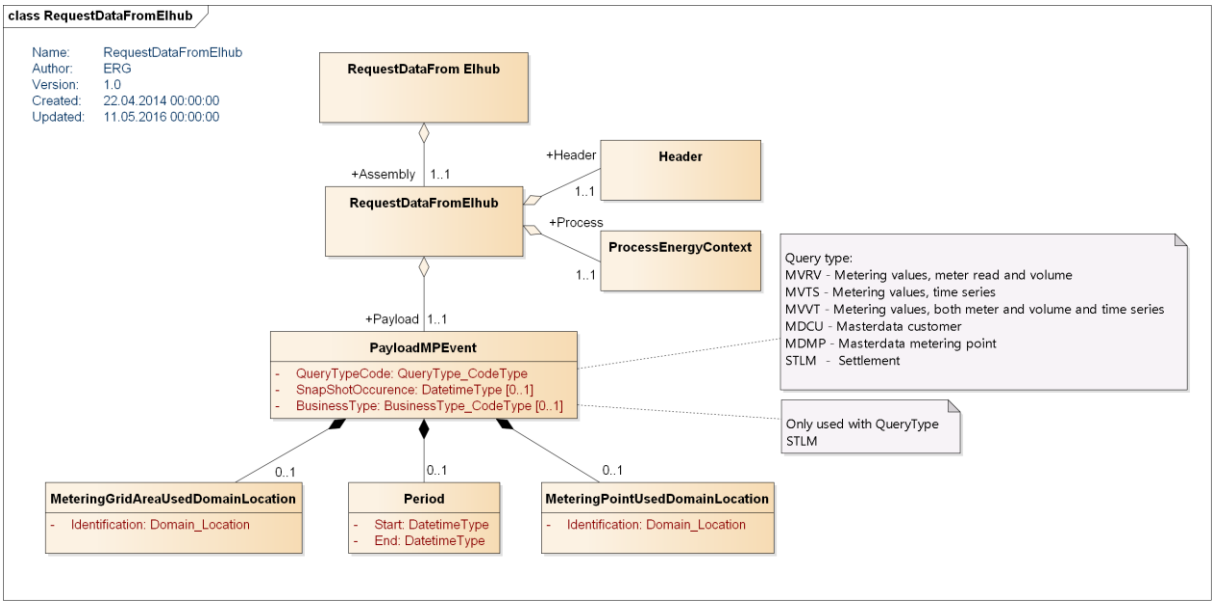


5.5.2 Messages query – from Market parties

The messages used in the process are described below.

5.5.2.1 RequestDataFromElhub

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	21	UN/CEFACT	Query. Request information based on defined criteria.
Business Process	BRS-NO-303	Elhub	Request master data
	BRS-NO-315	Elhub	Request for metering values
	BRS-NO-324	Elhub	Request basis for settlement
Business Process Role	DDQ	UN/CEFACT	Balance Supplier
	DDK	UN/CEFACT	Balance Reponsible Party
	DDM	UN/CEFACT	Grid Access Provider
	MDR	UN/CEFACT	Metered Data Responsible
	SLR	Elhub	Balance Supplier of Last Resort
	BSL	Elhub	Balance Supplier for Losses
	AG	UN/CEFACT	Third Party

Message Implementation Guide
Ref. RequestDataFromElhub

5.6 Update of master data – to Balance Supplier

This process is used when:

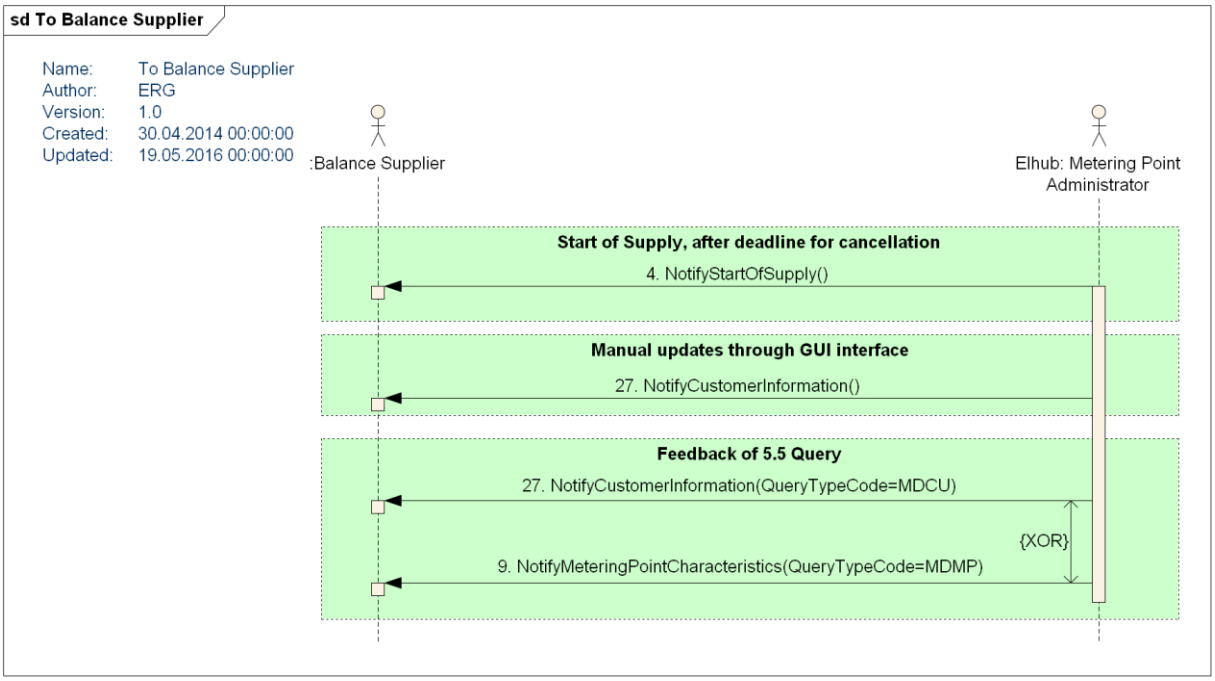
1. A start of supply is ready to be executed (Balance Supplier only)
2. Update of masterdata based on manual updates through the GUI interface in Elhub (Balance Supplier only)

3. Feedback of 5.5 Query –from Balance Supplier/Grid Access Provider/ThirdParty regarding masterdata.

The masterdata is split into 2 categories based on the query type in 5.5:

1. Customer information
2. Metering Point Characteristics

5.6.1 Sequence diagram update of master data – to balance supplier

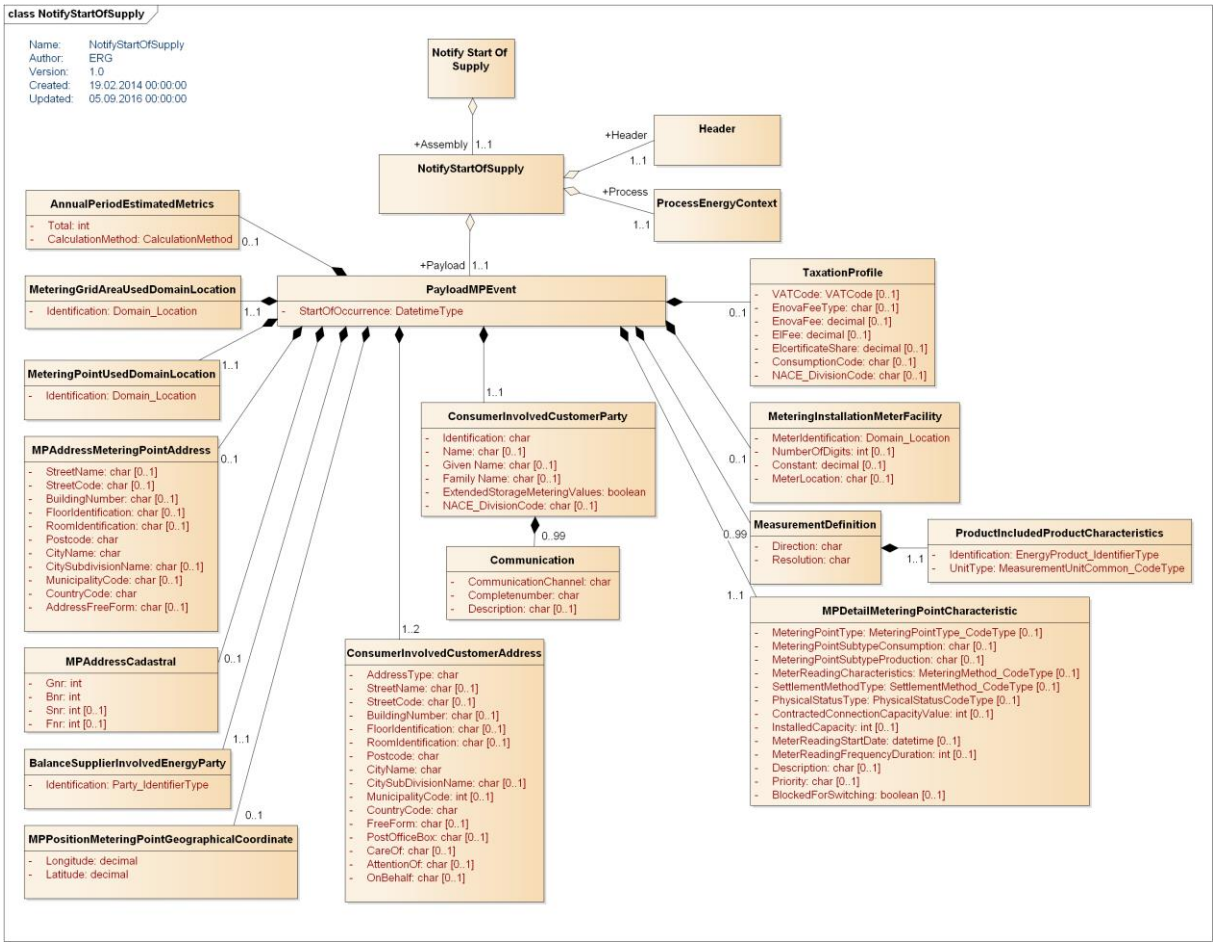


5.6.2 Messages update of master data – to balance supplier

The messages used in this process are described below.

5.6.2.1 NotifyStartOfSupply

Class diagram



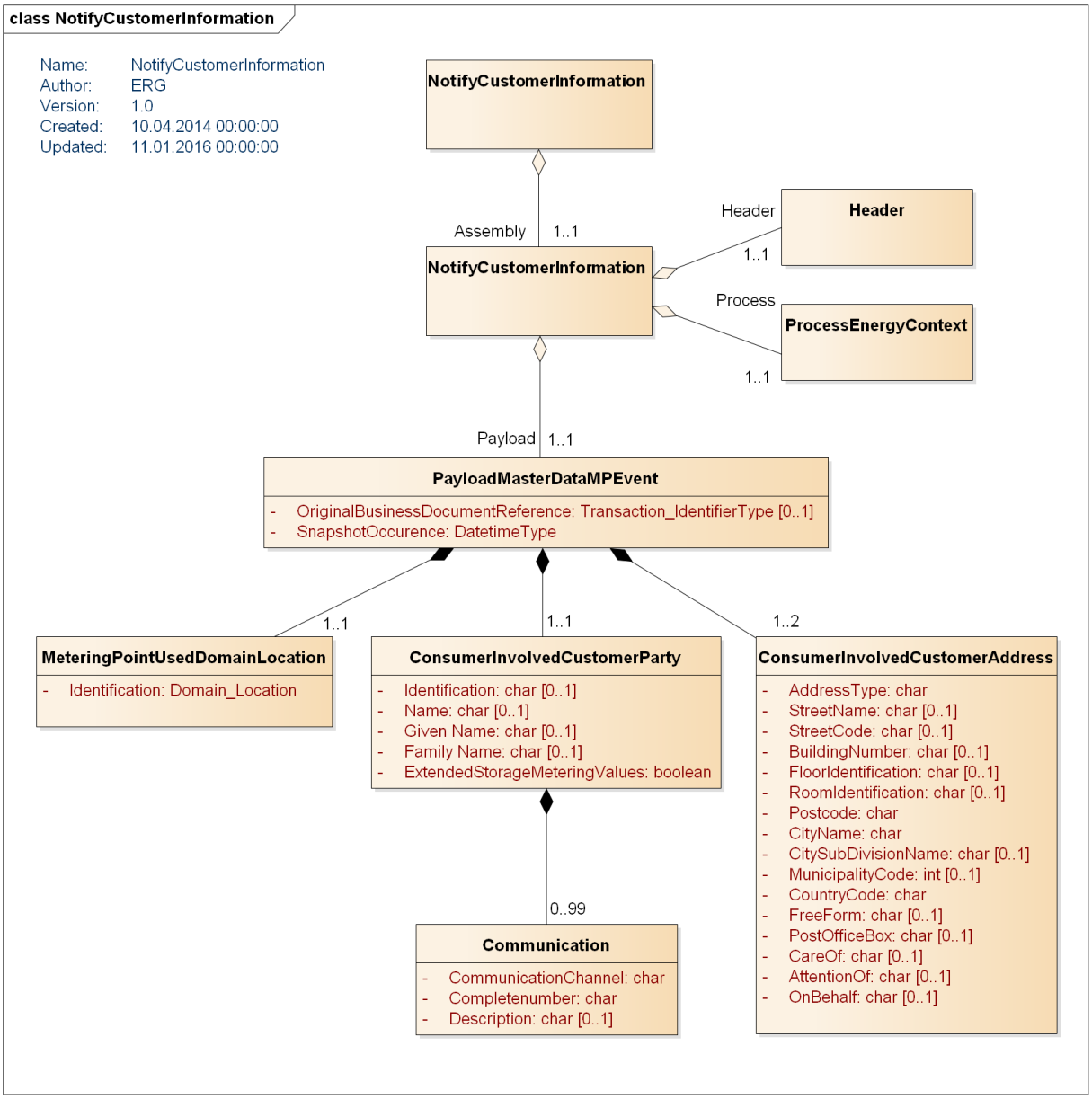
Code usage

Element name	Code	Code list responsible	Description
Document Type	414	UN/CEFACT	Acknowledgement of change of supplier
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-101	Elhub	Start of supply - Change of supplier
	BRS-NO-102	Elhub	Start of supply - move in - in the future
	BRS-NO-103	Elhub	Start of supply - move in - back in time
	BRS-NO-104	Elhub	Change of supplier from last resort
	BRS-NO-111	Elhub	Rollback - start of supply
	BRS-NO-123	Elhub	New grid access contract - move in
	BRS-NO-133	Elhub	Rollback of new grid access contract
	BRS-NO-202	Elhub	End of supply
	BRS-NO-221	Elhub	Rollback of end of supply
	BRS-NO-222	Elhub	Rollback of move out
	BRS-NO-305	Elhub	Changes to meteringpoint initiated by Elhub
Business Process Role	DDQ	UN/CEFACT	Balance Supplier
	SLR	Elhub	Supplier of Last Resort

Message Implementation Guide
Ref. NotifyStartOfSupply

5.6.2.2 NotifyCustomerInformation

Class diagram



Code usage

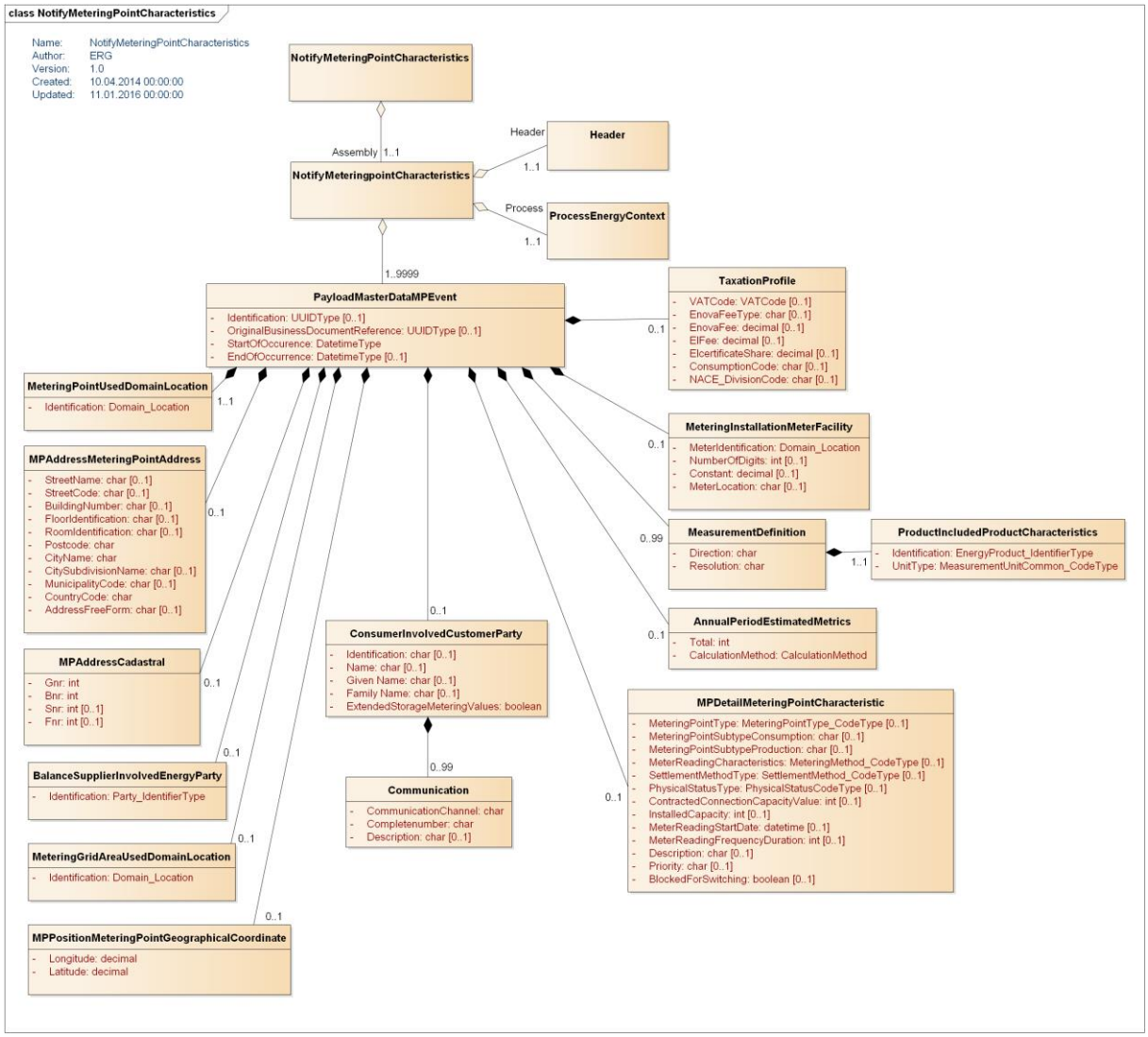
Element name	Code	Code list responsible	Description
Document Type	21	UN/CEFACT	Query. Request information based on defined criteria.
	E10	ebIX	Request for change of Master data, Metering point
Business Process	BRS-NO-301	Elhub	Update master data from balance supplier
	BRS-NO-303	Elhub	Request master data
Business Process Role	DDQ	UN/CEFACT	Balance Supplier

Element name	Code	Code list responsible	Description
	DDM	UN/CEFACT	Grid Access Provider
	AG	UN/CEFACT	3. Party
	SLR	Elhub	Balance Supplier of Last Resort

Message Implementation Guide
Ref. NotifyCustomerInformation

5.6.2.3 NotifyMeteringPointCharacteristics

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	21	UN/CEFACT	Query. Request information based on defined criteria.

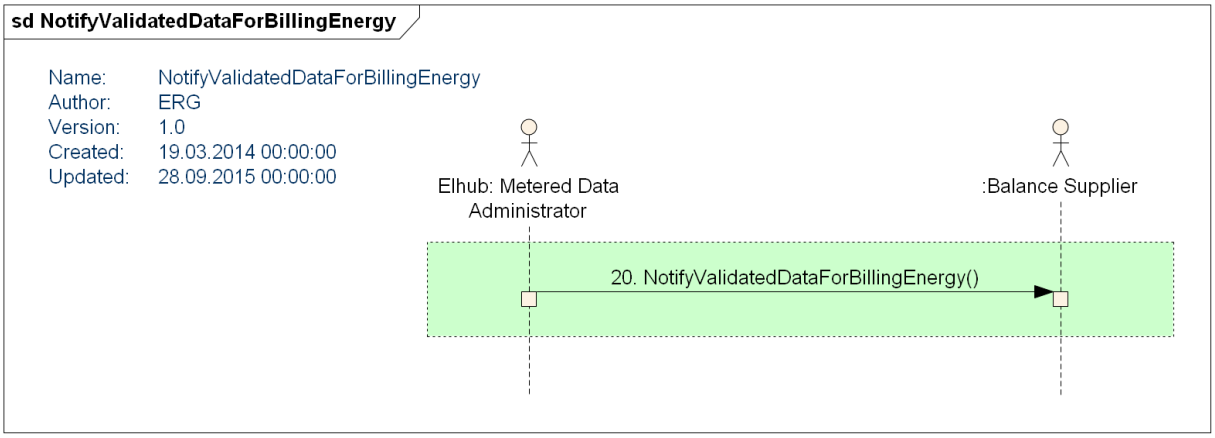
Element name	Code	Code list responsible	Description
	E58	ebIX	Request for change of Master data, Metering point
Business Process	BRS-NO-302	Elhub	Update master data from grid access provider
	BRS-NO-303	Elhub	Request master data
	BRS-NO-305	Elhub	Changes to meteringpoint initiated by Elhub
	BRS-NO-306	Elhub	Change of settlement method
	BRS-NO-317	Elhub	Update expected annual consumption
	BRS-NO-402	Elhub	Correction of master data from grid access provider
Business Process Role	DDQ	UN/CEFACT	Balance Supplier
	DDM	UN/CEFACT	Grid Access Provider
	AG	UN/CEFACT	3. Party
	SLR	Elhub	Balance Supplier of Last Resort

Message Implementation Guide
Ref. NotifyMeteringPointCharacteristics

5.7 Metering values – to Market parties

The process is used to inform the Balance Supplier/Balance Responsible/Grid Access Provider/Third Party of metering values per metering point in conjuction with the market processes, when metering values are received from the Metered Data Collector and as feedback on 5.5 Query from Balance Supplier/Grid Access Provider/Third Party regarding metering values.

5.7.1 Sequence diagram metering values – to balance supplier



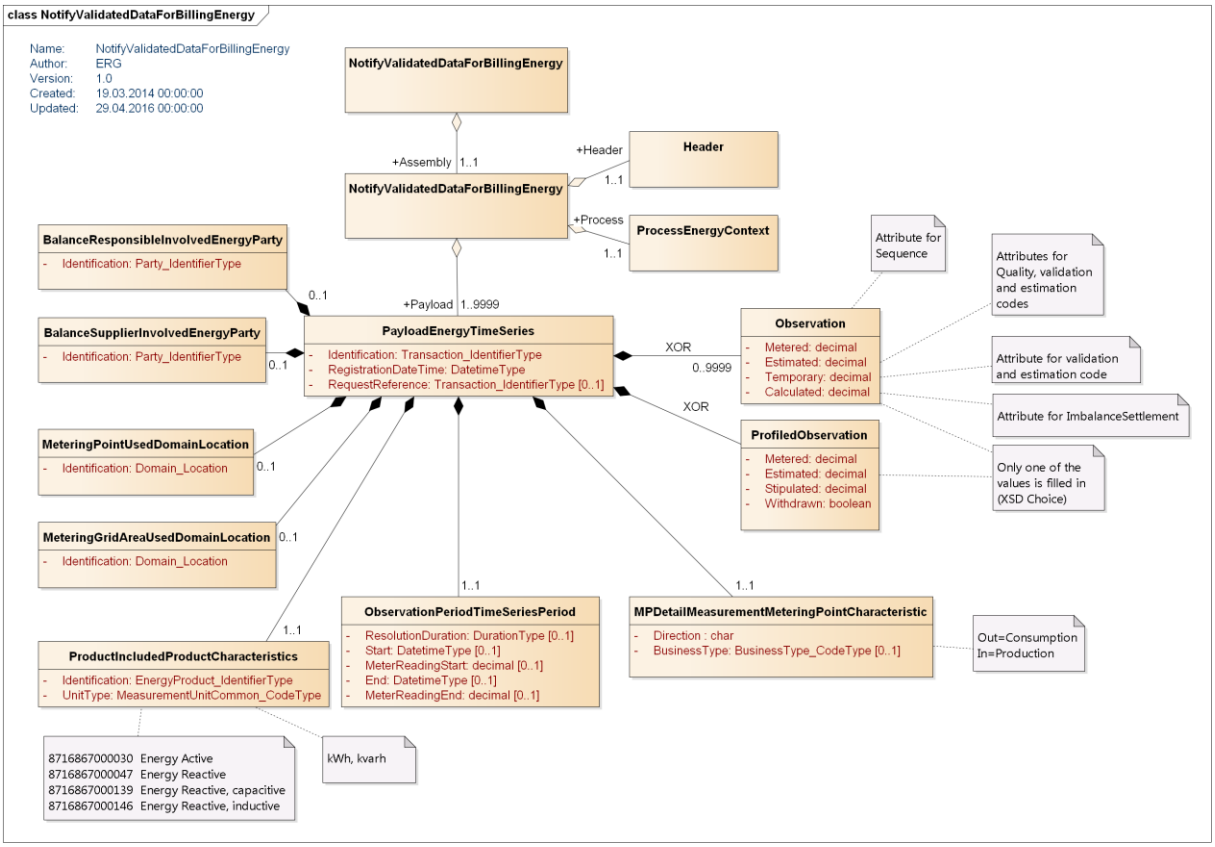
For the other market parties, the message exchange is identical.

5.7.2 Message metering values – to balance supplier

The message used in the process is described below.

5.7.2.1 NotifyValidatedDataForBillingEnergy

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	E65	ebIX	Validated metered data
	E66	ebIX	Validated metered data, time series
	E67	ebIX	Cancellation
	21	UN/CEFACT	Query. Request information based on defined criteria.
Business Process	BRS-NO-312	Elhub	Reporting of metering values for profiled metering points
	BRS-NO-313	Elhub	Reporting of metering values for non-profiled metering points
	BRS-NO-315	Elhub	Request for metering values
	BRS-NO-332	Elhub	Withdrawal of profiled metering value
Business Process Role	DDQ	UN/CEFACT	Balance Supplier

Element name	Code	Code list responsible	Description
	DDK	UN/CEFACT	Balance Responsible Party
	DDM	UN/CEFACT	Grid Access Provider
	MDR	UN/CEFACT	Metered Data Responsible
	AG	UN/CEFACT	Third Party

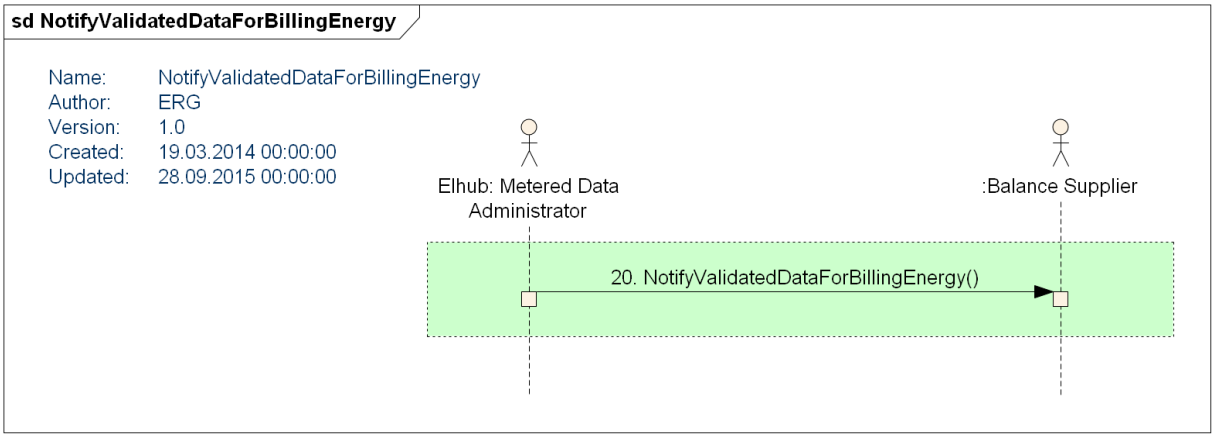
Message Implementation Guide
Ref. NotifyValidatedDataForBillingEnergy

5.8 Settlement – to Market parties

Elhub calculates time series for profiled metering points per balance supplier and metering grid area.

The settlement message in this process contains the calculated time series and is sent automatically if it is indicated in the profile of the the Balance Supplier/Balance Responsible/Grid Access Provider/Third Party.
In 5.5 it is possible to order the settlement manually by using query type code STLM and business type not equal RE01 and RE02.

5.8.1 Sequence diagram settlement – to balance supplier



For the other market parties, the message exchange is identical.

5.8.2 Message settlement – to balance supplier

The message used in this process is the same as used in 5.7.

Code usage

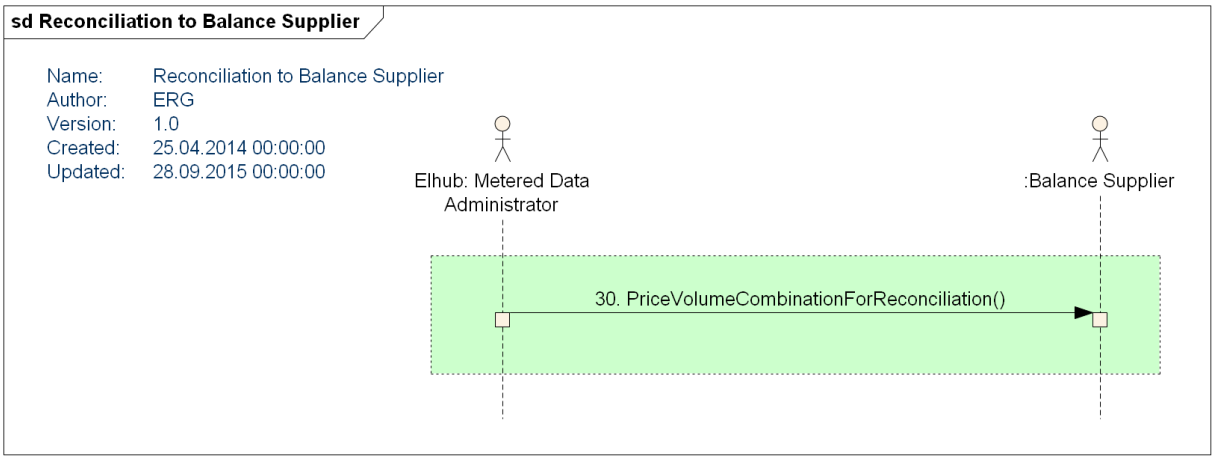
Element name	Code	Code list responsible	Description
Document Type	E66	ebIX	Validated metered data, time series
	E31	ebIX	Aggregate metered data
Business Process	BRS-NO-321	Elhub	Quality assurance - grid owner
	BRS-NO-322	Elhub	Preliminary profiled consumption to balance supplier

Element name	Code	Code list responsible	Description
	BRS-NO-324	Elhub	Query settlement
	BRS-NO-502	Elhub	Reporting data for Imbalance Settlement
Business Process Role	DDQ	UN/CEFACT	Balance Supplier
	DDM	UN/CEFACT	Grid access provider
	DDK	UN/CEFACT	Balance responsible

5.9 Reconciliation – to Balance Supplier

The reconciliation process runs in Elhub once a month and calculates aggregated values per balance supplier/metering grid area split into profiled and non profiles metering points. Only metering points where metering values are changed after the closing of the balance settlement are included in the calculation.
The result of the calculation is reported to the balance suppliers in this process by the message PriceVolumeCombinationForReconciliation.
In 5.5 it is possible to order the reconciliation manually by using query type code STLM and business type equal to RE01 or RE02.

5.9.1 Sequence diagram reconciliation – to balance supplier

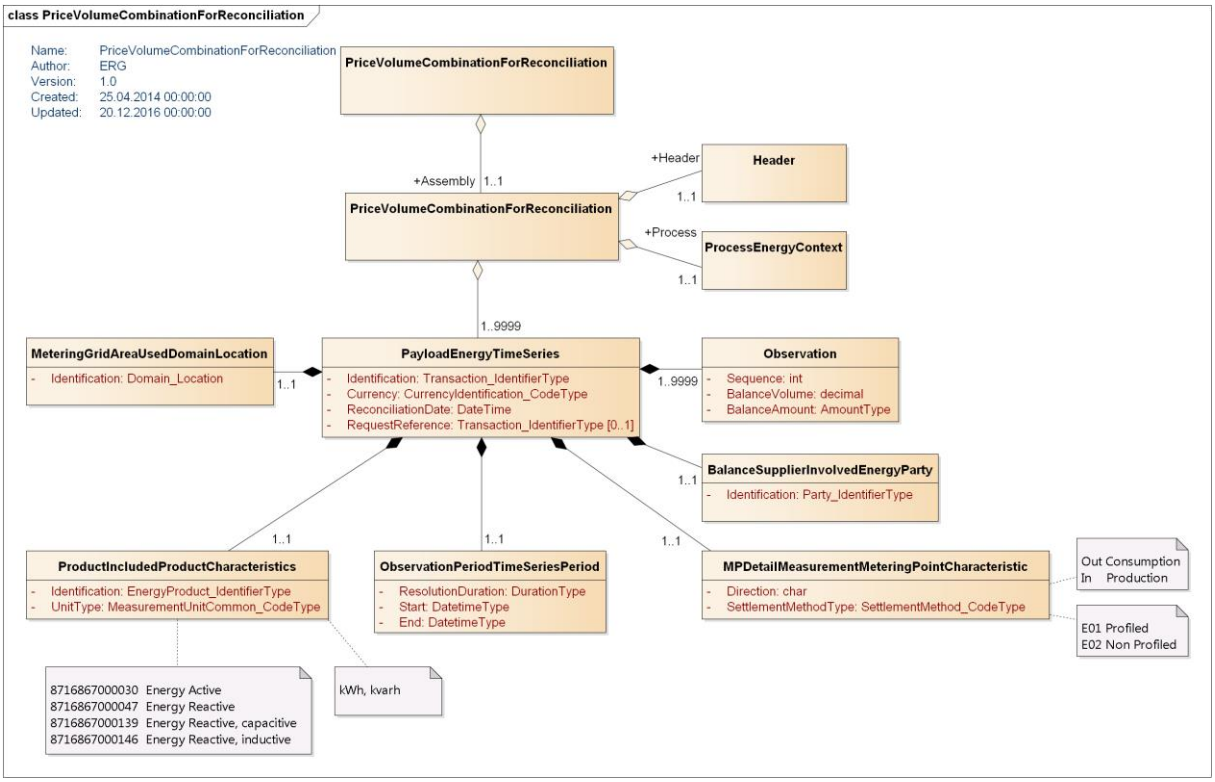


5.9.2 Message reconciliation – to balance supplier

The message used in the process is described below.

5.9.2.1 Price Volume Combination for Reconciliation

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	E66	ebIX	Validated metered data, time series
Business Process	BRS-NO-503	Elhub	Reporting data for reconciliation
Business Process Role	DDQ	UN/CEFACT	Balance Supplier

Message Implementation Guide Ref. PriceVolumeCombinationForReconciliation

5.10 End of supply – from Balance Supplier

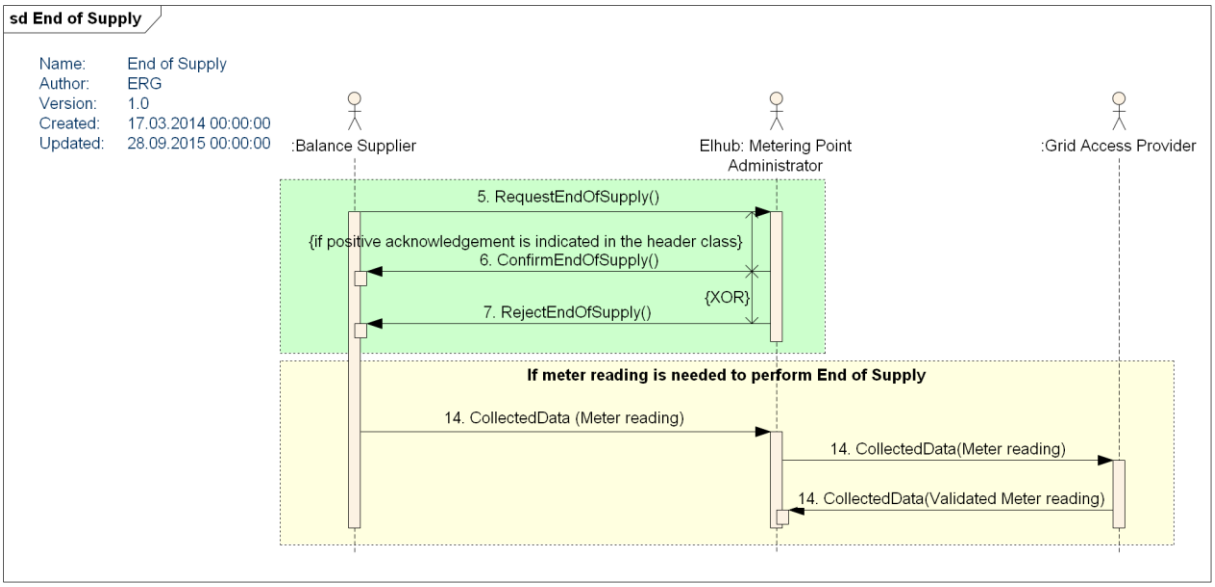
The process is generally used for termination of a supply contract in a metering point. The following business processes are supported:

1. Customer move out
2. Termination av contract
3. Cancellation/rollback of 1 and 2 above

The process starts with the message Request end of supply from the balance supplier to Elhub. If the validation of the message is OK and the element regarding positive acknowledgement is set in the Header class, the message ConfirmEndOfSupply is returned. If the message violates the validation rules the message RejectEndOfSupply is returned.

If a meter read is needed to perform the end of supply, the message CollectedData could be sent from the balance supplier to Elhub.

5.10.1 Sequence diagram end of supply – from balance supplier

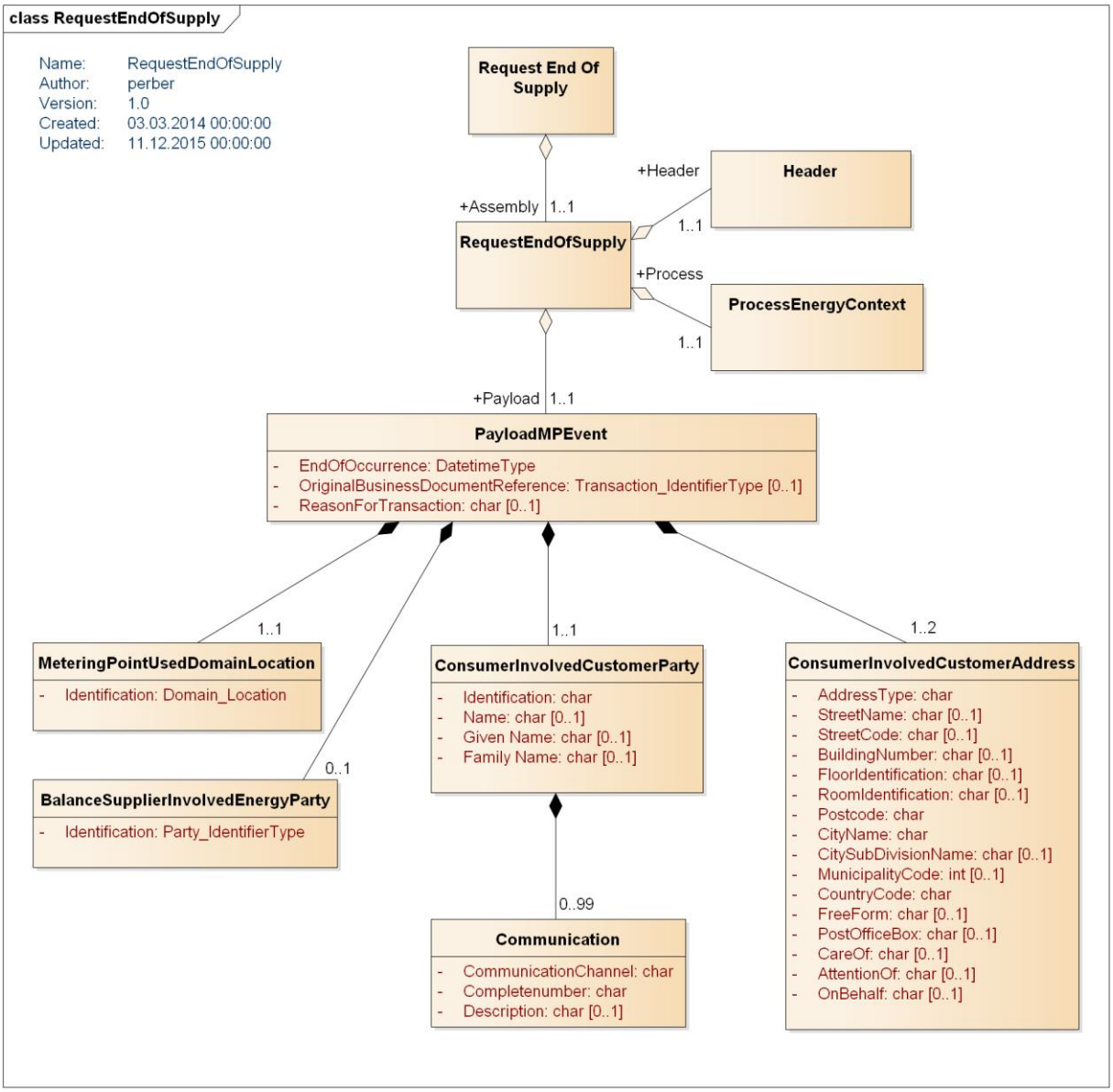


5.10.2 Messages end of supply – from balance supplier

The messages used in the process are described below.

5.10.2.1 Request End of supply

Class diagram



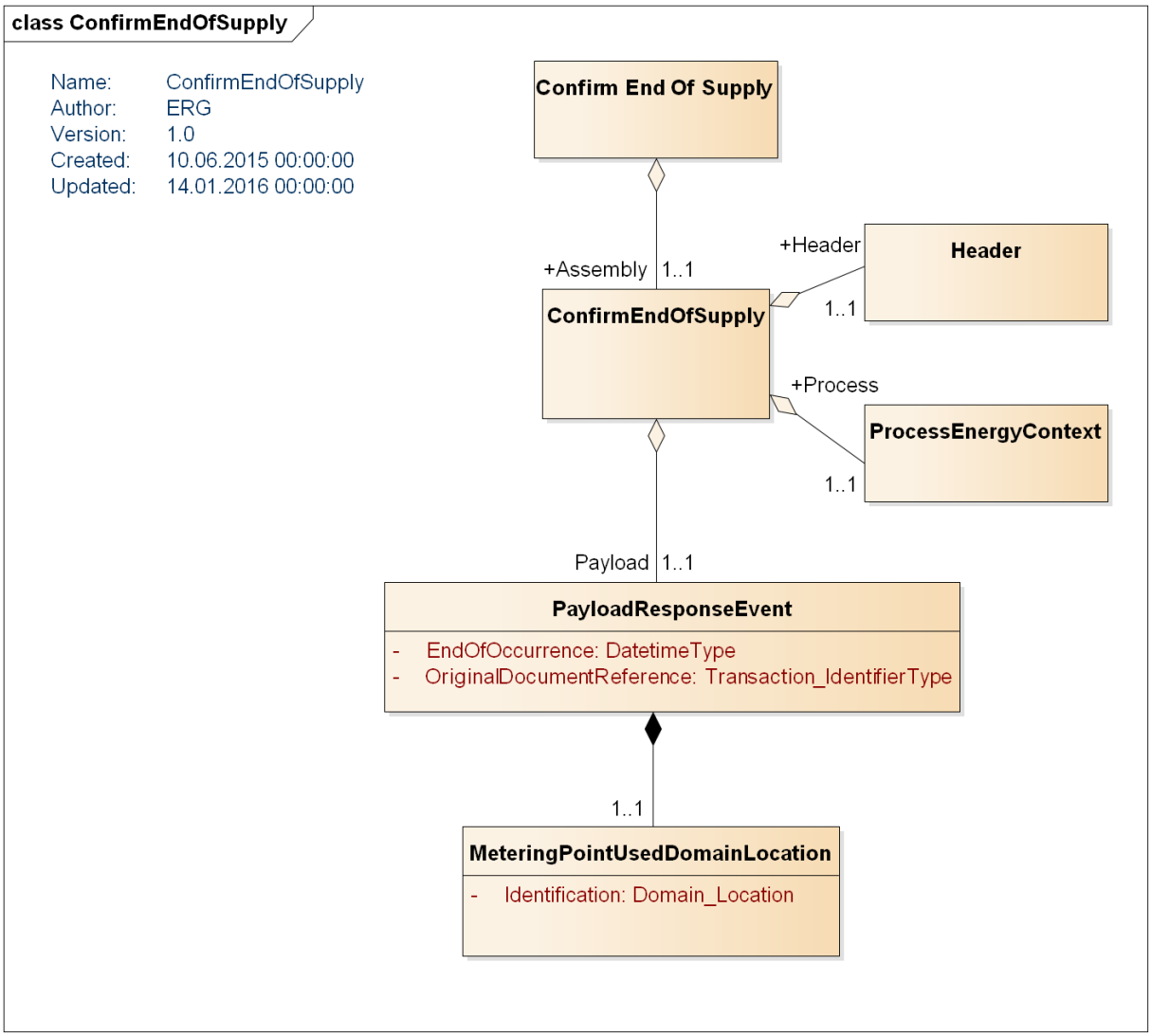
Code usage

Element name	Code	Code list responsible	Description
Document Type	432	UN/CEFACT	Notification of contract termination
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-201	Elhub	End of supply due to move out
	BRS-NO-202	Elhub	End of supply
	BRS-NO-221	Elhub	Rollback of end of supply
Business Process Role	DDQ	UN/CEFACT	Balance supplier

Message Implementation Guide
Ref. RequestEndOfSupply

5.10.2.2 Confirm End of Supply

Class diagram



Code usage

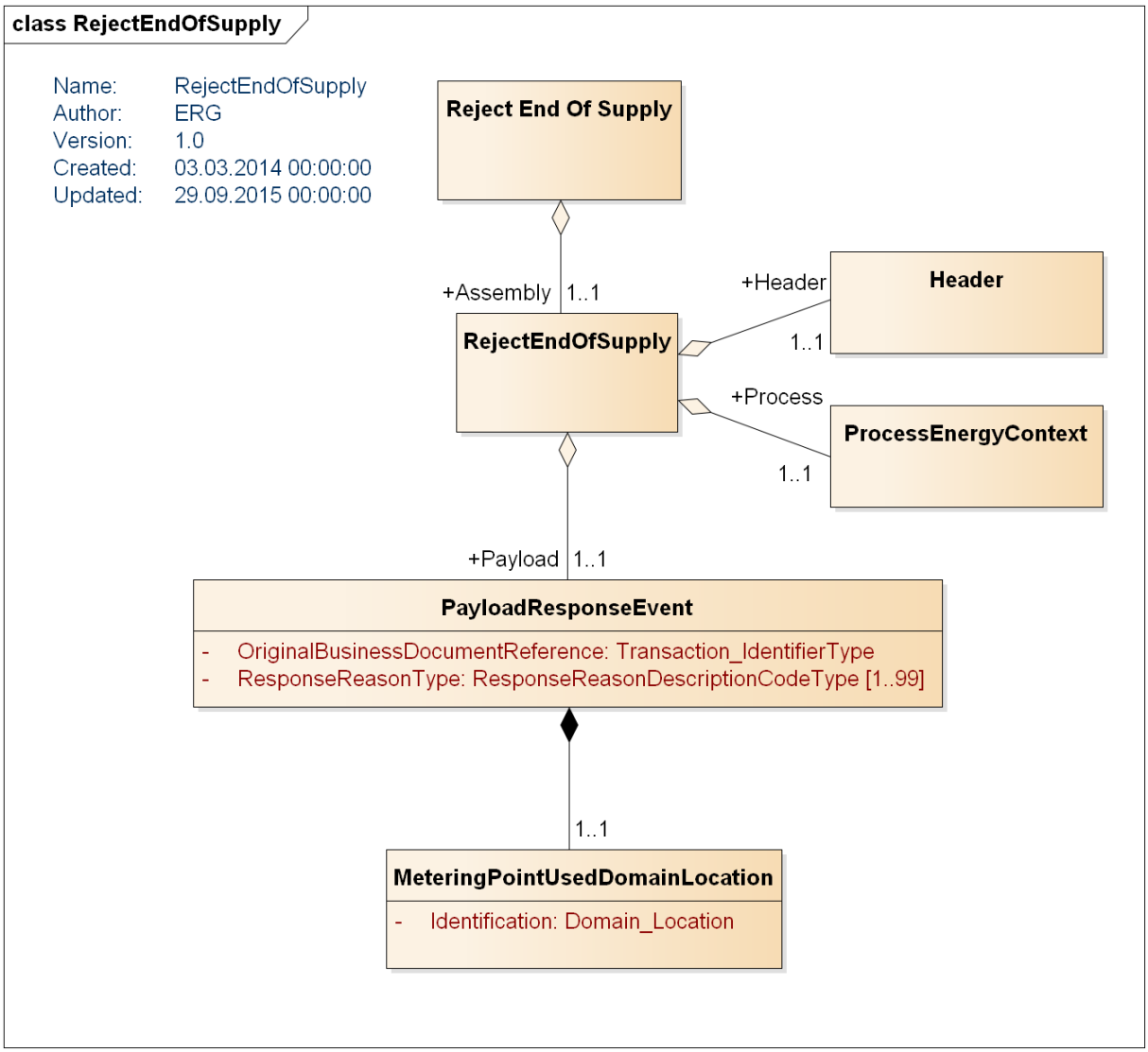
Element name	Code	Code list responsible	Description
Document Type	406	UN/CEFACT	Notification to supplier of contract termination
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-201	Elhub	End of supply due to move out
	BRS-NO-202	Elhub	End of supply
	BRS-NO-221	Elhub	Rollback of end of supply
Business Process Role	DDQ	UN/CEFACT	Balance supplier

Message Implementation Guide

Ref. ConfirmEndOfSupply

5.10.2.3 Reject End of supply

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	406	UN/CEFACT	Notification to supplier of contract termination
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-201	Elhub	End of supply due to move out
	BRS-NO-202	Elhub	End of supply
	BRS-NO-221	Elhub	Rollback of end of supply
Business Process Role	DDQ	UN/CEFACT	Balance Supplier
ResponseReason	E10	ebIX	Metering point not identifiable
	E16	ebIX	Unauthorized balance supplier
	E17	ebIX	Requested switch date not within time limits
	E22	ebIX	Metering point blocked for switching

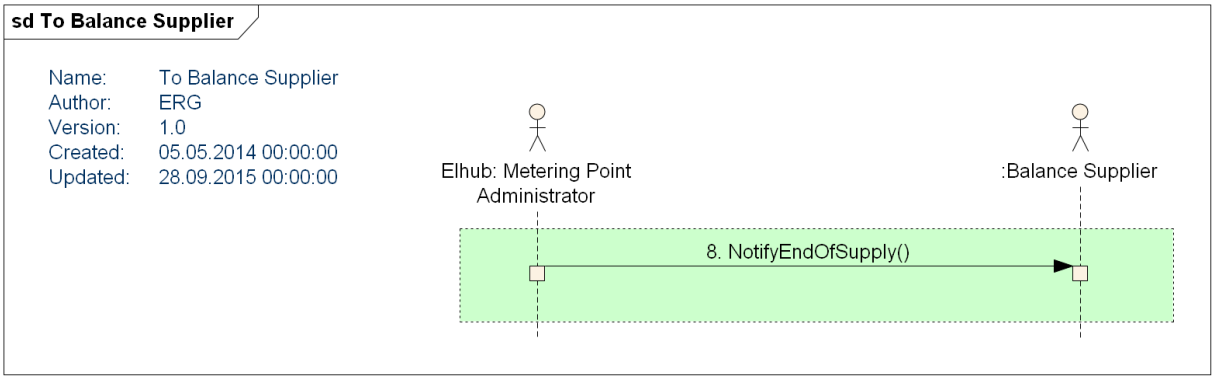
Message Implementation Guide

Ref. RejectEndOfSupply

5.11 End of supply – to Balance Supplier

This process is generally used to terminate a supply contract in a metering point due to change of balance supplier or customer move out. In case of change of balance supplier this process is used to inform the previous balance supplier of the termination of the contract.

5.11.1 Sequence diagram end of supply – to balance supplier

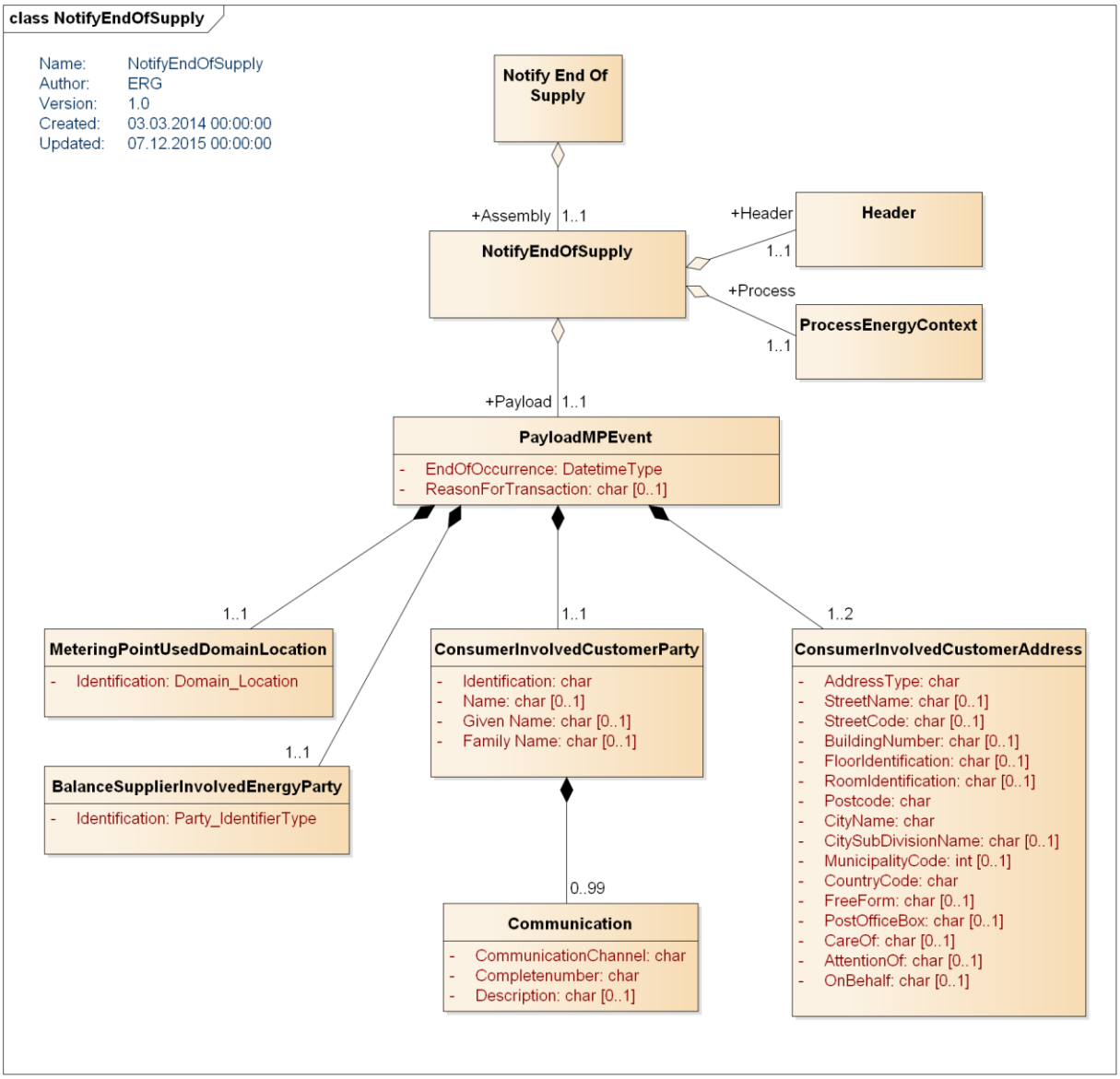


5.11.2 Message end of supply – to balance supplier

The only message used in this process is described below.

5.11.2.1 Notify End of supply

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	406	UN/CEFACT	Notification to supplier of contract termination
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-101	Elhub	Start of supply - Change of supplier
	BRS-NO-102	Elhub	Start of supply - move in - in the future
	BRS-NO-103	Elhub	Start of supply - move in - back in time
	BRS-NO-104	Elhub	Change of supplier from last resort
	BRS-NO-111	Elhub	Rollback - start of supply
	BRS-NO-123	Elhub	New grid access contract - move in
	BRS-NO-133	Elhub	Rollback of new grid access contract
	BRS-NO-211	Elhub	End of supply due to move out
	BRS-NO-212	Elhub	Deactivation of metering point
	BRS-NO-222	Elhub	Rollback of move out

Element name	Code	Code list responsible	Description
	BRS-NO-305	Elhub	Changes to meteringpoint initiated by Elhub
Business Process Role	DDQ SLR	UN/CEFACT Elhub	Balance Supplier Balance Supplier of Last Resort

Message Implementation Guide
Ref. NotifyEndOfSupply

5.12 Metering values – to Grid Access Provider

This process is identical to Metering values – to Balance Supplier ...

5.13 Start in metering point – from Grid Access Provider

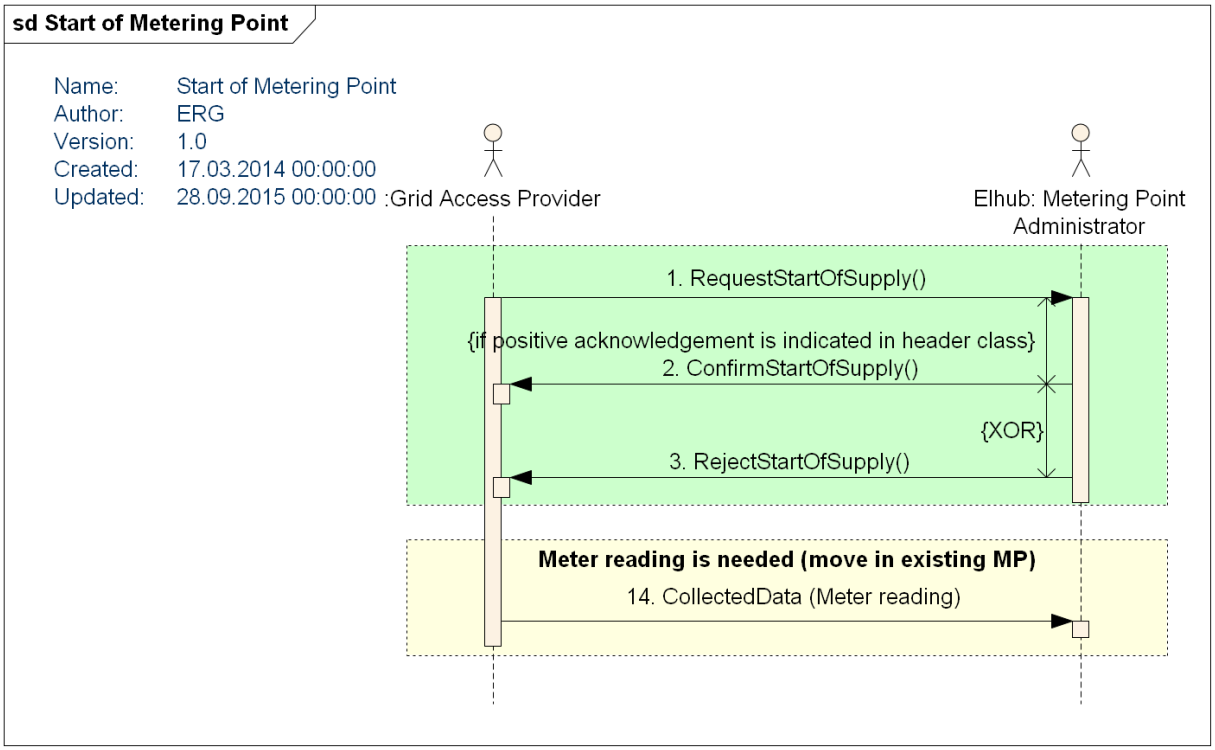
This process is generally used for activation of a metering point due to a customer move in.
The following business processes are supported:

- Customer move in
- Cancellation/rollback of customer move in

The process starts with the message Request start of supply from the grid access provider to Elhub. If the validation of the message is OK and the element regarding positive acknowledgement is set in the Header class, the message ConfirmStartOfSupply is returned. If the message violates the validation rules the message RejectStartOfSupply is returned.

If a meter read is needed, the message CollectedData must be sent to Elhub.

5.13.1 Sequence diagram start in metering point – from grid access provider

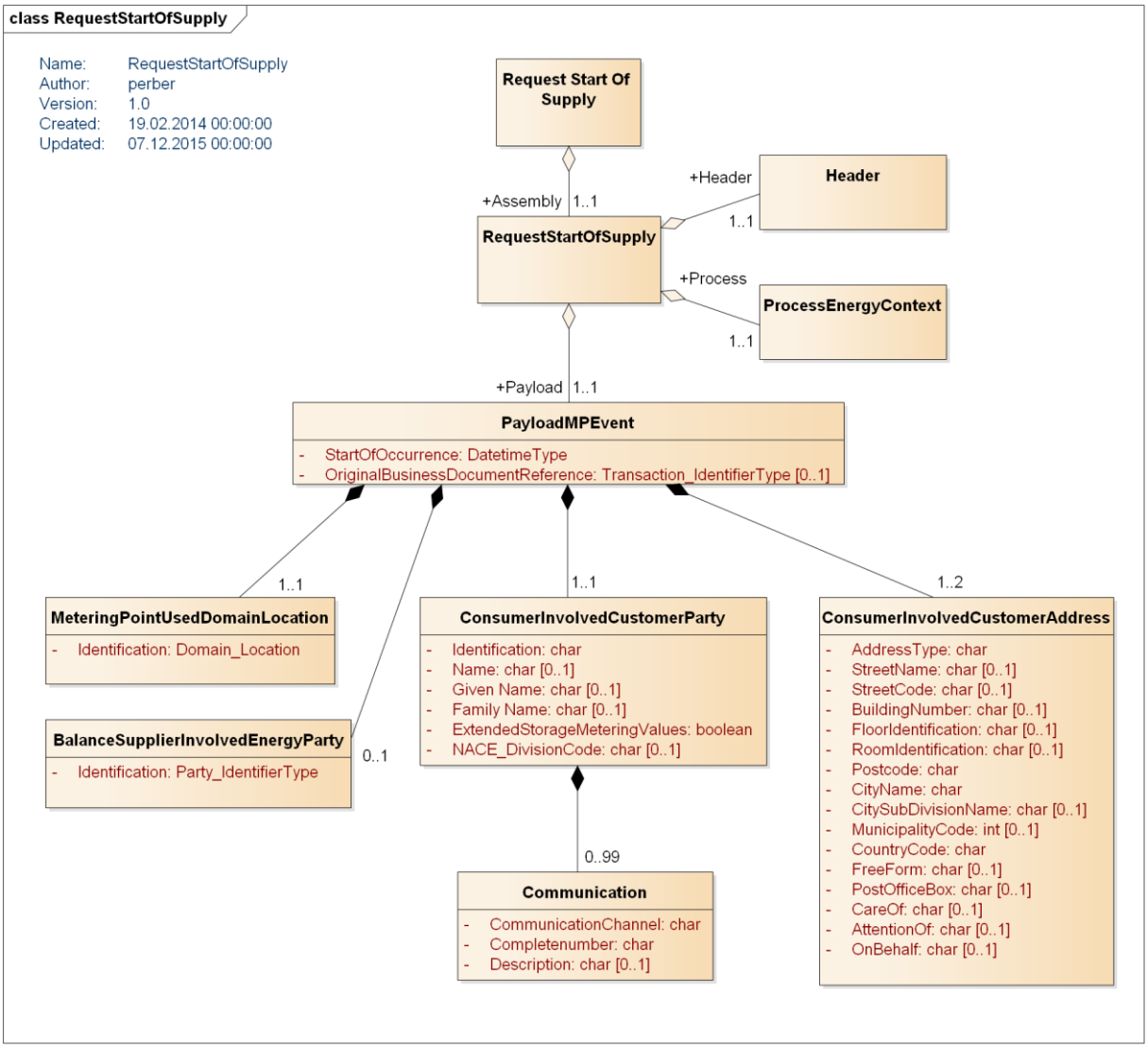


5.13.2 Messages start in metering point – from grid access provider

The messages used in the process are described below.

5.13.2.1 Request start of supply

Class diagram



Code usage

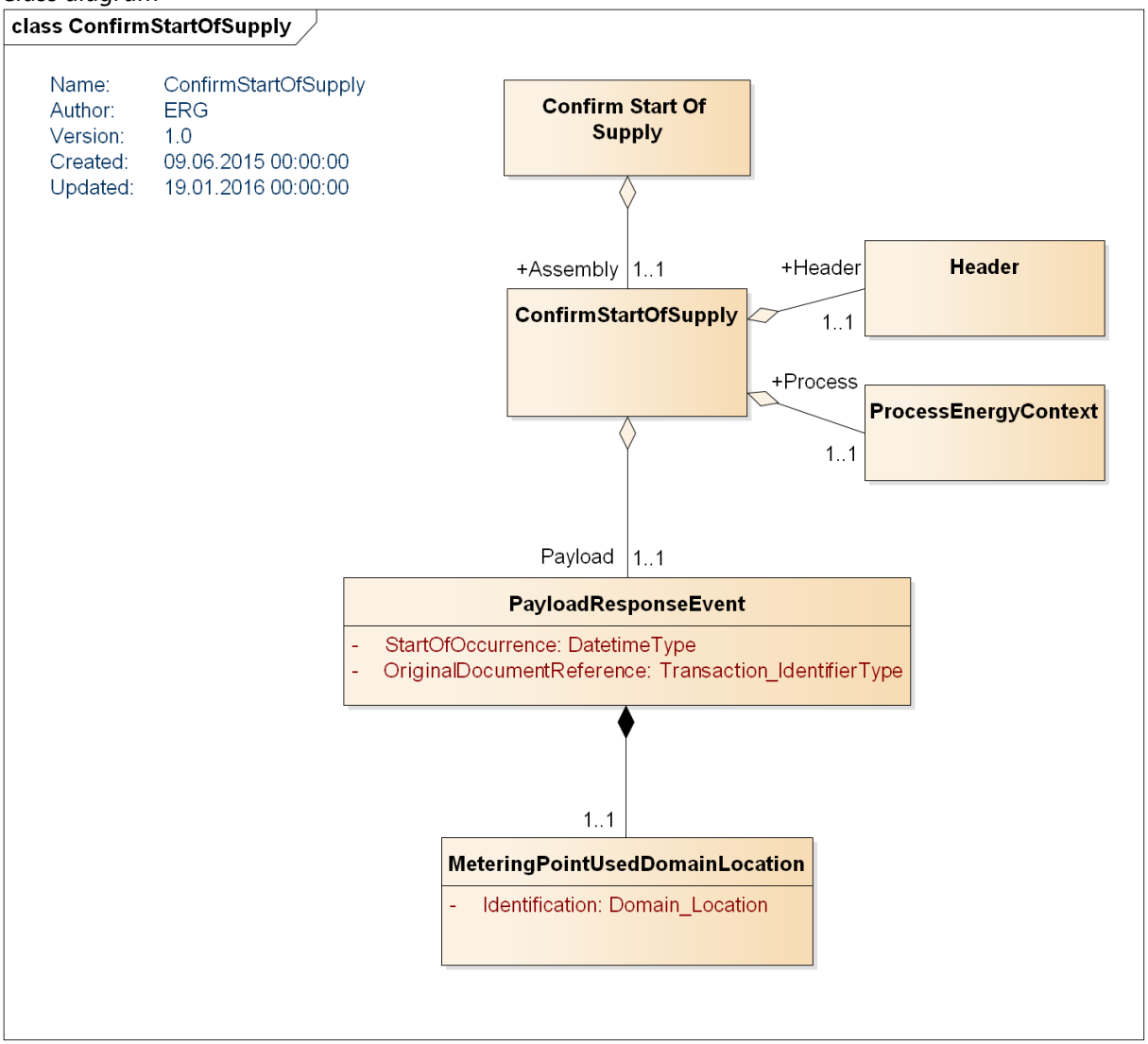
Element name	Code	Code list responsible	Description
Document Type	392	UN/CEFACT	Request change of supplier
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-123	Elhub	New grid access contract - move in
	BRS-NO-133	Elhub	Rollback of new grid access contract
Business Process Role	DDM	UN/CEFACT	Grid access provider

Message Implementation Guide

Ref. RequestStartOfSupply

5.13.2.2 Confirm start of supply

Class diagram



Code usage

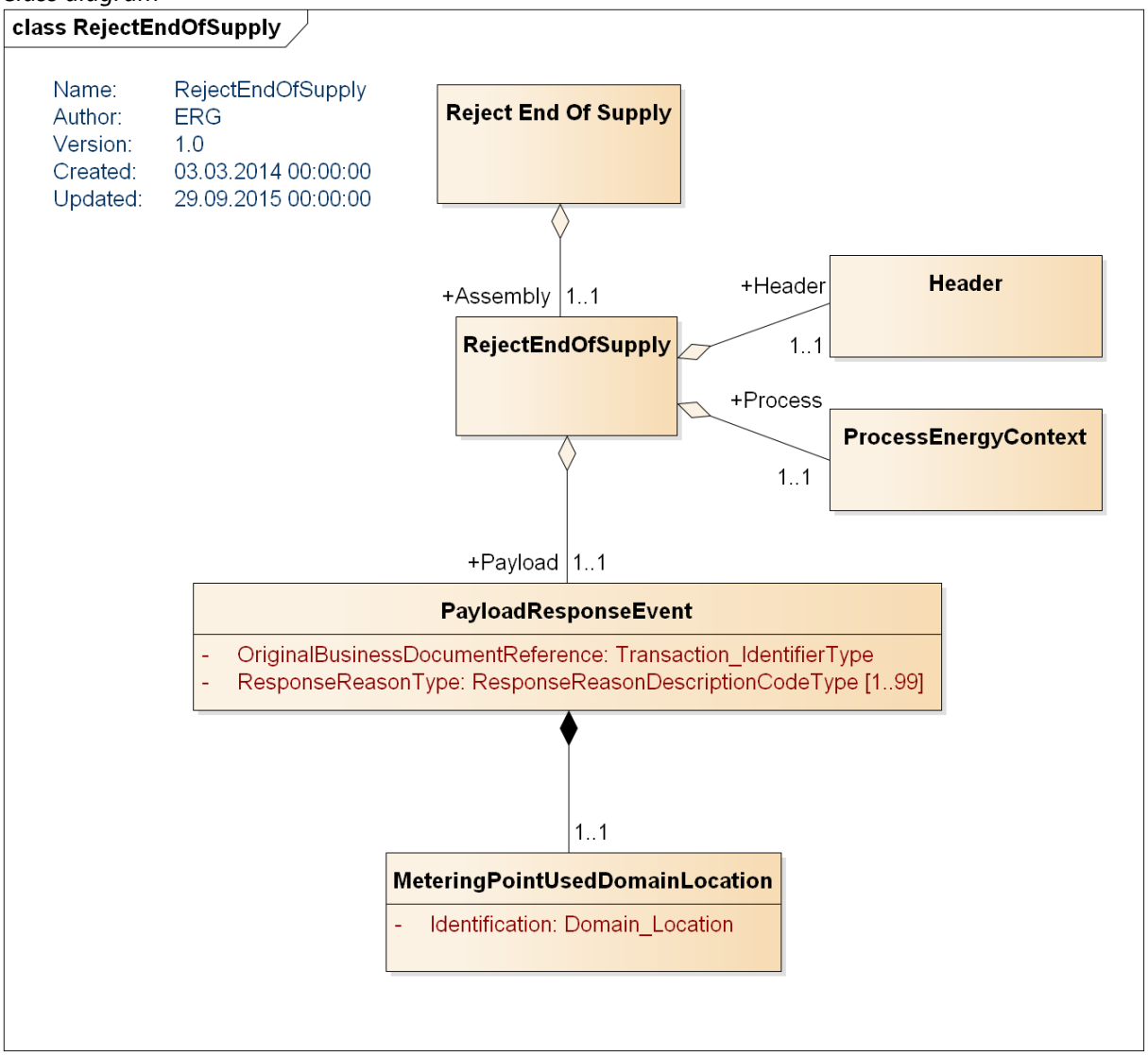
Element name	Code	Code list responsible	Description
Document Type	414	UN/CEFACT	Acknowledgement of change of supplie
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-123	Elhub	New grid access contract - move in
	BRS-NO-133	Elhub	Rollback of new grid access contract
Business Process Role	DDM	UN/CEFACT	Grid access provider

Message implementation guide

Ref. ConfirmStartOfSupply

5.13.2.3 Reject start of supply

Class diagram



Code usage

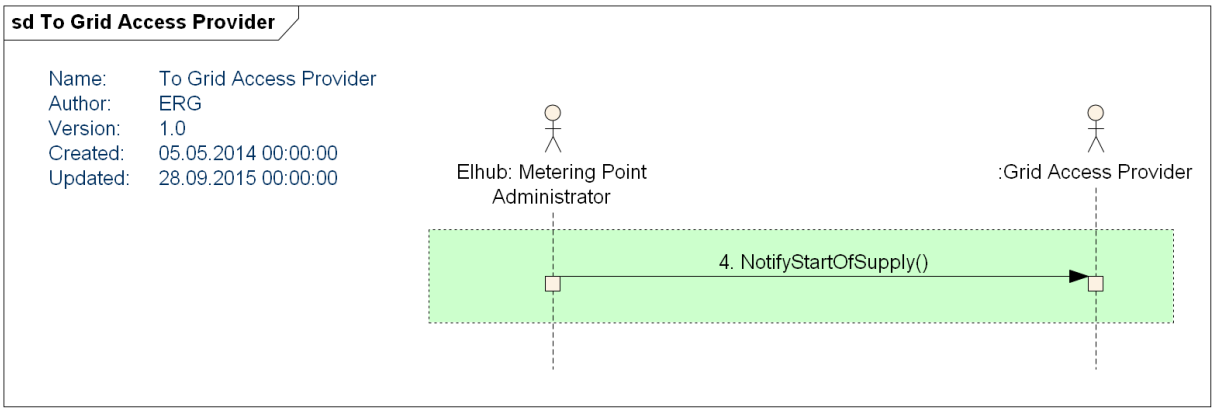
Element name	Code	Code list responsible	Description
Document Type	414	UN/CEFACT	Acknowledgement of change of supplie
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-123	Elhub	New grid access contract - move in
	BRS-NO-133	Elhub	Rollback of new grid access contract
Business Process Role	DDM	UN/CEFACT	Grid access provider
ResponseReason	E10	ebIX	Metering point not identifiable
	E16	ebIX	Unauthorized balance supplier
	E17	ebIX	Requested switch date not within time limits
	E22	ebIX	Metering point blocked for switching
	..	..	

Message Implementation Guide
Ref. RejectStartOfSupply

5.14 Start in metering point – to Grid Access Provider

This process is generally used to start a supply contract in a metering point due to customer move in or change of balance supplier by using the message NotifyStartOfSupply.

5.14.1 Sequence diagram start in metering point – to grid access provider



5.14.2 Message start in metering point – to grid access provider

The only message used is NotifyStartOfSupply.

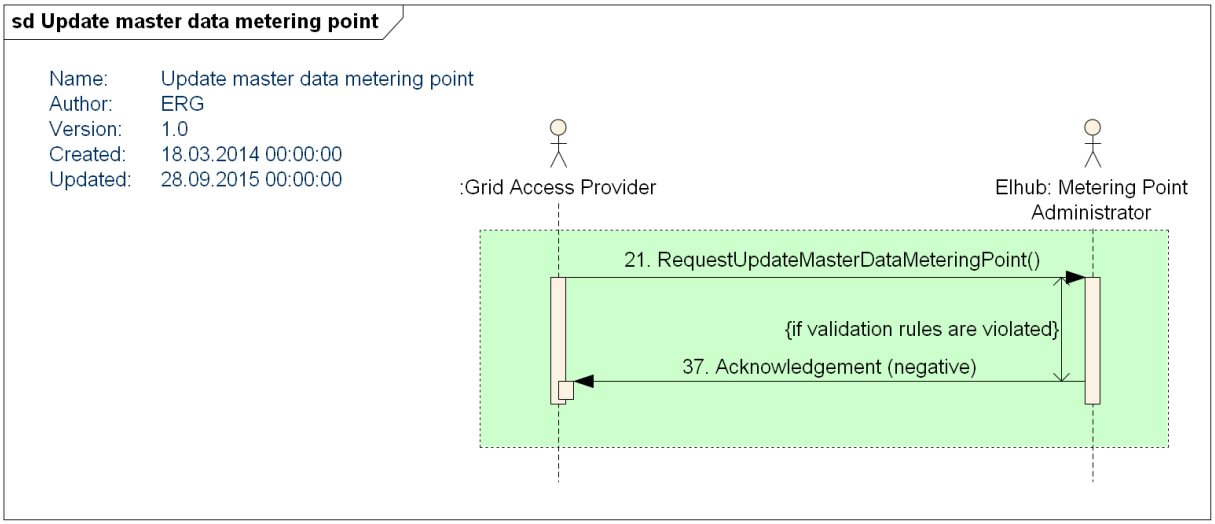
Code usage

Element name	Code	Code list responsible	Description
Document Type	414	UN/CEFACT	Acknowledgement of change of supplier
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-101	Elhub	Start of supply - Change of supplier
	BRS-NO-102	Elhub	Start of supply - move in - in the future
	BRS-NO-103	Elhub	Start of supply - move in - back in time
	BRS-NO-104	Elhub	Change of supplier from last resort
	BRS-NO-111	Elhub	Rollback - start of supply
	BRS-NO-123	Elhub	New grid access contract - move in
	BRS-NO-202	Elhub	End of supply
	BRS-NO-221	Elhub	Rollback of end of supply
	BRS-NO-305	Elhub	Changes to meteringpoint initiated by Elhub
Business Process Role	DDM	UN/CEFACT	Grid Access Provider

5.15 Update of masterdata – from Grid Access Provider

This process is used to update master data for a metering point. The process starts with the message RequestUpdateMasterDataMeteringPoint from the grid access provider to Elhub. If the content of the message violates the validation rules, the Acknowledgement message with Status 41 - Rejected is returned.

5.15.1 Sequence diagram update of masterdata – from grid access provider

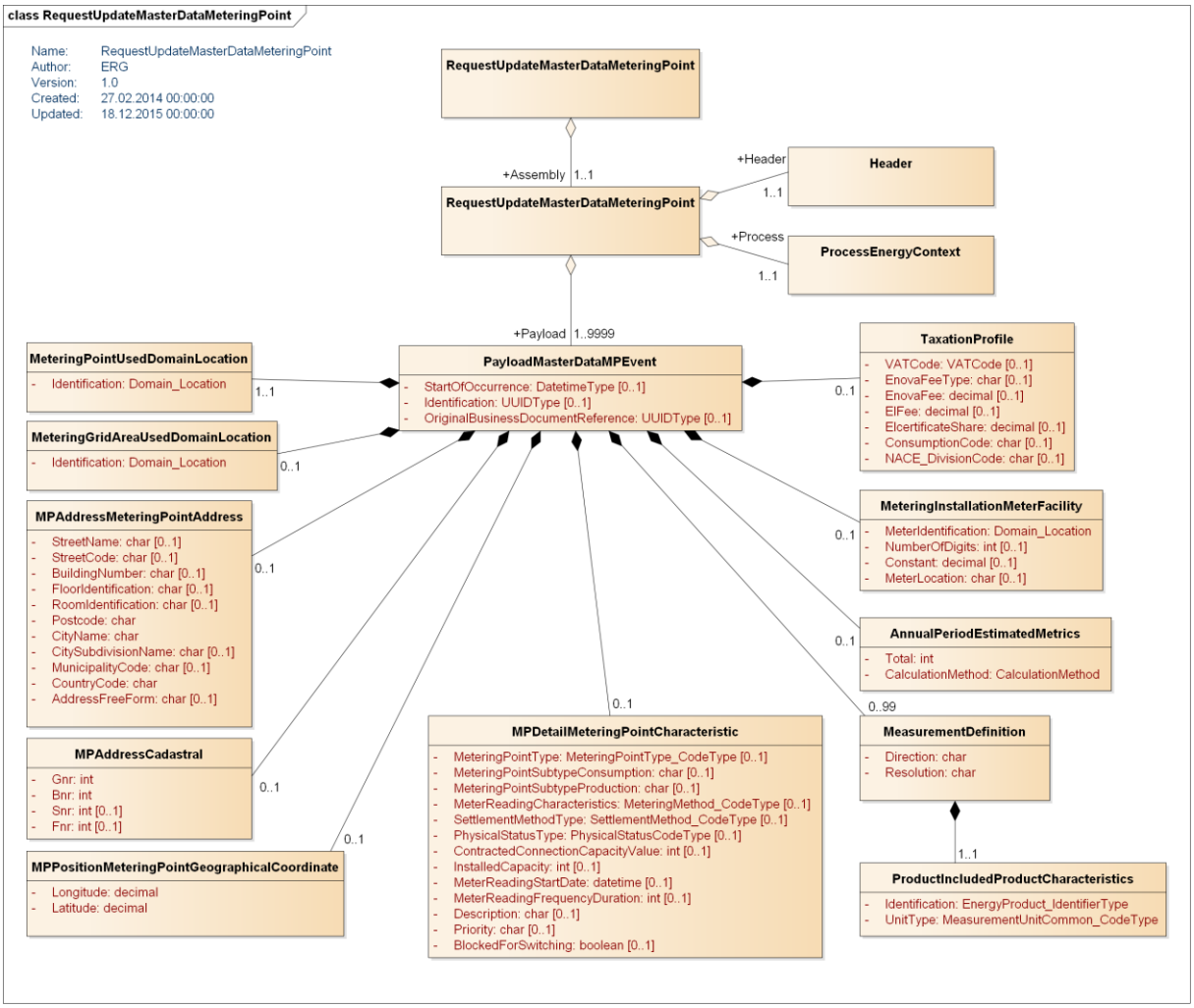


5.15.2 Messages update of masterdata – from grid access provider

The messages used in the process are described below.

5.15.2.1 RequestUpdateMasterDataMeteringPoint

Class diagram



Note that in business processes changing the status of a metering point (BRS-NO-121, BRS-NO-122, BRS-NO-132, BRS-NO-212, BRS-NO-213, BRS-NO-223, BRS-NO-224) there is only required to send the MeteringPointUsedDomainLocation class containing the Metering PointID and possibly StartOfOccurrence if the status of the metering point is going to change from a point in time in the future.

Code usage

Element name	Code	Code list responsible	Description
Document Type	E58	ebIX	Request to change metering point attributes
	E67	ebIX	Cancellation
Business Process	BRS-NO-121	Elhub	New metering point
	BRS-NO-122	Elhub	Activation of metering point
	BRS-NO-132	Elhub	Rollback of activation of metering point
	BRS-NO-212	Elhub	Deactivation of metering point
	BRS-NO-213	Elhub	Removal of metering point
	BRS-NO-223	Elhub	Rollback of deactivation of metering point
	BRS-NO-224	Elhub	Rollback of removal of metering point
	BRS-NO-302	Elhub	Update of master data - grid owner

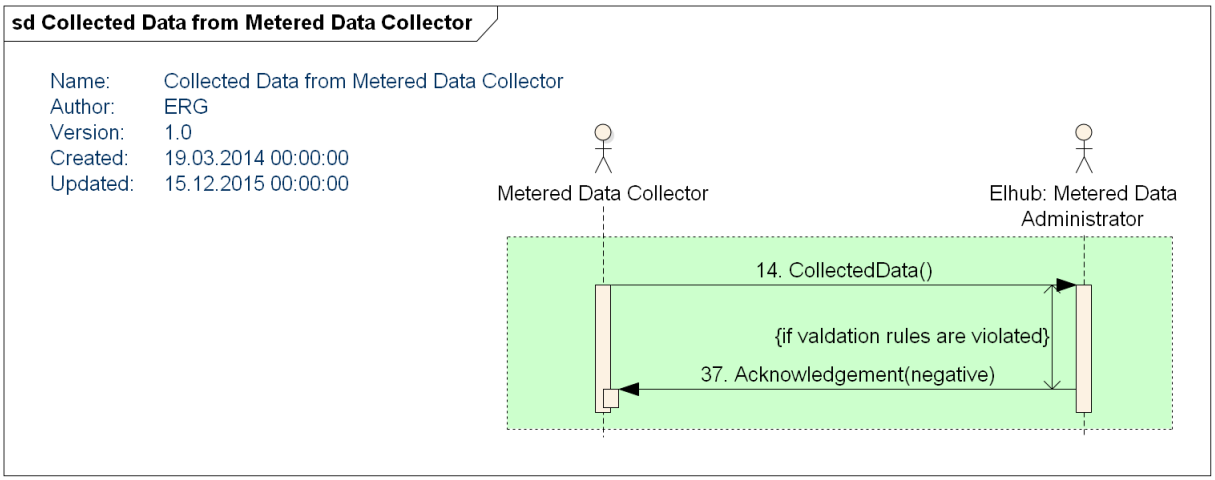
Element name	Code	Code list responsible	Description
	BRS-NO-306	Elhub	Settlement type change
	BRS-NO-317	Elhub	Update of estimated annual consumption
	BRS-NO-402	Elhub	Corrections of master data - from grid owner
Business Process Role	DDM	UN/CEFACT	Grid access provider

Message Implementation Guide
Ref. RequestUpdateMasterDataMeteringPoint

5.16 Metering values – from Metered Data Collector

This process is used by a Metered Data Collector to report periodic metering values to Elhub by using the message CollectedData. The message is also used by Balance Supplier to send meter index and estimated annual consumption to Elhub which redistributes these data to the Metered Data Responsible.

5.16.1 Sequence diagram metering values – from metered data collector

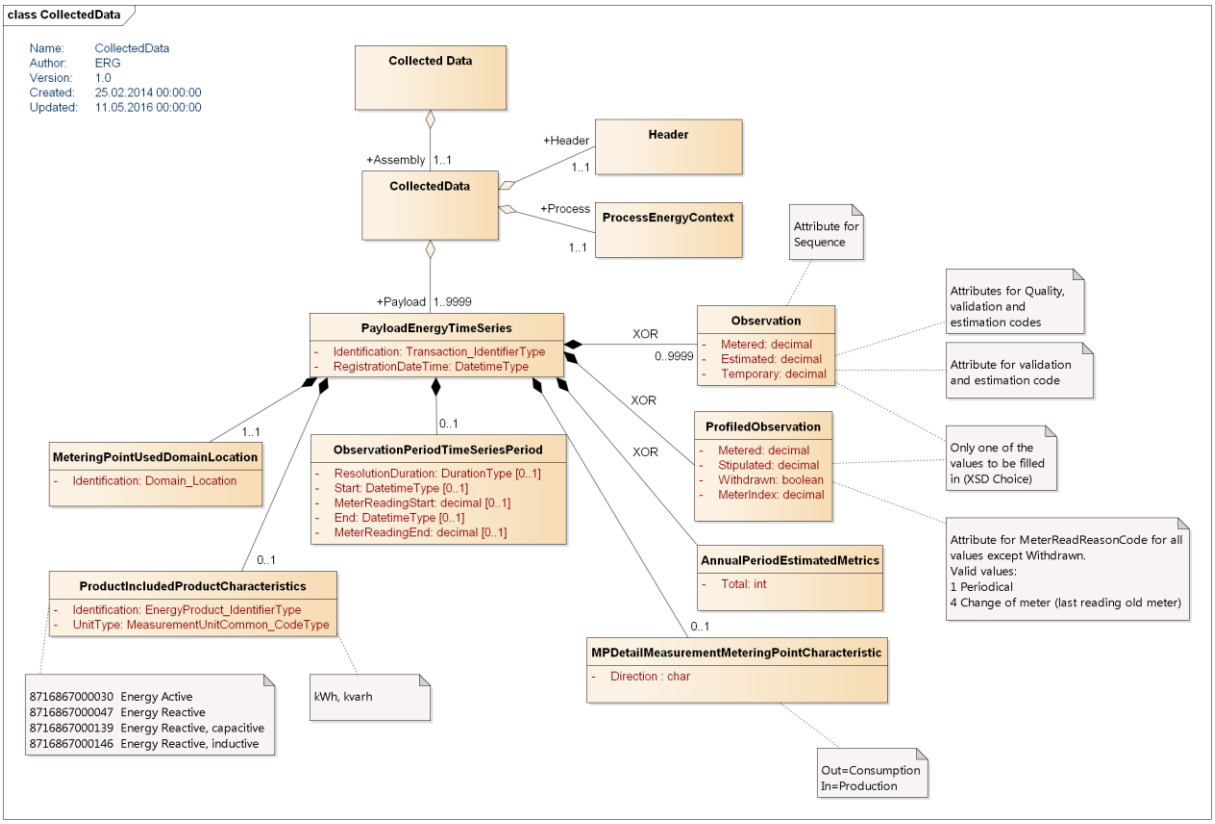


5.16.2 Message metering values – from metered data collector

The message used in the process is described below

5.16.2.1 Collected data

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	E13	ebIX	Metered data (interval volumes), quantity per period
	E30	ebIX	Collected data – from metered data collector (period volume, meter index, withdrawal, yearly volume)
Business Process	BRS-NO-311	Elhub	Meter Index and Estimated Annual Consumption from Balance Supplier
	BRS-NO-312	Elhub	Reporting of metering values for profiled metering points
	BRS-NO-313	Elhub	Reporting of metering values for non-profiled metering points
	BRS-NO-332	Elhub	Withdrawal of profiled metering value
Business Process Role	DDE	UN/CEFACT	Metered Data Collector

Message Implementation Guide
Ref. CollectedData

5.17 Query – from Grid Access Provider

This process is identical to Query – from Market Parties

5.18 Update of master data – to Grid Access Provider

This process is used to update masterdata based on manual updates through the GUI interface in Elhub and the result of 5.5 Query –from Balance Supplier regarding masterdata.
The masterdata is split into 2 categories based on the query type:

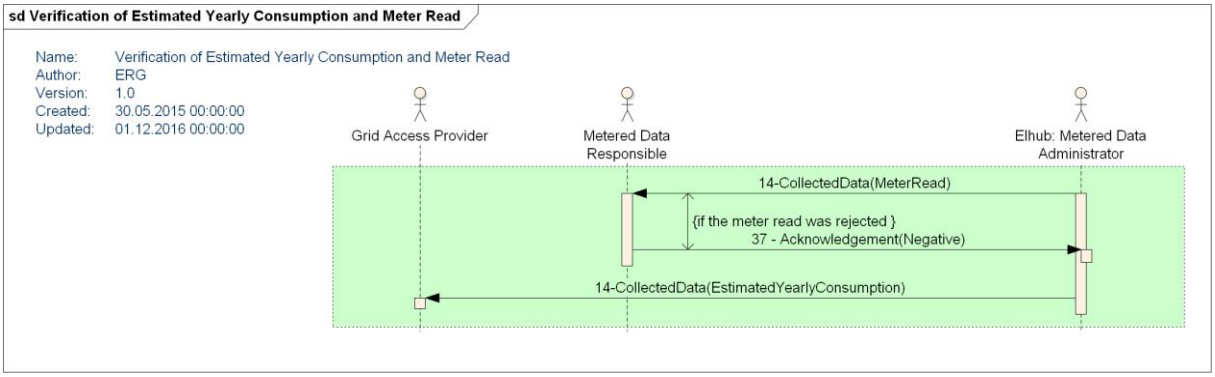
1. Customer information
2. Metering Point Characteristics

The messages are identical to the messages used in Update of master data – to Balance Supplier except that NotifyStartOfSupply is not used.

5.19 Verification of estimated yearly consumption and meter read

This process is used by Elhub to send estimated yearly consumption and/or meter reads received from balance suppliers to a metered data responsible and grid access provider by using the message CollectedData.

5.19.1 Sequence diagram.



5.19.2 Message

The message used in the process is described below.

5.19.2.1 CollectedData

Class diagram
Ref. Class diagram

Code usage

Element name	Code	Code list responsible	Description
Document Type	E39	ebIX	Request meter reading/annual consumption
Business Process	BRS-NO-311	Elhub	Meter read and annual consumption from balance supplier
Business Process Role	MDR	UN/CEFACT	Metered Data Responsible
	DDM	UN/CEFACT	Grid Access Provider

Message Implementation Guide
Ref. CollectedData

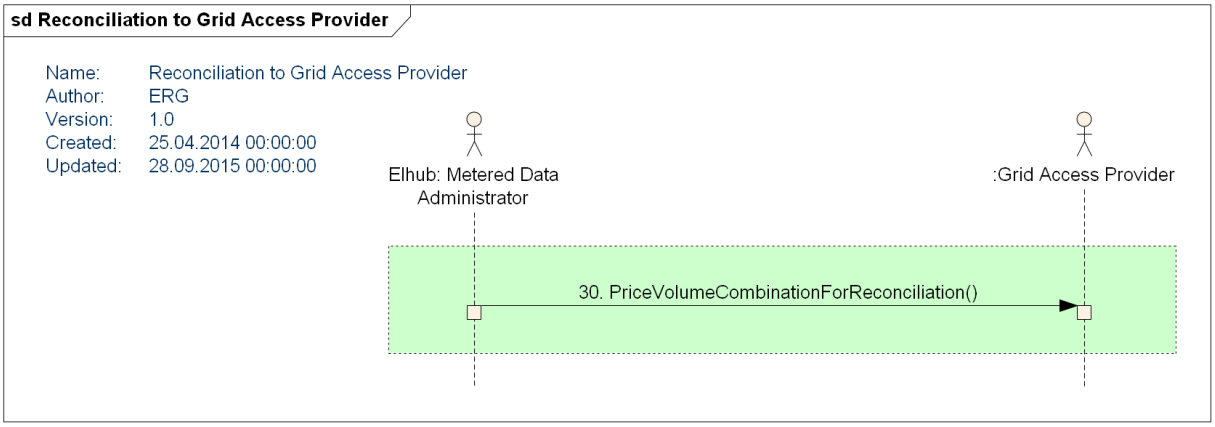
5.20 Settlement – to Grid Access Provider

This process is identical to process Settlement – to Market Parties

5.21 Reconciliation – to Grid Access Provider

The reconciliation process runs in Elhub once a month and calculates aggregated values per balance supplier/metering grid area split into profiled and non profiled metering points. Only metering points where metering values are changed after the closing of the balance settlement are included in the calculation.
The result of the calculation is reported to the balance suppliers in this process by the message PriceVolumeCombinationForReconciliation.
In 5.5 it is possible to order the reconciliation manually by using query type code STLM and business type equal to RE01 or RE02.

5.21.1 Sequence diagram reconciliation – to grid access provider



5.21.2 Message reconciliation – to grid access provider

The message used in the process is described below.

5.21.2.1 Price Volume Combination for Reconciliation

Class diagram
Ref. Price Volume Combination for Reconciliation

Code usage

Element name	Code	Code list responsible	Description
Document Type	E66	ebIX	Validated metered data, time series
Business Process	BRS-NO-503	Elhub	Reporting data for reconciliation
Business Process Role	DDM	UN/CEFACT	Grid Access Provider

Message Implementation Guide
Ref. PriceVolumeCombinationForReconciliation

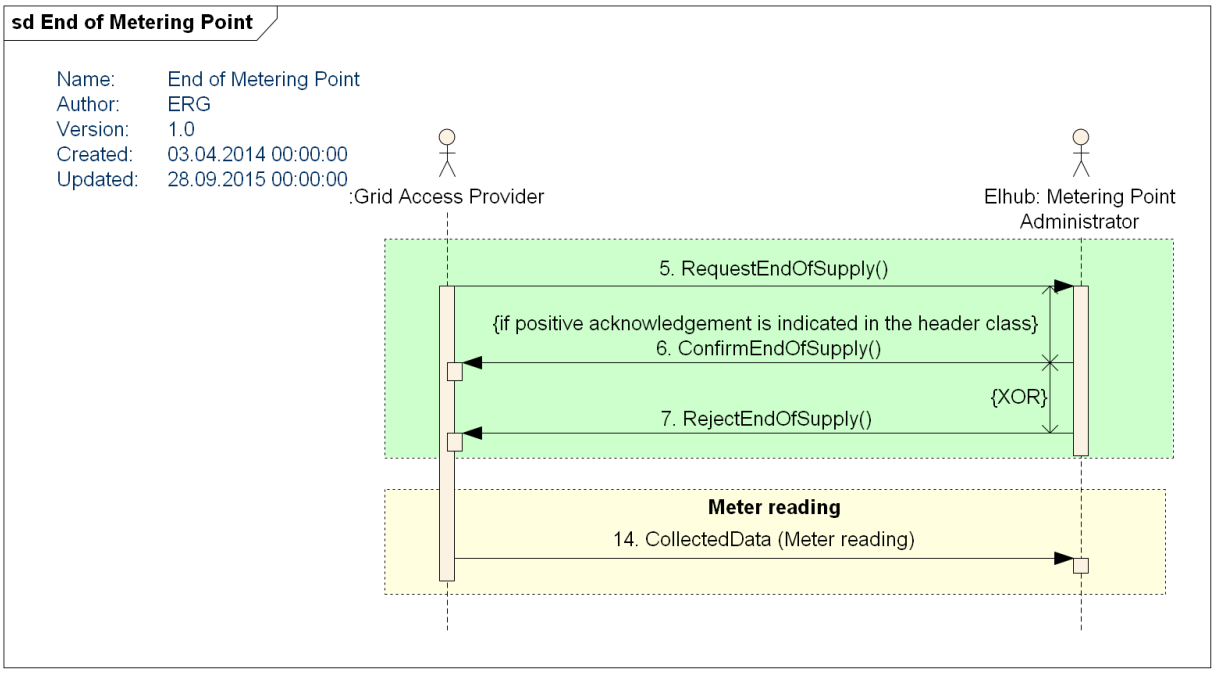
5.22 End in metering point – from Grid Access Provider

This process is generally used for deactivation of a metering point due to customer move out in case the customer is informing the grid access provider directly of the move out instead of the balance supplier.
The following business processes are supported:

- Customer move out
- Cancellation/rollback of customer move out

The process starts with the message Request end of supply from the grid access provider to Elhub. If the validation of the message is OK and the element regarding positive acknowledgement is set in the Header class, the message ConfirmEndOfSupply is returned. If the message violates the validation rules the message RejectEndOfSupply is returned.

5.22.1 Sequence diagram end in metering point – from grid access provider

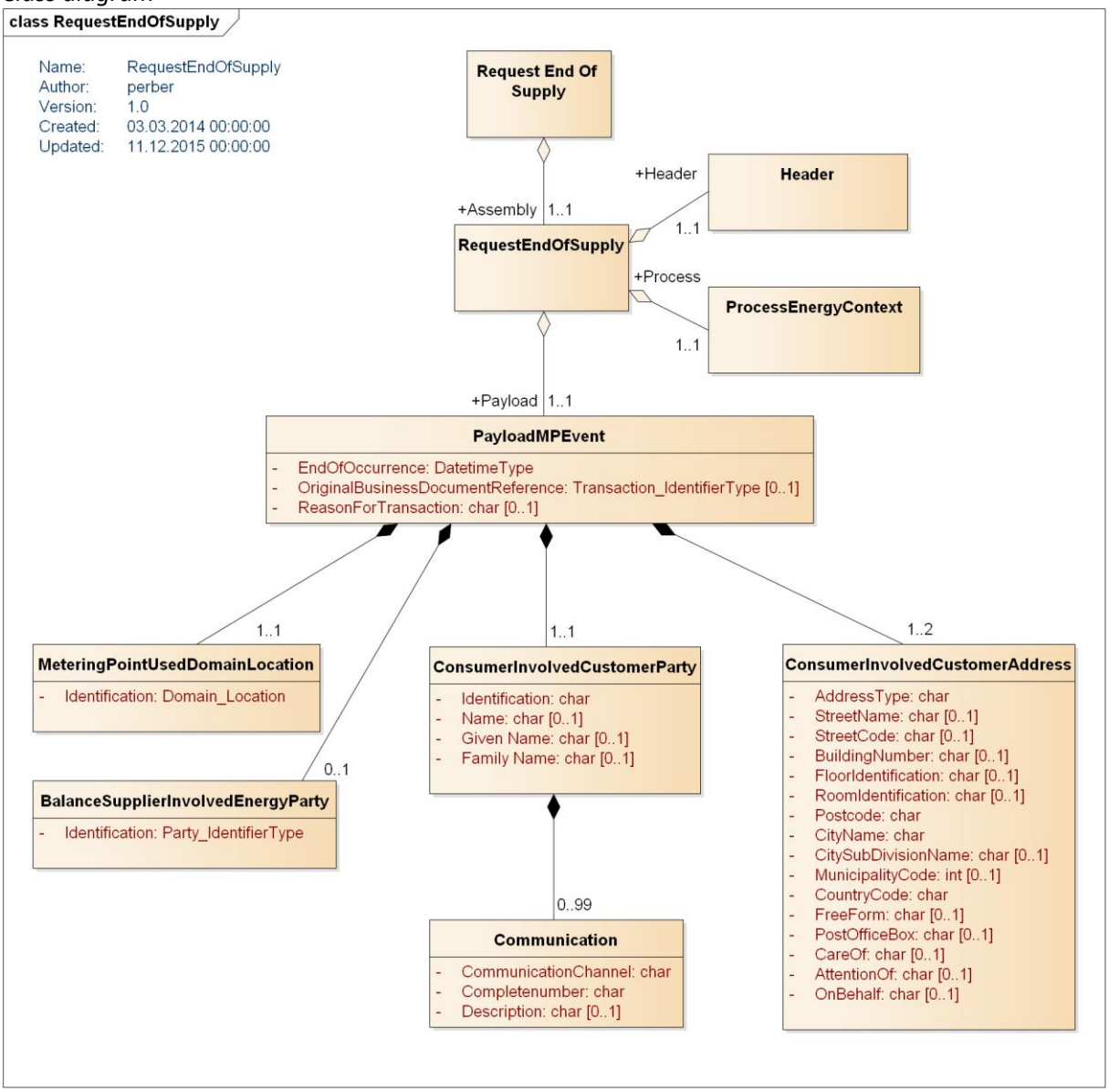


5.22.2 Messages end in metering point – from grid access provider

The messages used in the process are described below.

5.22.2.1 Request End of Supply

Class diagram



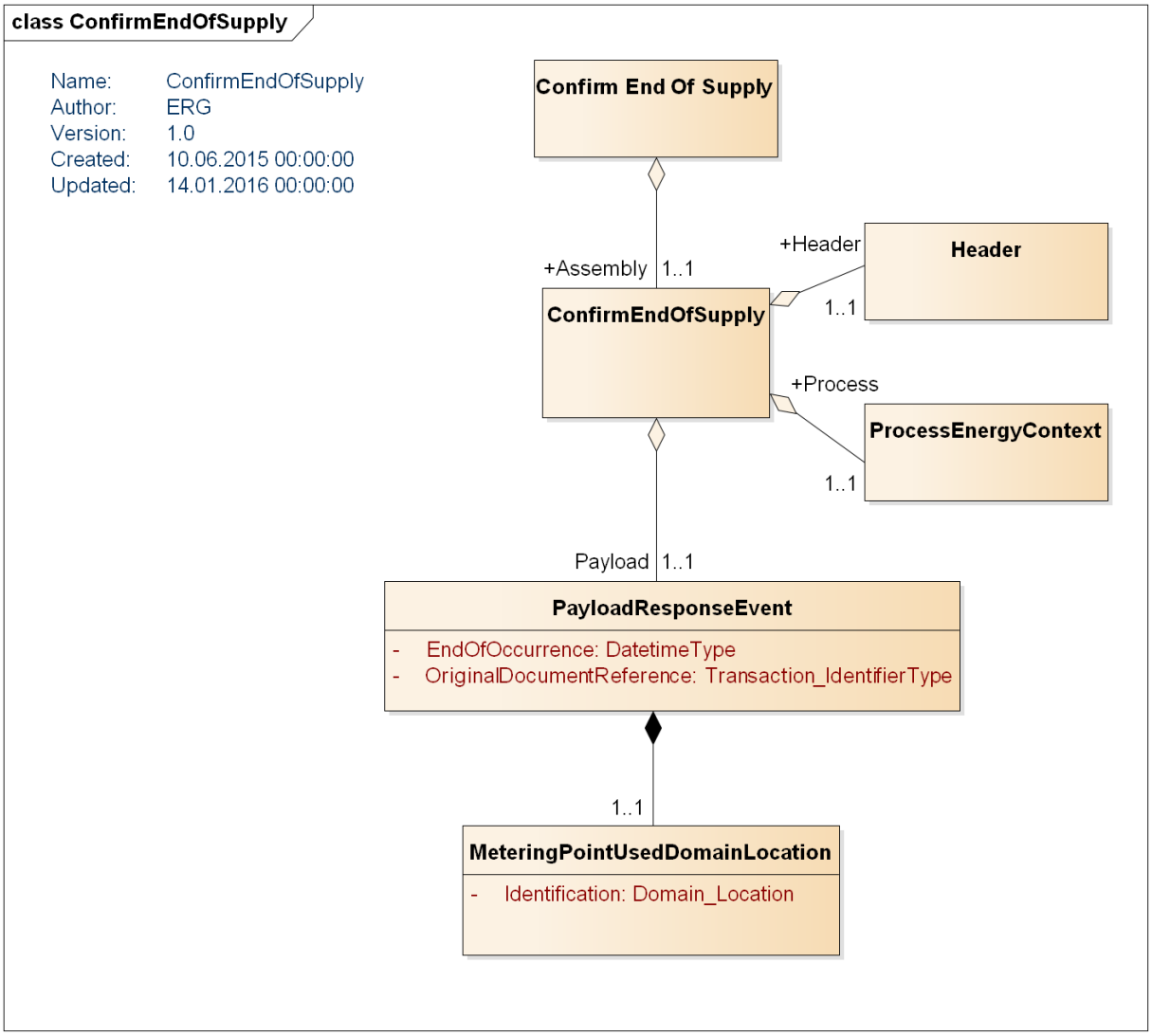
Code usage

Element name	Code	Code list responsible	Description
Document Type	432	UN/CEFACT	Notification of contract termination
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-211	Elhub	Move out from metering point - from grid owner
	BRS-NO-222	Elhub	Rollback of move out
Business Process Role	DDM	UN/CEFACT	Grid access provider

Message Implementation Guide
Ref. RequestEndOfSupply

5.22.2.2 Confirm end of supply

Class diagram



Code usage

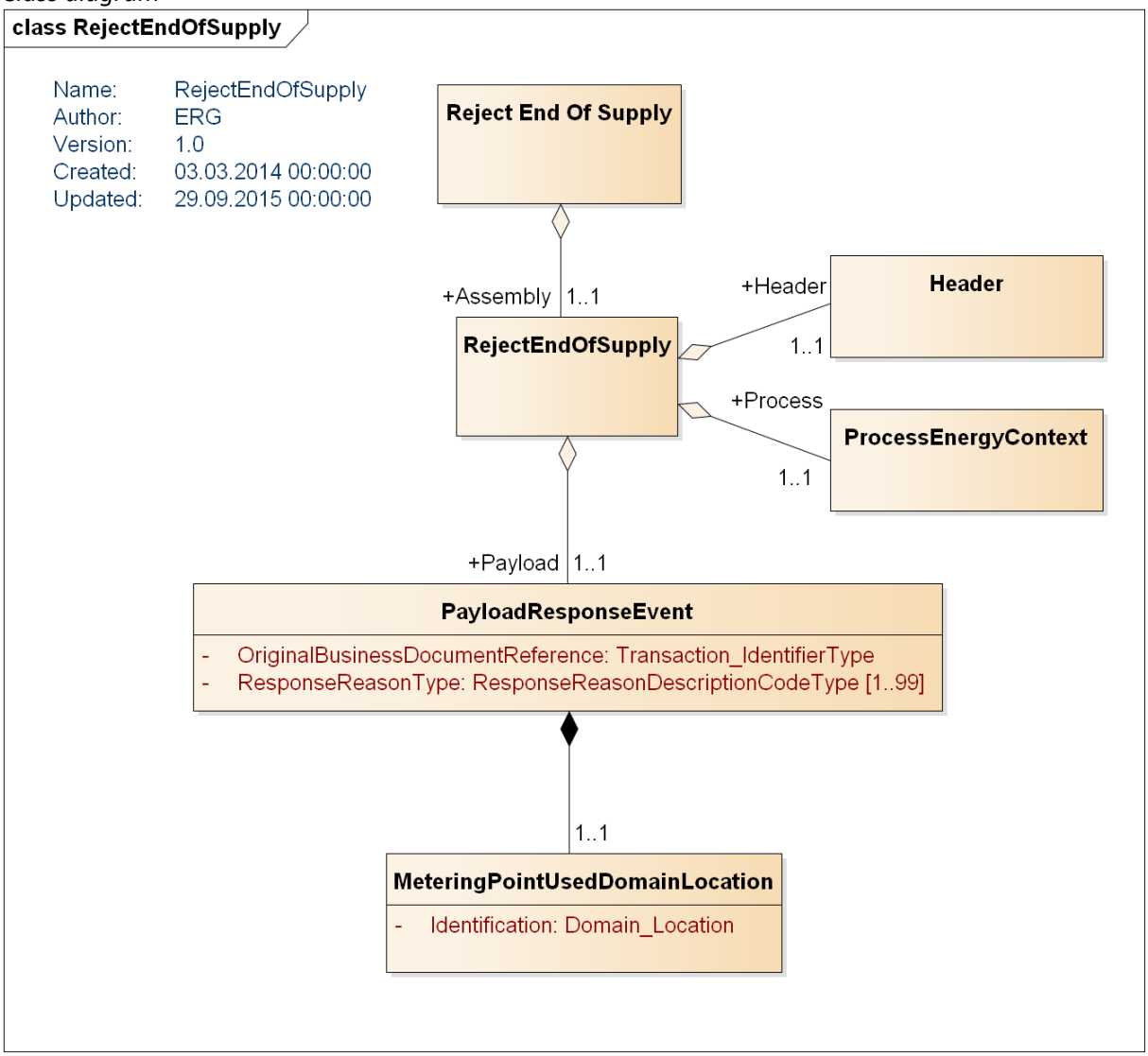
Element name	Code	Code list responsible	Description
Document Type	406	UN/CEFACT	Notification to supplier of contract termination
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-211	Elhub	Move out from metering point - from grid owner
	BRS-NO-222	Elhub	Rollback of move out
Business Process Role	DDM	UN/CEFACT	Grid access provider

Message Implementation Guide

Ref. ConfirmEndOfSupply

5.22.2.3 Reject end of supply

Class diagram



Code usage

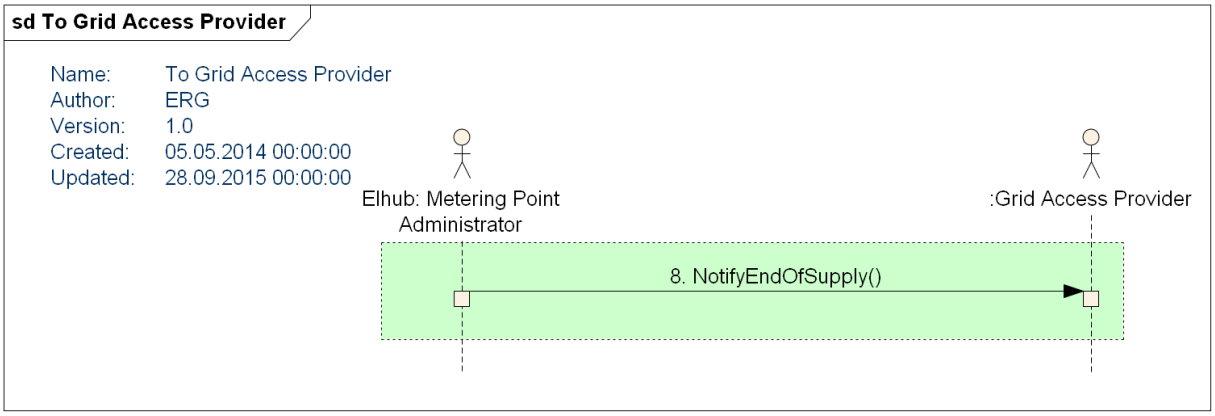
Element name	Code	Code list responsible	Description
Document Type	406	UN/CEFACT	Notification to supplier of contract termination
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-211	Elhub	Move out from metering point - from grid owner
	BRS-NO-222	Elhub	Rollback of move out
Business Process Role	DDM	UN/CEFACT	Grid access provider
ResponseReason	E10	ebIX	Metering point not identifiable
	E16	ebIX	Unauthorized balance supplier
	E17	ebIX	Requested switch date not within time limits
	E22	ebIX	Metering point blocked for switching

Message Implementation Guide
Ref. RejectEndOfSupply

5.23 End in metering point – to Grid Access Provider

This process is generally used to inform the grid access provider of termination of a supply contract in a metering point due to customer move out by using the message NotifyEndOfSupply.

5.23.1 Sequence diagram end in metering point – to grid access provider



5.23.2 Message end in metering point – to grid access provider

The only message used is NotifyEndOfSupply.

Code usage

Element name	Code	Code list responsible	Description
Document Type	406	UN/CEFACT	Notification to supplier of contract termination
	E02	ebIX	Cancellation of supply
Business Process	BRS-NO-201	Elhub	End of supply due to move out
	BRS-NO-221	Elhub	Rollback of end of supply
	BRS-NO-305	Elhub	Changes to meteringpoint initiated by Elhub
Business Process Role	DDM	UN/CEFACT	Grid Access Provider

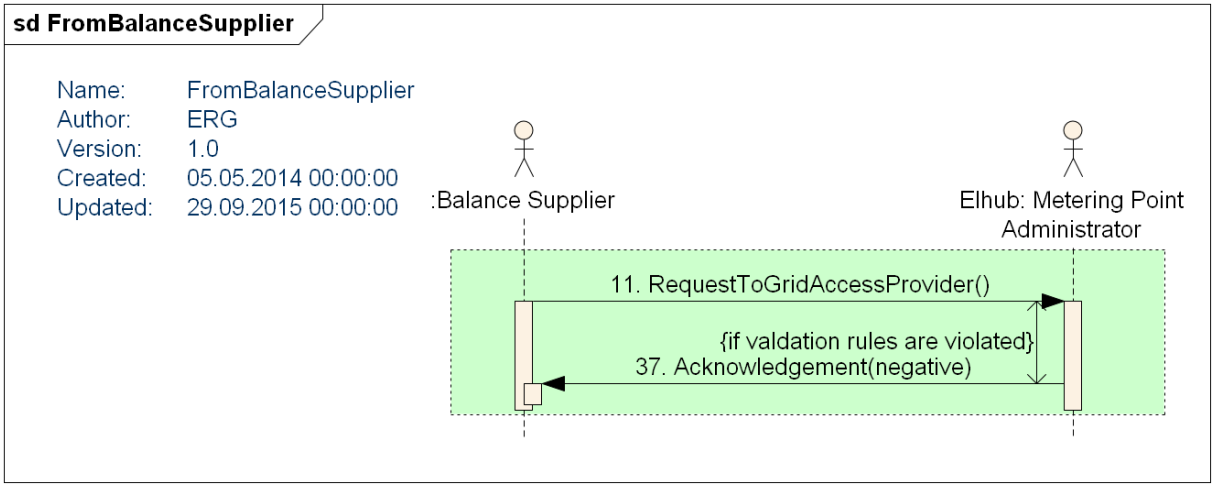
5.24 Placeholder (24)

This processcomponent is currently not in use.

5.25 Request to Grid Access provider – from Balance Supplier

This process is used by a Balance Supplier to send requests to a Grid Access Provider by first sending the message RequestToGridAccessProvider to Elhub. Elhub is forwarding the message to the Grid Access Provider in 5.26.

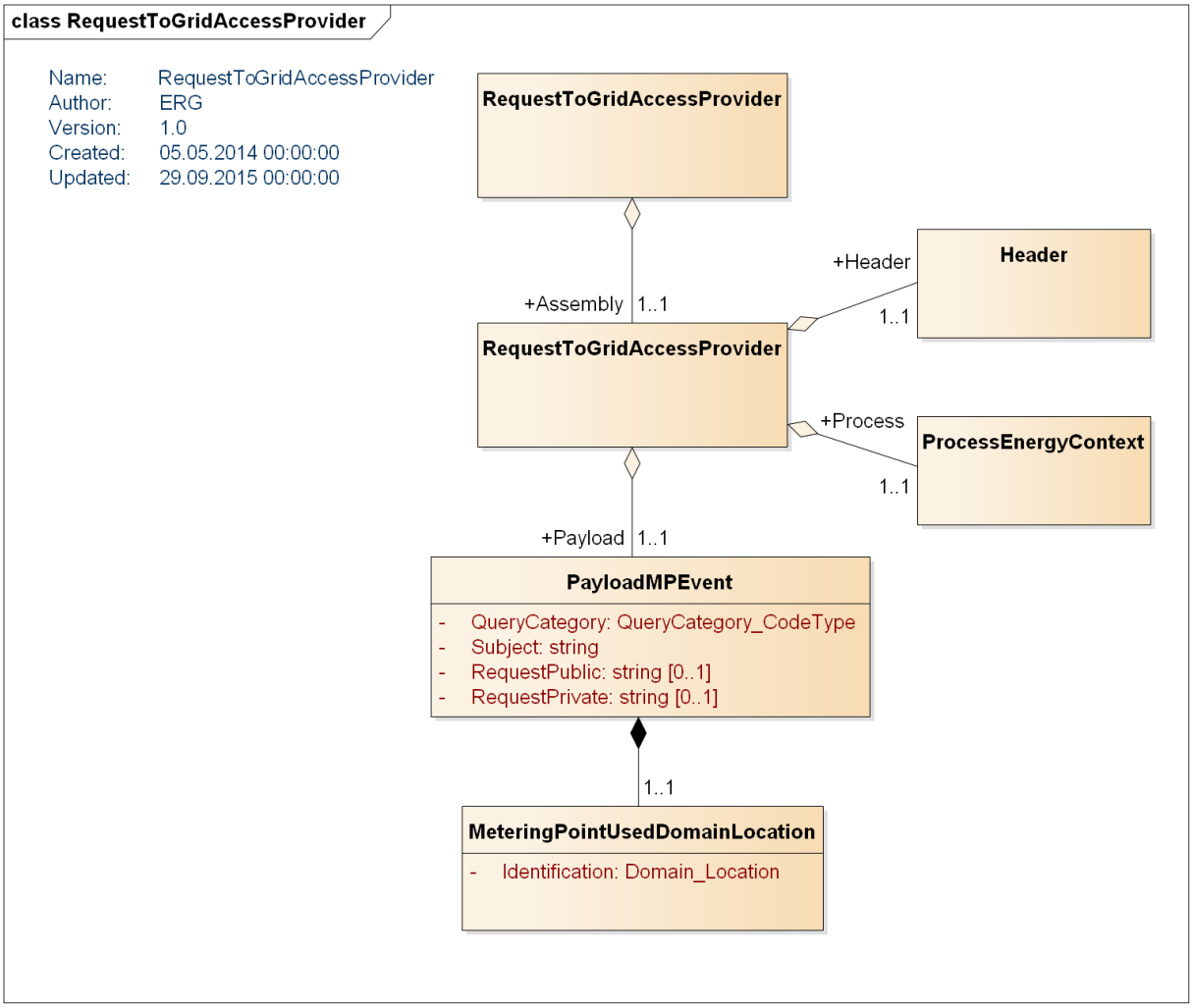
5.25.1 Sequence diagram request to grid access provider – from balance supplier



5.25.2 Message request to grid access provider – from balance supplier

The message used in the process is described below.

Class diagram



Code usage

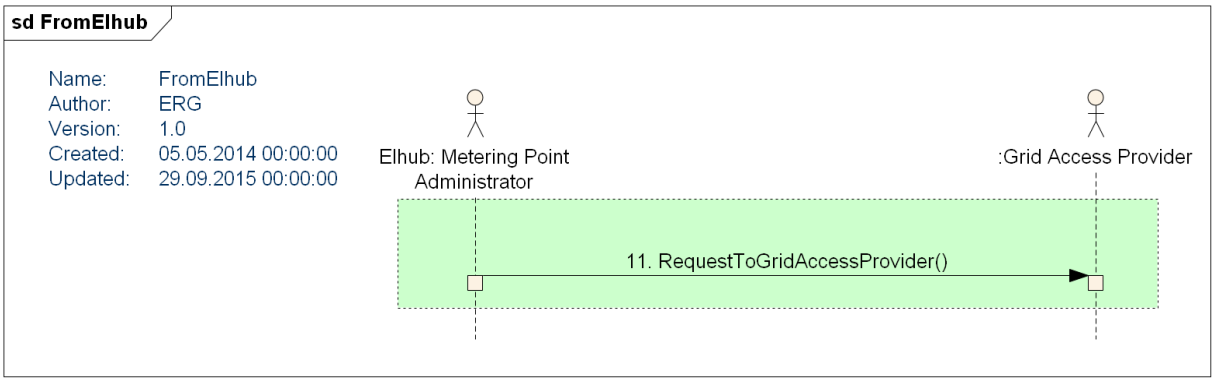
Element name	Code	Code list responsible	Description
Document Type	21	UN/CEFACT	Query. Request information based on defined criteria.
Business Process	BRS-NO-601	Elhub	Request to grid owner
Business Process Role	DDQ	UN/CEFACT	Balance supplier
	SLR	Elhub	Balance supplier of last resort
	BSL	Elhub	Balance supplier for losses

Message Implementation Guide
Ref. RequestToGridAccessProvider

5.26 Request to Grid Access provider

This process is used by Elhub to forward the message RequestToGridAccessProvider from a Balance Supplier sent in 5.25 to a Grid Access Provider.

5.26.1 Sequence diagram request to grid access provider



5.26.2 Message request to grid access provider

The message used in the process is described below.

Class diagram
Ref. Request to Grid Access provider – from Balance Supplier

Code usage

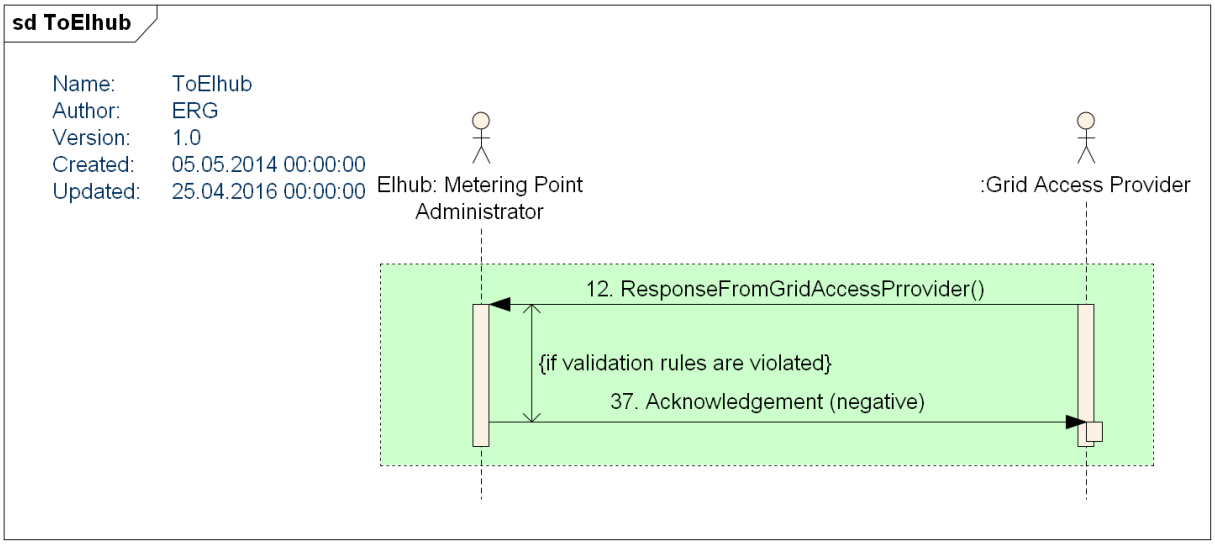
Element name	Code	Code list responsible	Description
Document Type	21	UN/CEFACT	Query. Request information based on defined criteria.
Business Process	BRS-NO-601	Elhub	Request to grid owner
Business Process Role	DDM	UN/CEFACT	Grid Access Provider
Query category			Not determined yet

Message Implementation Guide
Ref. RequestToGridAccessProvider

5.27 Feedback from Grid Access Provider

This process is used by a Grid Access Provider to send feedback on a request from a Balance Supplier in 5.25 by first sending the message ResponseFromGridAccessProvider to Elhub. Elhub is forwarding the message to the Balance Supplier in 5.28.

5.27.1 Sequence diagram feedback from grid access provider

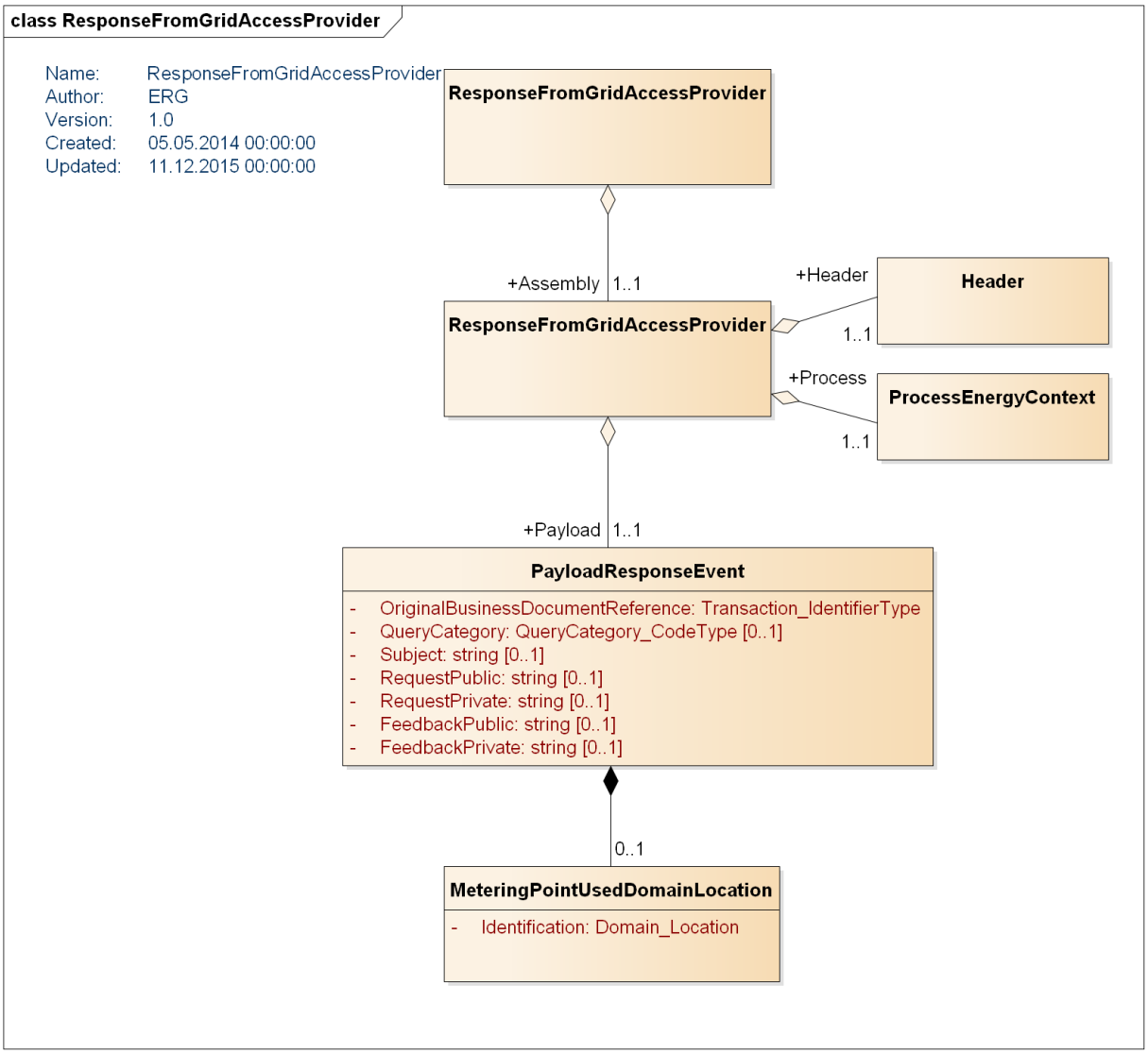


5.27.2 Message feedback from grid access provider

The message used in the process is described below.

5.27.2.1 ResponseFromGridAccessProvider

Class diagram



Code usage

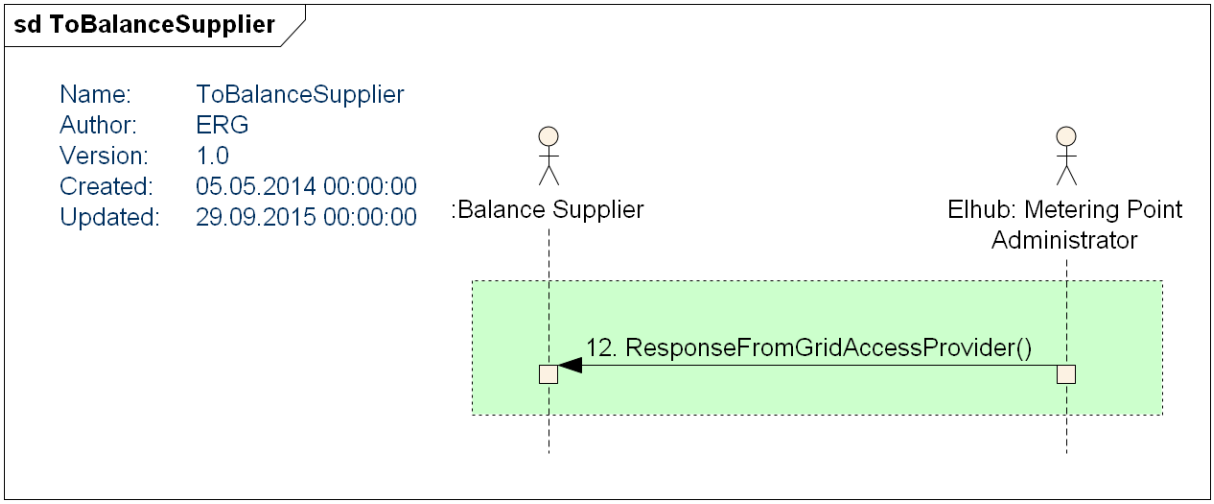
Element name	Code	Code list responsible	Description
Document Type	21	UN/CEFACT	Query. Request information based on defined criteria.
Business Process	BRS-NO-601	Elhub	Request to grid owner
Business Process Role	DDM	UN/CEFACT	Grid access provider

Message Implementation Guide
Ref. ResponseFromGridAccessProvider

5.28 Feedback from Grid Access Provider – to Balance Supplier

This process is used by Elhub to forward the message ResponseFromGridAccessProvider from a Grid Access Provider to a Balance Supplier.

5.28.1 Sequence diagram feedback from grid access provider – to balance supplier



5.28.2 Message feedback from grid access provider – to balance supplier

The message used in the process is described below.

5.28.2.1 ResponseFromGridAccessProvider

Class diagram
Ref. ResponseFromGridAccessProvider

Code usage

Element name	Code	Code list responsible	Description
Document Type	21	UN/CEFACT	Query. Request information based on defined criteria.
Business Process	BRS-NO-601	Elhub	Request to grid owner
Business Process Role	DDQ	UN/CEFACT	Balance supplier
	SLR	Elhub	Balance supplier of last resort
	BSL	Elhub	Balance supplier for losses

Message Implementation Guide
Ref. ResponseFromGridAccessProvider

5.29 Placeholder (29)

This processcomponent is currently not in use.

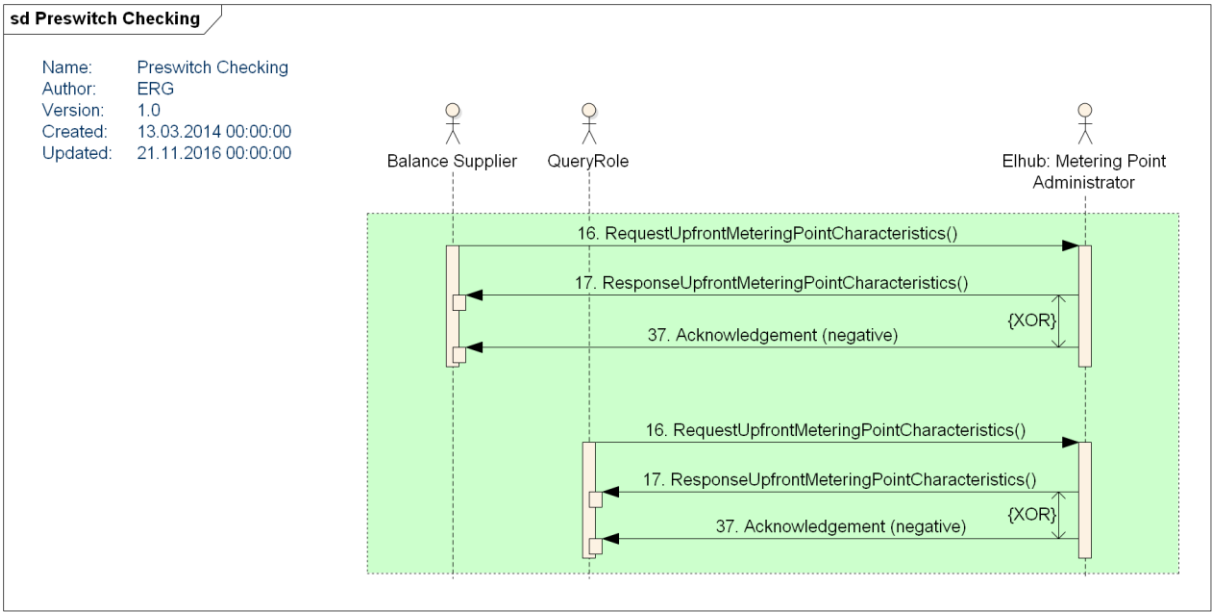
5.30 Placeholder (30)

This processcomponent is currently not in use.

5.31 Verify Masterdata Metering Point

The process is used to verify masterdata for a metering point prior to a customer switch. The process starts with the message RequestUpfrontMeteringPointCharacteristics from the new balance supplier to Elhub.
All metering points matching the search criterias are returned to the sender by using the message ResponseUpfrontMeteringPointCharacteristics.
If no metering points are matching the search criterias or the validation criterias are violated a negative Acknowledgement message is returned.

5.31.1 Sequence diagram verify masterdata metering point

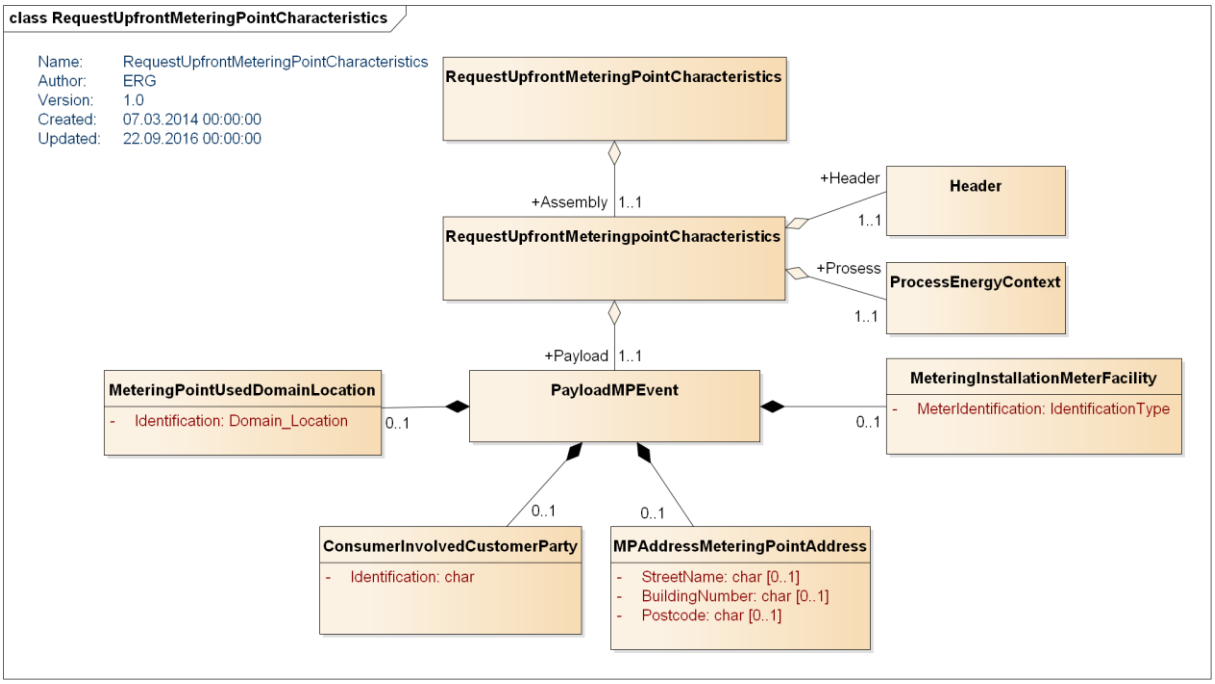


5.31.2 Messages verify masterdata metering point

The messages used in the process are described below.

5.31.2.1 Request Upfront Metering Point Characteristics

Class diagram



Code usage

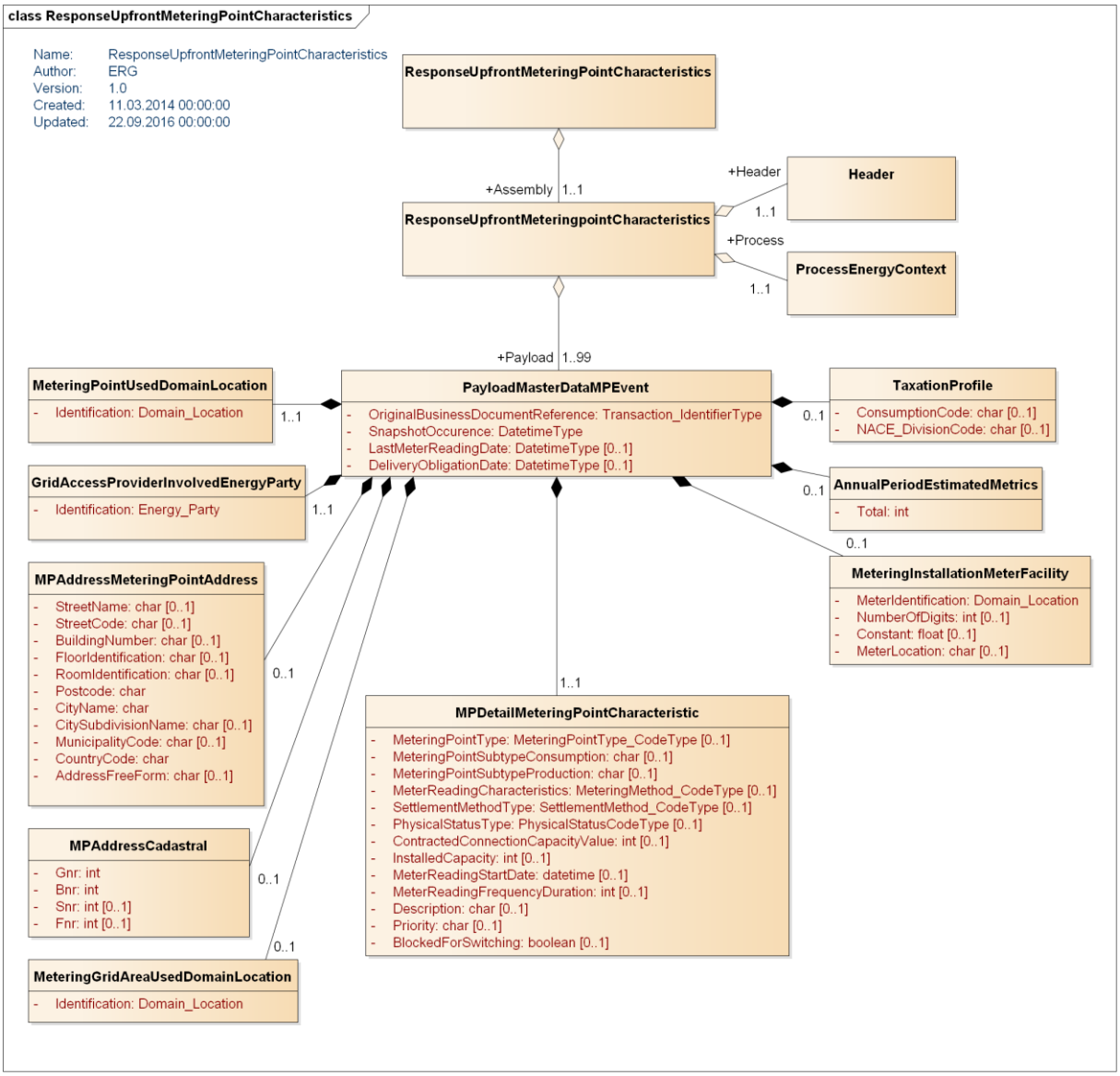
Element name	Code	Code list responsible	Description
Document Type	E10	ebIX	Request for master data, metering point
Business Process	BRS-NO-611	Elhub	Pre-switch check metering point characteristics
Business Process Role	DDQ	UN/CEFACT	Balance supplier
	QRY	Elhub	Query role

Message Implementation Guide

Ref. RequestUpfrontMeteringPointCharacteristics

5.31.2.2 Response Upfront Metering Point Characteristics

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	E07	ebIX	Master data, metering point
Business Process	BRS-NO-611	ebIX	Master data for prospects
Business Process Role	DDQ	UN/CEFACT	Balance Supplier
	QRY	Elhub	Query role

Message Implementation Guide

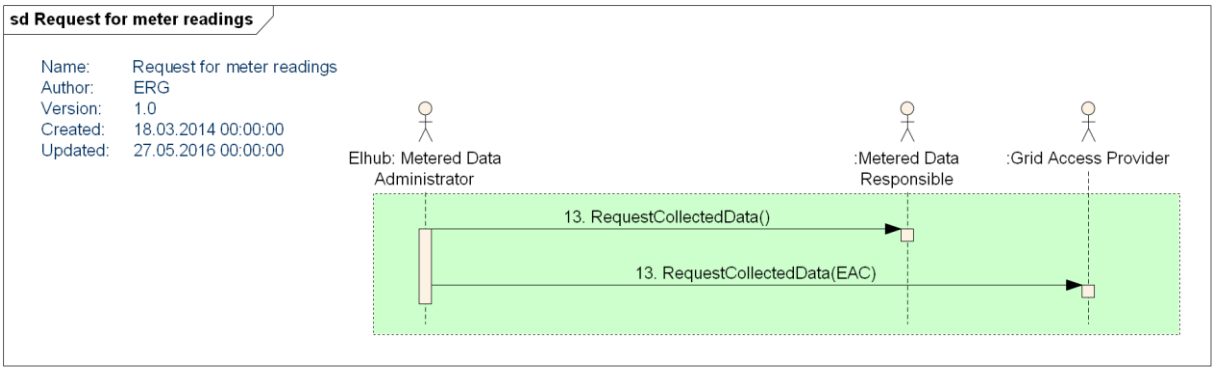
Ref. ResponseUpfrontMeteringPointCharacteristics

5.32 Reminder to Metered Data Responsible / Grid Access Provider

This process is used as a reminder to a Metered Data Responsible to request missing metering values and as a reminder for outdated estimated annual consumption (EAC) to a Grid Access Provider. The process starts with the message RequestCollected Data from Elhub to a Metered Data Responsible /

Grid Access Provider. If the Metered Data Responsible have metering values available in the requested observation period, the metering values are returned to Elhub in the next scheduled transmission of the message CollectedData which normally is at least once a day. If the Grid Access Provider has an updated estimated annual consumption (EAC) available, the EAC is sent to Elhub by using the RequestUpdateMasterDataMeteringPoint message

5.32.1 Sequence diagram reminder to metered data responsible

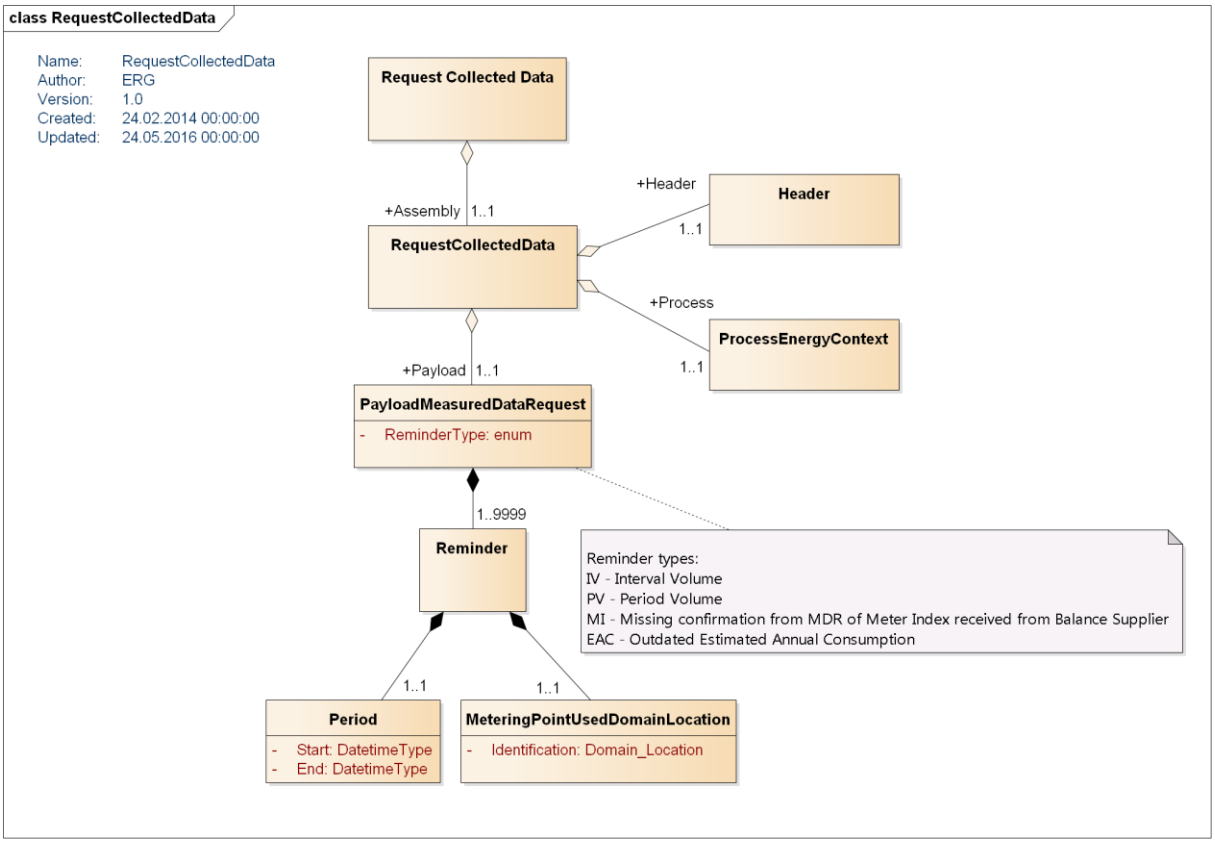


5.32.2 Message reminder to metered data responsible

The message used in the process is described below.

5.32.2.1 Request Collected Data

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	E39	ebIX	Request meter readings
Business Process	BRS-NO-314	Elhub	Reminder for metering values
Business Process Role	MDR	UN/CEFACT	Metered Data Responsible
	DDM	UN/CEFACT	Grid Access Provider

Message Implementation Guide
Ref. RequestCollectData

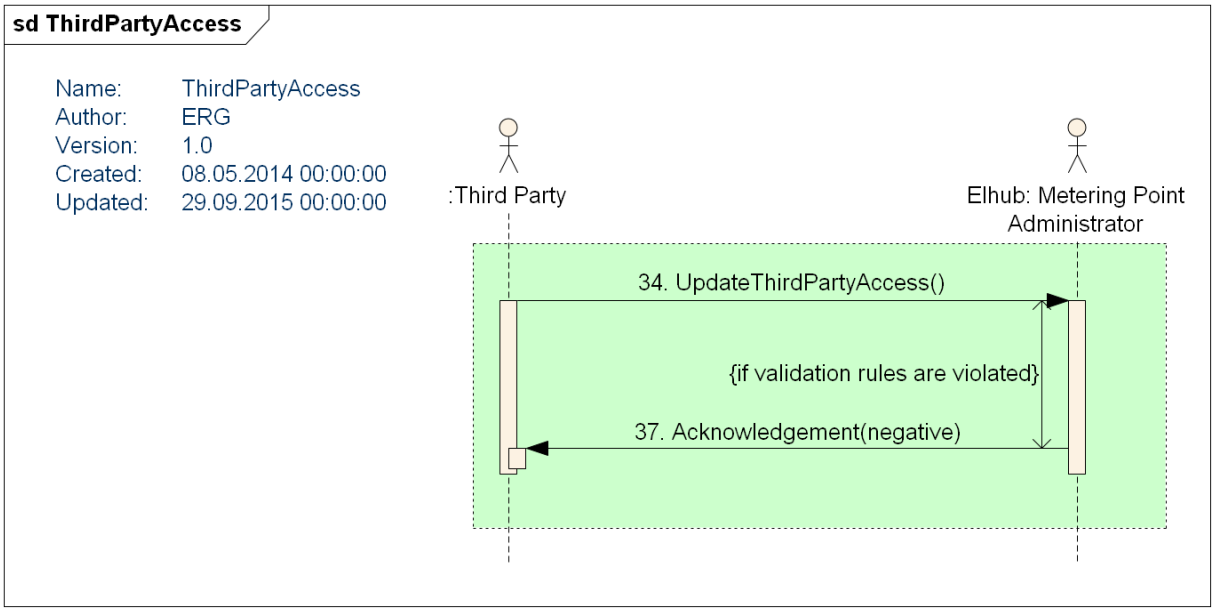
5.33 Query from Third Party

This process is identical to Query – from Market Parties except that the Third Party is not allowed to use QueryTypeCode STLM, Settlement.

5.34 Update of Third Party access

This process is used to define the metering points a third party has access to.

5.34.1 Sequence diagram update of Third Party Access

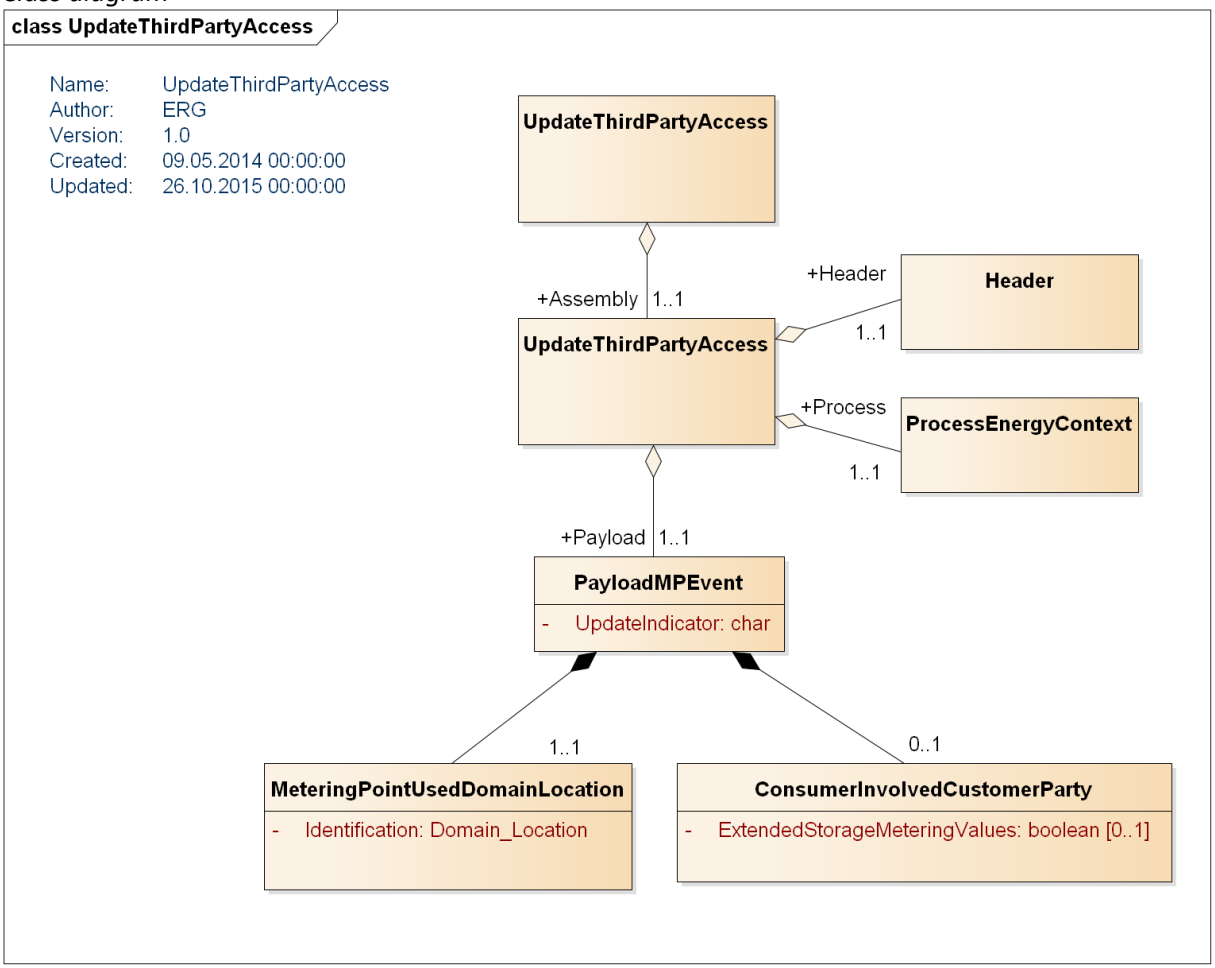


5.34.2 Messages update of Third Party access

The messages used in the process are described below.

5.34.2.1 UpdateThird PartyAccess

Class diagram



Code usage

Element name	Code	Code list responsible	Description
Document Type	E10	ebIX	Request for Master data, Metering point
Business Process	BRS-NO-622	Elhub	Update third party access
Business Process Role	AG	UN/CEFACT	Party authorized to act on behalf of another party.

Message Implementation Guide
Ref. UpdateThirdPartyAccess

5.35 Report structure data to Settlement responsible

This process is intended to use a a message defined and specified by the NBS project.

5.36 Report settlement basis per MGA to Balance Settlement Responsible

This process is using the message described in 3.2 ebIX AggregatedData per MGA in NBS User Guide. Ref. https://www.ediel.org/Sider/NBS.aspx for the latest versions.

5.37 Report settlement basis per neighboring grid to Balance Settlement Responsible

This process is using the message described in 3.3 ebIX AggregatedData per Neighboring Grid for Settlement Responsible in NBS User Guide. Ref. https://www.ediel.org/Sider/NBS.aspx for the latest version.

5.38 Report produsedvolume to NECS

This process is used to report production volumes to the Elcertificate Administrator (NECS).

5.38.1 Message report produsedvolume to NECS

The message is defined by the vendor of NECS, Grexel.

5.39 Report consumption to NECS

This process is used to report quota obliged consumption to the Elcertificate Administrator (NECS).

5.39.1 Message report consumption to NECS

Message is defined by the vendor of NECS, Grexel.

6 Message implementation guides

This chapter is intended to contain message implementation guides for all Elhub messages. The message implementation guides describe all elements in a message. For each element a detailed definition and description is included which contain use of codes and any special usage of the element. The messages are described by using a table with the following columns

Column	Description
Element	Element name
Attribute	Attribute name. All attribute names are written in *italic*
Lvl	Level in the XML file
Definition	Textual definition of the element
Description	Description of the element
Card	Cardinality
Max length	Format or maximum length in the XML file. • *Ax* - string of maximum length x • *Ix* - maximum x integers • DateTime elements • Boolean • Decimal
Content	Intended content of the element
Dep	Dependency. The usage of the element is dependent of other elements and/or rules
XML element	Name of element in the XML file

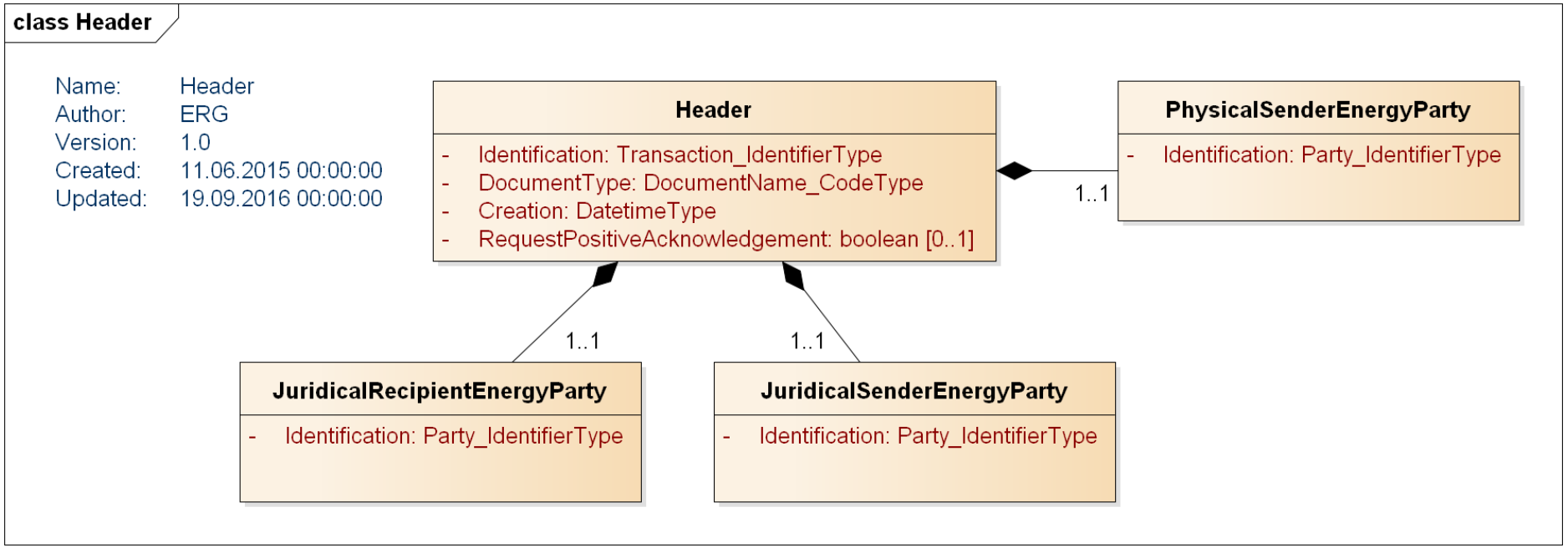
6.1 General

This chapter contains message implementation guides regarding classes used in all Elhub messages, ie. Header and Process class.

6.1.1 Header

The header class is included in ALL messages.

6.1.1.1 Class diagram



Element *Attribute*	Lvl	Definition	Description	Card	Max Length	Content	XML element
Header	1	Header class		1..1			Header
Identification	2	Unique identification of the business document	Universal Unique Identifiers (UUID) must be used. Ref. Identification of messages	1..1	A36	UUID	Identification
Document Type	2	Type of document being sent	Code depending on message being sent Ref. Document type for a complete overview and description of the document types.	1..1	A3		DocumentType
listAgency Identifier	2	*Attribute to the DocumentType*	*Identification of the agency maintaining the code list for document types* ***6** UN/CEFACT* ***260** ebIX®*	*1..1*	*A3*		*listAgencyIdentifier*
Creation	2	Date and time of creation of the business document by the sender.	For additional information ref. DateTime elements.	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	Creation
Request Positive Acknowledgement	2	Indicator to trigger a Positive Acknowledgement to be returned to the physical sender of the message. Applies to incoming messages only.	To be used in market process, masterdata messages and some query messages: • RequestStartOfSupply - ConfirmStartOfSupply is returned • RequestEndOfSupply - ConfirmEndOfSupply is returned • RequestUpdateMasterDataMeteringPoint - Acknowledgement message is returned • RequestUpdateCustomerInformation - Acknowledgement message is returned	0..1	boolean	true/false	RequestPositiveAcknowledgement

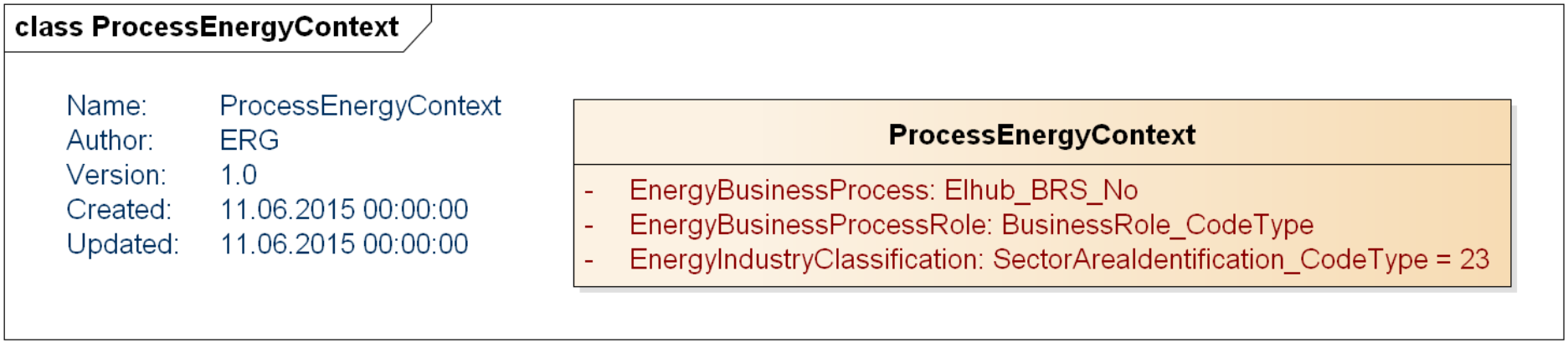
Element *Attribute*	Lvl	Definition	Description	Card	Max Length	Content	XML element
			• UpdateThirdPartyAccess - Acknowledgement message is returned • RequestToGridAccessProvider - Acknowledgement message is returned • RequestToElhub - Acknowledgement message is returned • ResponseFromGridAccessProvider - Acknowledgement message is returned • Acknowledgement - Acknowledgement message is returned Not applicable for RequestDataFromElhub and RequestUpfrontMeteringPointCharacteristics because the result of the queries is regarded as a positive acknowledgement. Not applicable for message containing metering values (CollectedData) from grid owner (BRS-NO-312, BRS-NO-313 and BRS-NO-332), but allowed in CollectedData from balance suppliers (BRS-NO-311). Not applicable for BRS-NO-317. Not applicable for polling messages (PollForData and the Acknowledgement message).				
Physical Sender Energy Party	2	Physical Sender Energy Party Complex Type		1..1			PhysicalSenderEnergyParty
Identification	3	Unique identification of the physical	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2].	1..1	A13	Physical Sender ID	Identification

Element *Attribute*	Lvl	Definition	Description	Card	Max Length	Content	XML element
		sender of the document					
schemeAgency Identifier	3	*Attribute to the Physical Sender Identification element*	*Identification of the agency issuing the identifier used as physical sender identification* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Juridical Sender Energy Party	2	Juridical Sender Energy Party Complex Type		1..1			JuridicalSenderEnergyParty
Identification	3	Unique identification of the juridical sender of the document	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2].	1..1	A13	Juridical Sender ID	Identification
schemeAgency Identifier	3	*Attribute to the Juridical Sender Identification element*	*Identification of the agency issuing the identifier used as juridical sender identification* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Juridical Recipient Energy Party	2	Juridical Recipient Energy Party Complex Type		1..1			JuridicalRecipientEnergyParty
Identification	3	Unique identification of the recipient of the document	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2] .	1..1	A13	Juridical Recipient ID	Identification
schemeAgency Identifier	3	*Attribute to the Recipient Identification element*	*Identification of the agency issuing the identifier used as juridical recipient* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*

6.1.2 Process

The process energy context class is included in ALL messages.

6.1.2.1 Class diagram



Element *Attribute*	Lvl	Definition	Description	Card	Max Length	Content	XML element
ProcessEnergy Context	1	Process Energy Context Class		1..1			ProcessEnergyContext
Energy Business Process	2	The nature of the process that the document is directed at.	Ref. Elhub BRS identifications for a complete overview and description of the business processes used by Elhub	1..1	A10		EnergyBusinessProcess
listAgencyIdentifier	2	*Attribute to the Energy Business Process*	*Identification of the agency maintaining the code list for energy business processes* ***89** Elhub*	*1..1*	*A2*	89	*listAgencyIdentifier*

Element *Attribute*	Lvl	Definition	Description	Card	Max Length	Content	XML element
Energy Business Process Role	2	The business role of the market party sending or receiving the market message	Ref. Roles and domains for a complete overview and description of the business process roles.	1..1	A3		EnergyBusinessProcessRole
listAgencyIdentifier	2	*Attribute to the Energy Business Process Role*	*Identification of the agency maintaining the code list for energy business process roles* ***6*** UN/CEFACT ***89*** *Elhub*	*1..1*	*A2*	6 or 89	*listAgencyIdentifier*
Energy Industry Classification	2	Classification of industry	**23** Electricity supply industry	1..1	A2	23	EnergyIndustryClassification

6.2 Elhub messages.

6.2.1 RequestStartOfSupply

6.2.1.1 Header

Ref. Header

6.2.1.2 Process

Ref. Process

6.2.1.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload Metering Point Event	1	Payload Metering Point Event Class		1..1			PayloadMPEvent
Start of occurrence	2	The requested date and time for the New Balance Supplier to take over the supply for the Metering Point.	The time part of the element is currently not in used. Retained for possible future use. For additional information, ref. DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	StartOfOccurrence
Original Business Document Reference	2	The identification of a related business document	Must be used in case the message is a cancellation/rollback of a former Start of Supply message	0..1	A36	UUID	OriginalBusinessDocumentReference
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Balance Supplier	2	Identification of the new balance supplier on the metering point		0..1			BalanceSupplierInvolvedEnergyParty
Identification	3	Unique identification of the balance supplier.	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2] . Mandatory for balance suppliers (DDQ). Optional for grid access providers (DDM).	1..1	A13		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the balance supplier*	*Identification of the agency maintaining the identification of balance suppliers.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification and name of the customer on		1..1			ConsumerInvolvedCustomerParty

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		the metering point					
Identification	3	Identification of the customer.	Company customer: Organization number. Household customer: Birth number or D Number	1..1	A11		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the customer*	*Identification of the agency maintaining the identification of customers.* *Organization number:* ***82 Brønnøysundregistrene*** *Birth number or D Number* ***Z01 Folkeregisteret***	*1..1*	*A3*		*schemeAgencyIdentifier*
Name	3	Customer name	Name of company	0..1	A80		Name
Given name	3	First name of customer	Household customer ,first name	0..1	A80		GivenName
Family name	3	Family name of customer	Household customer ,family name	0..1	A40		FamilyName
Extended storage of metering values	3	Indicator if the end-user wants extended storage of metering values	Standard is three years. Extended storage is 10 years.	1..1	boolean	true/false	ExtendedStorageMeteringValues
NACE DivisionCode	3	The DivisionCode ("Næringsko	Valid codes. Ref. NACE Division Codes (Næringskode) This element is only used to forward the NACE-code from the balance supplier to the grid access	0..1	A10		NACE_DivisionCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		de") of the customer.	provider.http://confluence.elhub.org/pages/viewpage.action?pageId=1384033				
Communication	3	Means for communication with the customer		0..99			Communication
Communication channel	4	The code specifying the channel or manner in which a communication can be made, such as telephone or email.	Valid codes: Email Mobile Phone Telefax	1..1	A7		CommunicationChannel
Identification	4	A text string that make up the complete identification for this communication such as telephone number or email address		1..1	A100		CompleteNumber

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Description	4	Description of the communication with the customer		0..1	A100		Description
Customer address	2	Specification of customer address		1..2			ConsumerInvolvedCustomerAddress
Address type	3	Type of address	Specifies whether the address is postal address or invoice address. Valid codes: postaladr invoiceadr	1..1	A10	postaladr or invoiceadr	AddressType
Street name	3	Name of street		0..1	A150		StreetName
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		Mapping Authority).					
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality	The Norwegian municipality code follows a string[4] format specification and has currently values from 0101 to 2030.	0..1	A10		MunicipalityCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		the address belongs to					
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Postoffice box	3	Postoffice box number		0..1	A40		PostOfficeBox
Care of	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such		0..1	A80		CareOf

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		as 'care of' or 'C/O'					
Attention Of	3	The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for attention of' or 'FAO' or 'ATTN' for this address		0..1	A80		AttentionOf
On Behalf	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is		0..1	A80		OnBehalf

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		marked with words such as 'v/'					

6.2.2 ConfirmStartOfSupply

6.2.2.1 Header

Ref. Header

6.2.2.2 Process

Ref. Process

6.2.2.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Response Event	1	Response event class		1..1			PayloadResponseEvent
Start of occurrence	2	The requested date and time for the New Balance Supplier to take over the supply for the Metering Point.	Copied from the Request Start of Supply Message which is confirmed.	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	StartOfOccurrence
Original Business Document Reference	2	The identification of the Request Start of Supply		1..1	A36	UUID	OriginalBusinessDocumentReference

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		message which is confirmed.					
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*

6.2.3 RejectStartOfSupply

6.2.3.1 Header

Ref. Header

6.2.3.2 Process

Ref. Process

6.2.3.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Response Event	1	Response event class		1..1			PayloadResponseEvent
Original Business Document Reference	2	The identification of the Request Start of Supply message which is rejected.		1..1	A36	UUID	OriginalBusinessDocumentReference
Response reason	2	Code indicating the reason(s) for the rejection	The reason codes are defined in **Business/status reason codes**	1..99	A5		ResponseReasonType
listAgencyIdentifier	2	*Attribute to the response reason code*	*Identification of the agency maintaining the reason codes.* **89 Elhub** ***260 ebIX***	*1..1*	*A3*	89, 260	*listAgencyIdentifier*
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*

6.2.4 NotifyStartOfSupply

6.2.4.1 Header

Ref. Header

6.2.4.2 Process

Ref. Process

6.2.4.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload Metering Point Event	1	Payload Metering Point Event Class		1..1			PayloadMPEvent
Start of occurrence	2	The requested date and time for the New Balance Supplier to take over the supply for the Metering Point.	For additional information, ref. DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	StartOfOccurrence
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Metering Grid Area	2	Identification of the metering grid area the		1..1			MeteringGridAreaUsedDomainLocation

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		Metering Point is connected to					
Identification	3	Unique identification of the metering grid area.	EIC-Y code from ENTSO-E is used for identification of metering grid areas.	1..1	A16		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering grid area*	*Identification of the agency maintaining the metering grid area identification.* ***305 EIC***	*1..1*	*A3*	305	*schemeAgencyIdentifier*
Metering Point Address	2	Metering point address		0..1			MPAddressMeteringPointAddress
Street name	3	Name of street		0..1	A150		StreetName
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality the address belongs to	The Norwegian municipality code follows a string[4] format specification and has currently values from 0101 to 2030.	0..1	A10		MunicipalityCode
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Metering Point Geographical Coordinate	2	Geographical coordinates of the Meter connected to the Metering Point	WGS84 scheme should be used for GPS coordinates.	0..1			MPPositionMeteringPointGeographicalCoordinate
Latitude	3	The latitude part of the coordinate		1..1	Decimal (8.5)		Latitude
Longitude	3	The longitude part of the coordinate		1..1	Decimal (8.5)		Longitude
Metering Point Address Cadastral	2	The address cadastral	In Norwegian this is Gårdsnr (Gnr), Bruksnr (Bnr), Seksjonsnr (Snr), Festenr (Fnr)	0..1			MPAddressCadastral
Gårdsnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		1..1	A10		Gnr
Bruksnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		1..1	A10		Bnr
Seksjonsnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		0..1	A10		Snr
Festenummer	3	Specific location parameter as governed		0..1	A10		Fnr

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		(in Norway) by the Norwegian Mapping Authority.					
Balance Supplier	2	Identification of the new balance supplier on the metering point		1..1			BalanceSupplierInvolvedEnergyParty
Identification	3	Unique identification of the balance supplier.	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2].	1..1	A13		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the balance supplier*	*Identification of the agency maintaining the identification of balance suppliers.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification and name of the customer on the metering point		1..1			ConsumerInvolvedCustomerParty
Identification	3	Identification of the customer.	Company customer: Organization number Houshold customer:	1..1	A11		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			Birth number or D Number				
schemeAgencyIdentifier	3	*Attribute to the identification of the customer*	*Identification of the agency maintaining the identification of customers.* *Organization number:* ***82 Brønnøysundregistrene*** *Birth number or D Number* ***Z01 Folkeregisteret***	*1..1*	*A3*		*schemeAgencyIdentifier*
Name	3	Customer name	Name of company	0..1	A80		Name
Given name	3	Given name of customer	Household customer , first name	0..1	A80		GivenName
Family name	3	Family name of customer	Household customer ,family name	0..1	A40		FamilyName
Extended storage of metering values	3	Indicator if the end-user wants extended storage of metering values	Standard is three years. Extended storage is 10 years.	1..1	boolean	true/false	ExtendedStorageMeteringValues
NACE DivisionCode	3	The DivisionCode ("Næringskode") of the customer.	Valid codes. Ref. NACE Division Codes (Næringskode) This element is only used to forward the NACE-code from the	0..1	A10		NACE_DivisionCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			balance supplier to the grid access provider.				
Communication	3	Means for communication with the customer		0..99			Communication
Communication channel	4	The code specifying the channel or manner in which a communication can be made, such as telephone or email.	Valid codes: Email Mobile Phone Telefax	1..1	A7		CommunicationChannel
Identification	4	A text string that make up the complete identification for this communication such as telephone number or email address		1..1	A100		CompleteNumber
Description	4	Description of the communication with the customer		0..1	A100		Description
Customer address	2	Specification of customer address		1..2			ConsumerInvolvedCustomerAddress
Address type	3	Type of address	Specifies whether the address is postal address or invoice address. Valid codes: postaladr invoiceadr	1..1	A10	postaladr or invoiceadr	AddressType
Street name	3	Name of street		0..1	A150		StreetName

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality the address belongs to	The Norwegian municipality code follows a string[4] format specification and has currently values from 0101 to 2030.	0..1	A10		MunicipalityCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Postoffice box	3	Postoffice box number		0..1	A40		PostOfficeBox
Care of	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'care of' or 'C/O'		0..1	A80		CareOf
Attention Of	3	The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for attention		0..1	A80		AttentionOf

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		of' or 'FAO' or 'ATTN' for this address					
On Behalf	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'v/'		0..1	A80		OnBehalf
Metering Point Characteristics	2	Metering point characteristics		0..1			MPDetailMeteringPointCharacteristics
Metering Point type	3	A code specifying the direction of the active energy flow in this Metering Point, such as consumption, production.	Codes according to ebIX. Ref. Metering Point Type	0..1	A3		MeteringPointType
listAgencyIdentifier	3	*Attribute to the metering point type*	*Identification of the agency maintaining metering point types.* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Metering point subtype consumption	3	A code specifying the type of consumption for consumption metering points.	Valid codes: Ref. Subtype Consumption Note that on metering points of type Combined, both metering point subtype consumption and	0..1	A3		MeteringPointSubTypeConsumption

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			metering point subtype production is used.				
listAgencyIdentifier	3	*Attribute to the metering point subtype consumption element*	*Identification of the agency maintaining metering point subtype consumption codes* ***89 Elhub***	*1..1*	*A2*	89	*listAgencyIdentifier*
Metering point subtype production	3	A code specifying the type of production for production metering points.	Valid codes: Ref. Subtype Production	0..1	A3		MeteringPointSubTypeProduction
listAgencyIdentifier	3	*Attribute to the metering point subtype production element*	*Identification of the agency maintaining metering point subtype production codes* ***89 Elhub***	*1..1*	*A2*	89	*listAgencyIdentifier*
Meter Reading Characteristics	3	A code specifying how the Metered Data Collector collects data from the Meter for this Metering Point, such as Automatic or Manually.	Valid codes: Ref. Meter Reading Characteristics	0..1	A3		MeterReadingCharacteristics
listAgencyIdentifier	3	*Attribute to the meter reading characteristics*	*Identification of the agency maintaining meter reading characteristics codes.*	*1..1*	*A3*	260	*listAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			260 ebIX				
Settlement Method	3	A code specifying how the energy volumes are treated for settlement for this Metering Point, such as profiled or non-profiled	Codes according or Elhub. Ref. Settlement Method Type	0..1	A3		SettlementMethodType
listAgencyIdentifier	3	*Attribute to the settlement method*	*Identification of the agency maintaining settlement methods* ***89 Elhub*** ***260 ebIX***	*1..1*	*A3*		*listAgencyIdentifier*
Physical Status of Metering Point	3	A code specifying if the installation of the Metering Point is physically connected to the grid	Codes according to ebIX. Ref. Physical Status Type	0..1	A3		PhysicalStatusType
listAgencyIdentifier	3	*Attribute to the physical status type*	*Identification of the agency maintaining physical statuses* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Load limit	3	Load limit on the metering point	The maximum load in kW in a consumption metering point a specific point in time. If stored as Ampere in the	0..1	I9		ContractedConnectionCapacityValue

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			source system this must be converted to effect.				
Installed capacity	3	Installed capacity for production metering points	Installed capacity, or maximum effect, is the intended full-load sustained output of a facility such as a power plant.	0..1	I9		InstalledCapacity
Meter reading start date	3	Start date of meter reading	Use together with meter reading frequency (ref. below) to calculate next planned meter reading	0..1	dateTime		MeterReadingStartDate
Meter reading frequency	3	The expected reading interval for a manually read meter point in number of readings per year		0..1	I4		MeterReadingFrequencyDuration
Description	3	For consumption metering points: Free text description of the metering point. Optional. For production and combined metering points: Name of production unit. Required.		0..1	A80		Description

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Priority	3	Code to indicate if the metering point is interruptible or not	Valid codes: Ref. Priority codes	0..1	A1		Priority
Blocked for switching	3	Indicator to block the metering point from switching of balance supplier	True if the metering point is blocked for switching	0..1	boolean	true/false	BlockedForSwitching
Estimated annual consumption	2	kWh for consumption. Updated for profiled metering points		0..1			AnnualPeriodEstimatedMetrics
Total	3	Expected consumption value		1..1	I12		Total
Calculation method	3	Code to indicate how the EAC is calculated	Valid codes. Ref. Calculation Method	1..1	A9		CalculationMethod
Meter information	2	Information regarding the meter connected to the Metering Point		0..1			MeteringInstallationMeterFacility
Meter Identification	3	Identification number of the meter at the metering point		1..1	A18		MeterIdentification
Number of digits	3	Number of significant digits on a profiled/manually read meter		0..1	I2		NumberOfDigits
Meter constant	3	Value to convert the register read to actual consumption/production		0..1	Decimal (12.5)		Constant

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Meter location	3	Description of the meter location		0..1	A80		MeterLocation
Taxation Profile	2	Information regarding various tax elements on the metering point		0..1			MPTaxationProfile
VAT Code	3	Code to indicate the Value Added Tax percentage.	Valid codes: Ref. Vat Code	0..1	A1		VATCode
Enova fee type	3	Type of the Enova fee: Fixed or dependent on consumption	**Fixed** **ConsumptionDependent**	0..1	A20	Fixed or Consumption Dependent	EnovaFeeType
Enova fee share	3	The share of the volume which will be used for the Enova fee calculations (in percentage points)		0..1	Decimal (5.2)		EnovaFee
El fee share	3	The share of the volume which will be used for the El fee calculations (in percentage points)		0..1	Decimal (5.2)		ElFee
El certificate share	3	The share of the volume which will be used for El-certificate calculations (in percentage points)		0..1	Decimal (5.2)		ElCertificateShare
ConsumptionCode	3	Code describing the consumption in the metering point	Ref. Consumption Code	0..1	A10		ConsumptionCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
NACE_DivisionCode	3	The DivisionCode ("Næringskode") of the customer.	Valid codes. Ref. NACE Division Codes (Næringskode)	0..1	A10		NACE_DivisionCode
Measurement Definition	2	Specification of the characteristics of the metering taking place on the metering point.		0..99			MeasurementDefinition
Product Included Product Characteristics	3	Product Included Product Characteristics Complex Type		1..1			ProductIncludedProductCharacteristics
Product	4	Identification of an energy product such as power, energy, reactive power, transport capacity, etc.	This identifies the product for which the time series is reporting. Valid codes. Ref. Product identifier	1..1	A13		Identification
schemeAgencyIdentifier	4	*Attribute to the Product*	*Identification of the agency issuing the identifiers used for energy products* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Unit type	4	The unit of measure that is applied to the quantities in which the metering values are expressed.	Valid codes: Ref. Unit Type	1..1	A5		UnitType
Direction	3	A code specifying the direction of the energy flow.	Valid codes: **In** - Production **Out** - Consumption	1..1	A3	In/Out	Direction

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Resolution	3	Code for the resolution of the metering values	Valid codes: **PT60M/PT1H** - 60 min resolution **PT15M** - 15 min resolution **N** - Non continous	1..1	A5	PT60M/PT1H/ PT15M/N	Resolution

6.2.5 RequestEndOfSupply

6.2.5.1 Header

Ref. Header

6.2.5.2 Process

Ref. Process

6.2.5.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload Metering Point Event	1	Payload Metering Point Event Class		1..1			PayloadMPEvent
End of occurrence	2	The requested date and time for end of supply in the Metering Point.	The time part of the element is currently not in use. Retained for possible future use. For additional information, ref.DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-	EndOfOccurrence

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
						DDTHH:MM:SS[+-][HH:MM]	
Original Business Document Reference	2	The identification of a related business document	Must be used in case the message is a cancellation/rollback of a former End of Supply message OR the message is sent in BRS-NO-211 to correct the End of occurrence date above.	0..1	A36	UUID	OriginalBusinessDocumentReference
Reason for transaction	2	Reason for end of contract	The field denotes the reason for ending a contract. If the contract is transferred from one party to another as denoted by death and default being the most common, but other codes as per ebIX may be used (if defined), such as "Customer Move" (Z42). Note that "Supplier Change" is also a valid code for this field. Valid codes. Ref. Reason for transaction codes	0..1	A3		ReasonForTransaction
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.*	*1..1*	*A1*	9	*schemeAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			9 GS1				
Balance Supplier	2	Identification of the old balance supplier on the metering point		0..1			BalanceSupplierInvolvedEnergyParty
Identification	3	Unique identification of the balance supplier.	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2].	1..1	A13		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the balance supplier*	*Identification of the agency maintaining the identification of balance suppliers.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification and name of the customer on the metering point		1..1			ConsumerInvolvedCustomerParty
Identification	3	Identification of the customer.	Company customer: Organization number Household customer: Birth number or D Number	1..1	A11		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the customer*	*Identification of the agency maintaining the identification of customers.* *Organization number:* ***82 Brønnøysundregistrene***	*1..1*	*A3*		*schemeAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			Birth number or D Number ***Z01 Folkeregisteret***				
Name	3	Customer name	Name of company	0..1	A80		Name
Given name	3	First name of customer	Household customer ,first name	0..1	A80		GivenName
Family name	3	Family name of customer	Household customer ,family name	0..1	A40		FamilyName
Communication	3	Means for communication with the customer		0..99			Communication
Communication channel	4	The code specifying the channel or manner in which a communication can be made, such as telephone or email.	Valid codes: Email Mobile Phone Telefax	1..1	A7		CommunicationChannel
Identification	4	A text string that make up the complete identification for this communication such as telephone number or email address		1..1	A100		CompleteNumber
Description	4	Description of the communication with the customer		0..1	A100		Description
Customer address	2	Specification of customer address		1..2			ConsumerInvolvedCustomerAddress

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Address type	3	Type of address	Specifies whether the address is postal address or invoice address. Valid codes: postaladr invoiceadr	1..1	A10	postaladr or invoiceadr	AddressType
Street name	3	Name of street		0..1	A150		StreetName
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Municipality code	3	Code to identify the municipality the address belongs to	The Norwegian municipality code follows a string[4] format specification and has currently values from 0101 to 2030.	0..1	A10		MunicipalityCode
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Postoffice box	3	Postoffice box number		0..1	A40		PostOfficeBox
Care of	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'care of' or 'C/O'		0..1	A80		CareOf
Attention Of	3	The name, expressed as text, of a person or department in the organization to whom incoming mail is		0..1	A80		AttentionOf

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		marked with words such as 'for attention of' or 'FAO' or 'ATTN' for this address					
On Behalf	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'v/'		0..1	A80		OnBehalf

6.2.6 ConfirmEndOfSupply

6.2.6.1 Header

Ref. Header

6.2.6.2 Process

Ref. Process

6.2.6.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Response Event	1	Response event class		1..1			PayloadResponseEvent
End of occurrence	2	The requested date and time for the end of	Copied from the Request End of Supply message which is confirmed.	1..1		YYYY-MM-DDTHH:MM:SSZ or	EndOfOccurrence

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		supply for the Metering Point.				YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	
Original Business Document Reference	2	The identification of the Request End of Supply message which is confirmed.		1..1	A36	UUID	OriginalBusinessDocumentReference
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*

6.2.7 RejectEndOfSupply

6.2.7.1 Header

Ref. Header

6.2.7.2 Process

Ref. Process

6.2.7.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Response Event	1	Response event class		1..1			PayloadResponseEvent
Original Business Document Reference	2	The identification of the Request End of Supply message which is rejected.		1..1	A36	UUID	OriginalBusinessDocumentReference
Response reason	2	Code indicating the reason(s) for the rejection	The reason codes are defined in **Business/status reason codes**	1..99	A5		ResponseReasonType
listAgencyIdentifier	2	*Attribute to the response reason code*	*Identification of the agency maintaining the reason codes.* **89 Elhub** ***260 ebIX***	*1..1*	*A3*	89, 260	*listAgencyIdentifier*
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*

6.2.8 NotifyEndOfSupply

6.2.8.1 Header

Ref. Header

elhub

6.2.8.2 Process

Ref. Process

6.2.8.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload Metering Point Event	1	Payload Metering Point Event Class		1..1			PayloadMPEvent
End of occurrence	2	The requested date and time for end of supply in the Metering Point.	For additional information, ref. DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	EndOfOccurrence
Reason for transaction	2	Reason for end of contract	The field denotes the reason for ending a contract. If the contract is transferred from one party to another as denoted by death and default being the most common, but other codes as per ebIX may be used (if defined), such as "Customer Move" (Z42). Note that "Supplier Change" is also a valid code for this field. Valid codes. Ref. Reason for transaction codes	0..1	A3		ReasonForTransaction
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used	1..1	A18		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			for identification of metering points.				
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Balance Supplier	2	Identification of the old balance supplier on the metering point		1..1			BalanceSupplierInvolvedEnergyParty
Identification	3	Unique identification of the balance supplier.	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2] .	1..1	A13		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the balance supplier*	*Identification of the agency maintaining the identification of balance suppliers.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification and name of the customer on the metering point		1..1			ConsumerInvolvedCustomerParty
Identification	3	Identification of the customer.	Company customer: Organization number Household customer: Birth number or D Number	1..1	A11		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
schemeAgencyIdentifier	3	*Attribute to the identification of the customer*	*Identification of the agency maintaining the identification of customers.* *Organization number:* ***82 Brønnøysundregistrene*** *Birth number or D Number* ***Z01 Folkeregisteret***	*1..1*	*A3*		*schemeAgencyIdentifier*
Name	3	Customer name	Name of company	0..1	A80		Name
Given name	3	First name of customer	Household customer ,first name	0..1	A80		GivenName
Family name	3	Family name of customer	Household customer ,family name	0..1	A40		FamilyName
Communication	3	Means for communication with the customer		0..99			Communication
Communication channel	4	The code specifying the channel or manner in which a communication can be made, such as telephone or email.	Valid codes: Email Mobile Phone Telefax	1..1	A7		CommunicationChannel
Identification	4	A text string that make up the complete identification for this communication such as telephone number or email address		1..1	A100		CompleteNumber

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Description	4	Description of the communication with the customer		0..1	A100		Description
Customer address	2	Specification of customer address		1..2			ConsumerInvolvedCustomerAddress
Address type	3	Type of address	Specifies whether the address is postal address or invoice address. Valid codes: postaladr invoiceadr	1..1	A10	postaladr or invoiceadr	AddressType
Street name	3	Name of street		0..1	A150		StreetName
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality the address belongs to	The Norwegian municipality code follows a string[4] format specification and has currently values from 0101 to 2030.	0..1	A10		MunicipalityCode
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Postoffice box	3	Postoffice box number		0..1	A40		PostOfficeBox
Care of	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'care of' or 'C/O'		0..1	A80		CareOf

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Attention Of	3	The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for attention of' or 'FAO' or 'ATTN' for this address		0..1	A80		AttentionOf
On Behalf	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'v/'		0..1	A80		OnBehalf

6.2.9 NotifyMeteringPointCharacteristics

6.2.9.1 Header

Ref. Header

6.2.9.2 Process

Ref. Process

6.2.9.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
MasterDataMetering Point Event	1	MasterData Metering point event class		1..9999			PayloadMasterdataMPEvent
Identification	2	Identification of the individual payload.		0..1	A36	UUID	Identification
Original Business Document Reference	2	The identification of the message which this message is a response to, if any.		0..1	A36	UUID	OriginalBusinessDocumentReference
Start of occurrence	2	The valid start date and time for the MasterData.	The fields StartOfOccurence and EndOfOccurence represent the valid start and end date for the specific payload. If the message is used to communicate changes over time on a metering point, several payloads will be used to represent the state of the metering point for each time period. In this case the payloads in the message will always relate to the same metering point. If the message is used to	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	StartOfOccurrence

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			communicate estimated annual consumption in BRS-NO-317 it may contain payloads for different metering points.				
End of occurrence	2	The valid end date and time for the MasterData.		0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	EndOfOccurrence
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Metering Point Address	2	Metering point address		0..1			MPAddressMeteringPointAddress
Street name	3	Name of street		0..1	A150		StreetName

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality the address belongs to	The Norwegian municipality code follows a string[4] format specification and has currently values from 0101 to 2030.	0..1	A10		MunicipalityCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Metering Point Geographical Coordinate	2	Geographical coordinates of the Meter connected to the Metering Point	WGS84 scheme should be used for GPS coordinates.	0..1			MPPositionMeteringPointGeographicalCoordinate
Latitude	3	The latitude part of the coordinate		1..1	Decimal (8.5)		Latitude
Longitude	3	The longitude part of the coordinate		1..1	Decimal (8.5)		Longitude
Metering Point Address Cadastral	2	The address cadastral	In Norwegian this is Gårdsnr (Gnr), Bruksnr (Bnr), Seksjonsnr (Snr), Festenr (Fnr)	0..1			MPAddressCadastral
Gårdsnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		1..1	A10		Gnr

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Bruksnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		1..1	A10		Bnr
Seksjonsnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		0..1	A10		Snr
Festenummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		0..1	A10		Fnr
Balance Supplier	2	Identification of the balance supplier on the metering point		0..1			BalanceSupplierInvolvedEnergyParty
Identification	3	Unique identification of the balance supplier.	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2].	1..1	A13		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
schemeAgencyIdentifier	3	*Attribute to the identification of the balance supplier*	*Identification of the agency maintaining the identification of balance suppliers.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification and name of the customer on the metering point		0..1			ConsumerInvolvedCustomerParty
Identification	3	Identification of the customer.	Company customer: Organization number Houshold customer: Birth number or D Number	0..1	A11		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the customer*	*Identification of the agency maintaining the identification of customers.* *Organization number:* ***82 Brønnøysundregistrene*** *Birth number or D Number:* ***Z01 Folkeregisteret***	*1..1*	*A3*		*schemeAgencyIdentifier*
Name	3	Customer name	Name of company	0..1	A80		Name

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Given name	3	First name of customer	Household customer ,first name	0..1	A80		GivenName
Family name	3	Family name of customer	Household customer ,family name	0..1	A40		FamilyName
Extended storage of metering values	3	Indicator if the end-user wants extended storage of metering values	Standard is three years. Extended storage is 10 years.	1..1	boolean	true/false	ExtendedStorageMeteringValues
Communication	3	Means for communication with the customer		0..99			Communication
Communication channel	4	The code specifying the channel or manner in which a communication can be made, such as telephone or email.	Valid codes: Email Mobile Phone Telefax	1..1	A7		CommunicationChannel
Identification	4	A text string that make up the complete identification for this communication such as telephone number or email address		1..1	A100		CompleteNumber
Description	4	Description of the communication with the customer		0..1	A100		Description
Metering Grid Area	2	Identification of the metering grid area the		0..1			MeteringGridAreaUsedDomainLocation

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		Metering Point is connected to					
Identification	3	Unique identification of the metering grid area.	EIC-Y code from ENTSO-E is used for identification of metering grid areas.	1..1	A16		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering grid area*	*Identification of the agency maintaining the metering grid area identification.* ***305 EIC***	*1..1*	*A3*	305	*schemeAgencyIdentifier*
Metering Point Characteristics	2	Metering point characteristics		0..1			MpDetailMeteringPointCharacteristic
Metering Point type	3	A code specifying the direction of the active energy flow in this Metering Point, such as consumption, production.	Codes according to ebIX. Ref. Metering Point Type	0..1	A3		MeteringPointType
listAgencyIdentifier	3	*Attribute to the metering point type*	*Identification of the agency maintaining metering point types.* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Metering point subtype consumption	3	A code specifying the type of consumption for consumption metering points.	Valid codes: Ref. Subtype Consumption Note that on metering points of type	0..1	A3		MeteringPointSubTypeConsumption

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			Combined, both metering point subtype consumption and metering point subtype production is used.				
listAgencyIdentifier	3	*Attribute to the metering point subtype consumption element*	*Identification of the agency maintaining metering point subtype consumption codes* ***89 Elhub***	*1..1*	*A2*	89	*listAgencyIdentifier*
Metering point subtype production	3	A code specifying the type of production for production metering points.	Valid codes: Ref. Subtype Production	0..1	A3		MeteringPointSubTypeProduction
listAgencyIdentifier	3	*Attribute to the metering point subtype production element*	*Identification of the agency maintaining metering point subtype production codes* ***89 Elhub***	*1..1*	*A2*	89	*listAgencyIdentifier*
Meter Reading Characteristics	3	A code specifying how the Metered Data Collector collects data from the Meter for this Metering Point, such as Automatic or Manually.	Valid codes: Ref. Meter Reading Characteristics	0..1	A3		MeterReadingCharacteristics

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
listAgencyIdentifier	3	*Attribute to the meter reading characteristics*	*Identification of the agency maintaining meter reading characteristics codes.* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Settlement Method	3	A code specifying how the energy volumes are treated for settlement for this Metering Point, such as profiled or non-profiled	Codes according or Elhub. Ref. Settlement Method Type	0..1	A3		SettlementMethodType
listAgencyIdentifier	3	*Attribute to the settlement method*	*Identification of the agency maintaining settlement methods* ***89 Elhub*** ***260 ebIX***	*1..1*	*A3*		*listAgencyIdentifier*
Physical Status of Metering Point	3	A code specifying if the installation of the Metering Point is physically connected to the grid	Codes according to ebIX. Ref. Physical Status Type	0..1	A3		PhysicalStatusType
listAgencyIdentifier	3	*Attribute to the physical status type*	*Identification of the agency maintaining physical statuses* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Load limit	3	Load limit on the metering point	The maximum load in kW in a consumption m etering point a specific point in time. If stored as Ampere in the source system this must be converted to effect.	0..1	I9		ContractedConnectionCapacityValue
Installed capacity	3	Installed capacity for production metering points	Installed capacity, or maximum effect, is the intended full-load sustained output of a facility such as a power plant.	0..1	I9		InstalledCapacity
Meter reading start date	3	Start date of meter reading	Use together with meter reading frequency (ref. below) to calculate next planned meter reading	0..1	dateTime		MeterReadingStartDate
Meter reading frequency	3	The expected reading interval for a manually read meter point in number of readings per year		0..1	I4		MeterReadingFrequencyDuration
Description	3	For consumption metering points: Free text description of the metering point. Optional.		0..1	A80		Description

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		For production and combined metering points: Name of production unit. Required.					
Priority	3	Code to indicate if the metering point is interruptible or not	Valid codes: Ref. Priority codes	0..1	A1		Priority
Blocked for switching	3	Indicator to block the metering point from switching of balance supplier	True if the metering point is blocked for switching	0..1	boolean	true/false	BlockedForSwitching
Estimated annual consumption	2	kWh for consumption. Updated for profiled metering points		0..1			AnnualPeriodEstimatedMetrics
Total	3	Expected consumption value		1..1	I12		Total
Calculation method	3	Code to indicate how the EAC is calculated	Valid codes. Ref. Calculation Method	1..1	A9		CalculationMethod
Meter information	2	Information regarding the meter connected to the Metering Point		0..1			MeteringInstallationMeterFacility
Meter Identification	3	Identification number of the meter at the metering point		1..1	A18		MeterIdentification
Number of digits	3	Number of significant digits on a profiled/manually read meter		0..1	I2		NumberOfDigits

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Meter constant	3	Value to convert the register read to actual consumption/production		0..1	Decimal (12.5)		Constant
Meter location	3	Description of the meter location		0..1	A80		MeterLocation
Taxation Profile	2	Information regarding various tax elements on the metering point		0..1			MPTaxationProfile
VAT Code	3	Code to indicate the Value Added Tax percentage.	Valid codes: Ref. Vat Code	0..1	A1		VATCode
Enova fee type	3	Type of the Enova fee: Fixed or dependent on consumption	Codes: **Fixed** **ConsumptionDependent**	0..1	A20	Fixed or Consumption Dependent	EnovaFeeType
Enova fee share	3	The share of the volume which will be used for the Enova fee calculations (in percentage points)		0..1	Decimal (5.2)		EnovaFee
El fee share	3	The share of the volume which will be used for the El fee calculations (in percentage points)		0..1	Decimal (5.2)		ElFee
El certificate share	3	The share of the volume which will be used for El-certificate		0..1	Decimal (5.2)		ElCertificateShare

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		calculations (in percentage points)					
ConsumptionCode	3	Code describing the consumption in the metering point	Ref. Consumption Code	0..1	A10		ConsumptionCode
NACE DivisionCode	3	The DivisionCode ("Næringskode") of the customer.	Valid codes. Ref. NACE Division Codes (Næringskode)	0..1	A10		NACE_DivisionCode
Measurement Definition	2	Specification of the characteristics of the metering taking place on the metering point.		0..99			MeasurementDefinition
Product Included Product Characteristics	3	Product Included Product Characteristics Complex Type		1..1			ProductIncludedProductCharacteristics
Product	4	Identification of an energy product such as power, energy, reactive power, transport capacity, etc.	This identifies the product for which the time series is reporting. Valid codes. Ref. Product identifier	1..1	A13		Identification
schemeAgencyIdentifier	4	*Attribute to the Product*	*Identification of the agency issuing the identifiers used for energy products* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Unit type	4	The unit of measure that is applied to the	Valid codes: Ref. Unit Type	1..1	A5		UnitType

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		quantities in which the metering values are expressed.					
Direction	3	A code specifying the direction of the energy flow.	Valid codes: **In** - Production **Out** - Consumption	1..1	A3	In/Out	Direction
Resolution	3	Code for the resolution of the metering values	Valid codes: **PT60M/PT1H** - 60 min resolution **PT15M** - 15 min resolution **N** - Non continous	1..1	A5	PT60M/PT1H/ PT15M/N	Resolution

6.2.10 RequestToGridAccessProvider

6.2.10.1 Header

Ref. Header

6.2.10.2 Process

Ref. Process

6.2.10.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload Metering Point event	1	Payload Metering Point event class		1..1			PayloadMPEvent

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Query category	2	Code to describe the main intent of the request.	Valid codes: Grid Access Provider request category	1..1	A18		QueryCategory
Subject	2	The subject of the request	Short text to describe the main issue of the request	1..1	A40		Subject
Public request	2	Description of the request	Will be available for any subsequent balance suppliers on the metering point.	0..1	A300		RequestPublic
Private request	2	Description of the request which will be "private" to the balance supplier issuing the request.	Any subsequent balance suppliers on the metering point will not be able to view the information.	0..1	A300		RequestPrivate
Metering Point	2	An entity where energy products are metered or calculated	Identification of the metering point	1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*

6.2.11 ResponseFromGridAccessProvider

6.2.11.1 Header

Ref. Header

elhub

6.2.11.2 Process

Ref. Process

6.2.11.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Response Event	1	Response event class		1..1			PayloadResponseEvent
Original Business Document Reference	2	The identification of the Request To Grid Access Provider message which this message is the response to.		1..1	A36	UUID	OriginalBusinessDocumentReference
Query category	2	Code to describe the main intent of the request.	Valid codes: Grid Access Provider request category	0..1	A18		QueryCategory
Subject	2	The subject of the request	Short text to describe the main issue of the request	0..1	A40		Subject
Public request	2	Description of the request	Will be available for any subsequent balance suppliers on the metering point.	0..1	A300		RequestPublic
Private request	2	Description of the request which will be "private" to the balance supplier issuing the request.	Any subsequent balance suppliers on the metering point will not be able to view the information.	0..1	A300		RequestPrivate
Public feedback	2	Feedback to the request from the grid access provider.	Will be available for any subsequent balance suppliers on the metering point.	0..1	A300		FeedbackPublic
Private feedback	2	Feedback related to the "private" part of the request.	Any subsequent balance suppliers on the metering point	0..1	A300		FeedbackPrivate

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			will not be able to view the information.				
Metering Point	2	Identification of the metering point		0..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*

6.2.12 RequestCollectedData

6.2.12.1 Header

Ref. Header

6.2.12.2 Process

Ref. Process

6.2.12.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Measured data request	1	Measured data request class		1..1			PayloadMeasuredDataRequest
Reminder type	2	Type of reminder	Ref. Reminder type	1..1	A3		ReminderType
Reminder	2	Reminder class		1..9999			Reminder
Request period	3	Request period class		1..1			Period
Start of period	4	The requested start date/time for metering values.	For additional information, ref.DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	Start
End of period	4	The requested end date/time for metering values.	For additional information, ref.DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	End
Metering Point	3	An entity where energy products are metered or calculated	Identification of the metering point	1..1			MeteringPointUsedDomainLocation
Identification	4	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	4	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*

6.2.13 CollectedData

6.2.13.1 Header

Ref. Header

6.2.13.2 Process

Ref. Process

6.2.13.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Energy Time Series	1	Time Series Class which also may contain meter reads and estimated annual consumption		1..9999			PayloadEnergyTimeSeries
Identification	2	Unique identification of the time series / meter reads.		1..1	A36	UUID	Identification
Registration date and time	2	The date and time of the registration	For additional information, ref.DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or	RegistrationDateTime

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		of this set of collected data.				YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	
Observation Period	2	A specific period of time describing the duration of this set of collected data.		0..1			ObservationPeriodTimeSeriesPeriod
Resolution	3	The resolution of this set of collected data expressed as a duration between the start and end of subsequent observations within this set of collected data.	The resolution is expressed a code. Ref. Resolution Mandatory for time series. Not applicable for meter reads.	0..1	A5		ResolutionDuration
Start date/time	3	Start date/time of the	For additional information, ref.DateTime elements	0..1		YYYY-MM-DDTHH:MM:SSZ or	Start

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		observation period	This element is also used for meter index (date and time of the meter index read) and estimated annual consumption (date and time from when the EAC is valid) in BRS-NO-311.			YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	
Meter reading on start date/time	3	Meter reading on the start date/time	Used for period volumes and start indexes	0..1	Decimal(15.3)		MeterReadingStart
End date/time	3	End date/time of the observation period	For additional information, ref.DateTime elements	0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	End
Meter reading on end date/time	3	Meter reading on the end date/time	Used for period volumes	0..1	Decimal(15.3)		MeterReadingEnd
Product Included Product Characteristics	2	Product Included Product Characteristics Complex Type		0..1			ProductIncludedProductCharacteristics
Product	3	Identification of an energy	This identifies the product for which the time series is	1..1	A13		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		product such as power, energy, reactive power, transport capacity, etc.	reporting. Valid codes. Ref. Product identifier				
schemeAgencyIdentifier	3	*Attribute to the Product*	*Identification of the agency issuing the identifiers used for energy products* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Unit type	3	The unit of measure that is applied to the quantities in which the time series is expressed.	Valid codes: Ref. Unit Type	1..1	A5		UnitType
Metering characteristics	2	Specification of metering characteristics		0..1			MPDetailMeasurementMeteringPointCharacteristic
Direction	3	A code specifying the direction of the energy flow.	**In** - Production **Out** - Consumption	1..1	A3		Direction

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Metering Point	2	An entity where energy products are metered or calculated	Identification of the metering point	1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Observation	2	Observation class for interval values	**This class is only used for continuous time series and is mutually exclusive with the ProfiledObservation and AnnualPeriodEstimatedMetrics classes below (xsd:choice).**	0..9999			Observation
Sequence	*2*	*The ordinal position of this observation in this set of collected data.*		*1..1*	*I4*		*Sequence*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Metered	3	The value as read from the register for this observation. (quality code = 127)	**Only one of the quantities Metered, Estmated and Temporary is used per observation (xsd:choice)**	0..1	Decimal(15.3)		Metered
Estimated	3	Estimated quantity	Quantity estimated according to the VEE guide with quality code 56 or 81.	0..1	Decimal(15.3)		Estimated
Quality	3	*The quality of the quantity*	***56** Estimated* ***81** Final estimate*	*1..1*	*A2*		*Quality*
Validation code	3	*Type of validation used when validating the meter reading*	*Valid codes: Ref. Validation code*	*1..1*	*A4*		*ValidationCode*
Estimation code	3	*Estimation method used when estimating meter reading*	*Valid codes: Ref. Estimation code*	*1..1*	*A4*		*EstimationCode*
Temporary	3	Quantity regarded as temporary (quality code = 21)		0..1	Decimal(15.3)		Temporary

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Validation code	3	*Type of validation used when validating the meter reading*	*Valid codes: Ref. Validation code*	*1..1*	*A4*		*ValidationCode*
Estimation code	3	*Estimation method used when estimating the temporary meter reading*	*Valid codes: Ref. Estimation code*	*0..1*	*A4*		*EstimationCode*
Profiled Observation	2	Observation class for period volumes and indexes	**This class is only used for period volumes and indexes, and is mutually exclusive with the Observation class above and AnnualPeriodEstimatedMetrics below (xsd:choice)**	0..1			ProfiledObservation
Metered	3	The volume for this observation. (quality code = 127). May be negative.	**Only one of the elements Metered, Stipulated, Withdrawn and MeterIndex is used per observation (xsd:choice)**	0..1	Decimal(15.3)		Metered

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Reason for meter reading	3	*The reason for this meter reading.*	*Valid codes. Ref. Meter read reason code*	*1..1*	*A1*		*MeterReadReasonCode*
Stipulated	3	Stipulated volume. May be negative.	Quantity stipulated by the metered data collector	0..1	Decimal(15.3)		Stipulated
Reason for meter reading	3	*The reason for this meter reading.*	*Valid codes. Ref. Meter read reason code*	*1..1*	*A1*		*MeterReadReasonCode*
Withdrawn	3	Withdrawn indicator (quality code = 58)	Must be set to true to indicate that a volume is to be withdrawn	0..1	boolean	true	Withdrawn
MeterIndex	3	The value as read from the register for this observation. (quality code = 127)	Only applicable for meter index from balance suppliers	0..1	Decimal(15.3)		MeterIndex
Reason for meter reading	3	*The reason for this meter reading.*	*Valid codes. Ref. Meter read reason code*	*1..1*	*A1*		*MeterReadReasonCode*
Estimated annual consumption	2	kWh for estimated annual consumption. Updated for profiled	**This class is only used estimated annual consumption and is mutually exclusive with the Observation class and**	0..1			AnnualPeriodEstimatedMetrics

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		metering points	**ProfiledObservation class above (xsd:choice).**				
Total	3	Estimated consumption value.		1..1	I12		Total

6.2.14 RequestUpfrontMeteringPointCharacteristics

6.2.14.1 Header

Ref. Header

6.2.14.2 Process

Ref. Process

6.2.14.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Metering Point Event	1	Metering point event class		1..1			PayloadMPEvent
Metering Point	2	Identification of the metering point		0..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification and name of the customer on the metering point		0..1			ConsumerInvolvedCustomerParty
Identification	3	Identification of the customer.	Company customer: Organization number Houshold customer: Social security number	1..1	A11		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the customer*	*Identification of the agency maintaining the identification of customers.* *Organization number:* ***82 Brønnøysundregistrene*** *Social security number:* ***Z01 Folkeregisteret***	*1..1*	*A3*		*schemeAgencyIdentifier*
Address	2	The address of the metering point		0..1			MPAddressMeteringPointAddress
Street name	3	Name of street	Wildcard (*) may be used, but minimum 5 characters before the wildcard. Example: Kings*	0..1	A150		StreetName
Building number	3	Building number in street	Wildcard (*) may be used, but minimum 1 character before the wildcard. Example: 1*	0..1	A10		BuildingNumber
Post code	3	Post code linked to the city name		0..1	A10		Postcode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Meter information	2	Information regarding the meter connected to the Metering Point		0..1			MeteringInstallationMeterFacility
Meter Identification	3	Identification number of the meter at the metering point		1..1	A18		MeterIdentification

6.2.15 ResponseUpfrontMeteringPointCharacteristics

6.2.15.1 Header

Ref. Header

6.2.15.2 Process

Ref. Process

6.2.15.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
MasterDataMetering Point Event	1	MasterData Metering point event class		1..99			PayloadMasterDataMPEvent
Original Business Document Reference	2	The identification of the Request Upfront Metering Point Characteristics message which this message is a response to.		1..1	A36	UUID	OriginalBusinessDocumentReference
Snap shot date and time	2	The date and time when the metering point information	For additional information,	1..1		YYYY-MM-DDTHH:MM:SSZ	SnapShotOccurrence

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		was extracted from the metering point database.	ref.DateTime elements			or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	
Date of last meter reading	2	The date when the latest meter reading took place	Used for profiled metering points only	0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	LastMeterReadingDate
Date for delivery obligation	2	The date when the Supplier of Last Resort took over the Metering point		0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	DeliveryObligationDate
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.*	*1..1*	*A1*	9	*schemeAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			9 GS1				
Grid owner	2	Identification of the grid owner		1..1			GridAccessProviderInvolvedEnergyParty
Identification	3	Unique identification of the grid owner.	Global Location Number (GLN) from GS1 is used for identification of parties.	1..1	A13		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the grid owner*	*Identification of the agency maintaining the grid owner identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Metering Point Address	2	Metering point address		0..1			MPAddressMeteringPointAddress
Street name	3	Name of street		0..1	A150		StreetName
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality the address belongs to	The Norwegian municipality code follows a string[4] format specification and has currently values from 0101 to 2030.	0..1	A10		MunicipalityCode
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Metering Point Address Cadastral	2	The address cadastral	In Norwegian this is Gårdsnr (Gnr), Bruksnr (Bnr), Seksjonsnr (Snr), Festenr (Fnr)	0..1			MPAddressCadastral

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Gårdsnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		1..1	A10		Gnr
Bruksnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		1..1	A10		Bnr
Seksjonsnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		0..1	A10		Snr
Festenummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		0..1	A10		Fnr
Metering Grid Area	2	Identification of the metering grid area		0..1			MeteringGridAreaUsedDomainLocation
Identification	3	Unique identification of the metering grid area.	EIC-Y code from ENTSO-E is used for identification of metering grid areas.	1..1	A16		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering grid area*	*Identification of the agency maintaining the metering grid area identification.* ***305 EIC***	*1..1*	*A3*	305	*schemeAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Metering Point Characteristics	2	Metering point characteristics		1..1			MpDetailMeteringPointCharacteristic
Metering Point type	3	A code specifying the direction of the active energy flow in this Metering Point, such as consumption, production.	Codes according to ebIX. Ref. Metering Point Type	0..1	A3		MeteringPointType
listAgencyIdentifier	3	*Attribute to the metering point type*	*Identification of the agency maintaining metering point types.* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Metering point subtype consumption	3	A code specifying the type of consumption for consumption metering points.	Valid codes: Ref. Subtype Consumption Note that on metering points of type Combined, both metering point subtype consumption and metering point subtype production is used.	0..1	A3		MeteringPointSubTypeConsumption
listAgencyIdentifier	3	*Attribute to the metering point subtype consumption element*	*Identification of the agency maintaining metering point subtype*	*1..1*	*A2*	89	*listAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			consumption codes ***89 Elhub***				
Metering point subtype production	3	A code specifying the type of production for production metering points.	Valid codes: Ref. Subtype Production	0..1	A3		MeteringPointSubTypeProduction
listAgencyIdentifier	3	*Attribute to the metering point subtype production element*	*Identification of the agency maintaining metering point subtype production codes* ***89 Elhub***	*1..1*	*A2*	89	*listAgencyIdentifier*
Meter Reading Characteristics	3	A code specifying how the Metered Data Collector collects data from the Meter for this Metering Point, such as Automatic or Manually.	Valid codes: Ref. Meter Reading Characteristics	0..1	A3		MeterReadingCharacteristics
listAgencyIdentifier	3	*Attribute to the meter reading characteristics*	*Identification of the agency maintaining meter reading characteristics codes.* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Settlement Method	3	A code specifying how the energy volumes are treated for settlement for this	Ref. Settlement Method Type	0..1	A3		SettlementMethodType

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		Metering Point, such as profiled or non-profiled					
listAgencyIdentifier	3	*Attribute to the settlement method*	*Identification of the agency maintaining settlement methods* ***89 Elhub*** ***260 ebIX***	*1..1*	*A3*		*listAgencyIdentifier*
Physical Status of Metering Point	3	A code specifying if the installation of the Metering Point is physically connected to the grid	Codes according to ebIX. Ref. Physical Status Type	0..1	A3		PhysicalStatusType
listAgencyIdentifier	3	*Attribute to the physical status type*	*Identification of the agency maintaining physical statuses* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Load limit	3	Load limit on the metering point		0..1	I9		ContractedConnectionCapacityValue
Installed capacity	3	Installed capacity for production metering points		0..1	I9		InstalledCapacity
Meter reading start date	3	Start date and time of meter reading	Use together with meter reading frequency (ref. below) to calculate next planned meter reading	0..1	dateTime		MeterReadingStartDate
Meter reading frequency	3	The expected reading interval for a manually read meter		0..1	I4		MeterReadingFrequencyDuration

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		point in number of readings per year					
Description	3	For consumption metering points: Free text description of the metering point. Optional. For production and combined metering points: Name of production unit. Required.		0..1	A80		Description
Priority	3	Code to indicate if the metering point is interruptible or not	Valid codes: Ref. Priority codes	0..1	A1		Priority
Blocked for switching	3	Indicator to block the metering point for switching of balance supplier	True if the metering point is blocked for switching	0..1		true/false	BlockedForSwitching
Meter information	2	Information regarding the meter connected to the Metering Point		0..1			MeteringInstallationMeterFacility
Meter Identification	3	Identification number of the meter at the metering point		1..1	A18		MeterIdentification
Number of digits	3	Number of significant digits on a profiled/manually read meter		0..1	I2		NumberOfDigits
Meter constant	3	Value to convert the register read to actual consumption/production		0..1	Decimal (12.5)		Constant
Meter location	3	Description of the meter location		0..1	A80		MeterLocation

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Estimated annual consumption	2	kWh for consumption. Updated for profiled metering points		0..1			AnnualPeriodEstimatedMetrics
Total	3	Expected consumption value		1..1	I12		Total
Taxation Profile	2	Information regarding various tax elements on the metering point		0..1			MPTaxationProfile
ConsumptionCode	3	Code describing the consumption in the metering point	Ref. Consumption Code	0..1	A10		ConsumptionCode
NACE DivisionCode	3	The DivisionCode ("Næringskode") of the customer.	Valid codes. Ref. NACE Division Codes (Næringskode)	0..1	A10		NACE_DivisionCode

6.2.16 RequestDataFromElhub

6.2.16.1 Header

Ref. Header

6.2.16.2 Process

Ref. Process

6.2.16.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload Metering Point event	1	Payload Metering Point event class		1..1			PayloadMPEvent
Query type	2	Code to describe the type of query.	Valid codes: Ref. Query Type	1..1	A4		QueryTypeCode
Snap shot date and time	2	Point in time to use when extracting customer and metering point masterdata from the the metering point database.	Used with query type MDCU and MDMP only (Masterdata customer and masterdata metering point)	0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	SnapShotOccurrence
BusinessType	2	Type of time series	May be used with query type STLM (Settlement). Valid codes: Business type	0..1	A4		BusinessType
listAgencyIdentifier	2	*Attribute to the business type*	*Identification of the agency issuing the code list for business types* ***89*** Elhub	*1..1*	*A2*	89	*listAgencyIdentifier*
Period	2	Period used to extract metering values	Mandatory with query type MVRV, MVTS, MVVT and STLM. Optional with query type MDMP. Not allowed for query type MDCU.	0..1			Period
Start date and time	3	Beginning of the period	For additional information, ref.DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-	Start

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
						DDTHH:MM:SS[+-][HH:MM]	
End date and time	3	End of the period	For additional information, ref.DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	End
Metering Point	2	An entity where energy products are metered or calculated	Identification of a metering point. Mandatory with query type MDCU (masterdata customer) and query type MVRV, MVTS and MVVT(metering values). Optional with query type MDMP (masterdata metering point). May not be used with query type STLM (Settlement).	0..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.*	*1..1*	*A1*	9	*schemeAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			9 GS1				
Metering Grid Area	2	Identification of a metering grid area	Mandatory with query type STLM (Settlement). May not be used with query type MVRV, MVTS and MVVT (metering values).	0..1			MeteringGridAreaDomainLocation
Identification	3	Unique identification of the metering grid area.	EIC-Y code from ENTSO-E is used for identification of metering grid areas.	1..1	A16		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering grid area*	*Identification of the agency maintaining the metering grid area identification.* ***305 EIC***	*1..1*	*A3*		*schemeAgencyIdentifier*

6.2.17 NotifyValidatedDataForBillingEnergy

6.2.17.1 Header

Ref. Header

6.2.17.2 Process

Ref. Process

6.2.17.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Energy Time Series	1	Time Series Class		1..9999			PayloadEnergyTimeSeries
Identification	2	Unique identification of the time series.		1..1	A36	UUID	Identification
Registration date and time	2	The date and time of the registration of this set of validated data.		1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	RegistrationDateTime
Request reference	2	Reference to the request for this set of validated data if any.	Used if this set of validated data is genereated based on a request/query message.	0..1	A36	UUID	RequestReference
Observation Period	2	A specific period of time describing the duration of this set of validated data.		1..1			ObservationPeriodTimeSeriesPeriod
Resolution	3	The resolution of this set of	The resolution is expressed a code. Ref. Resolution	0..1	A5		ResolutionDuration

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		collected data expressed as a duration between the start and end of subsequent observations within this set of validated data.					
Start date/time	3	Start date/time of the observation period		0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	Start
Meter reading on start date/time	3	Meter reading on the start date/time	Used for period volumes and start indexes	0..1	Decimal(15.3)		MeterReadingStart
End date/time	3	End date/time of the observation period		0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	End

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Meter reading on end date/time	3	Meter reading on the end date/time	Used for period volumes	0..1	Decimal(15.3)		MeterReadingEnd
Product Included Product Characteristics	2	Product Included Product Characteristics Complex Type		1..1			ProductIncludedProductCharacteristics
Product	3	Identification of an energy product such as power, energy, reactive power, transport capacity, etc.	This identifies the product for which the time series is reporting. Valid codes. Ref. Product identifier	1..1	A13		Identification
schemeAgencyIdentifier	3	*Attribute to the Product*	*Identification of the agency issuing the identifiers used for energy products* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Unit type	3	The unit of measure that is applied to the quantities in	Valid codes: Ref. Unit Type	1..1	A5		UnitType

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		which the time series is expressed.					
Metering characteristics	2	Specification of metering characteristics		1..1			MPDetailMeasurementMeteringPointCharacteristic
Direction	3	A code specifying the direction of the energy flow.	**In** - Production **Out** - Consumption	1..1	A3		Direction
Business type	3	Type of validated data	Valid codes. . Ref. Business Type	0..1	A4		BusinessType
listAgencyIdentifier	3	*Attribute to the business type*	*Identification of the agency issuing the code list for business types* ***89*** Elhub	*1..1*	*A2*	89	*listAgencyIdentifier*
Metering Point	2	An entity where energy products are metered or calculated	Identification of the metering point	0..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		metering point.					
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Metering Grid Area	2	Identification of a metering grid area	Only used if the validated data is aggregated per metering grid area	0..1			MeteringGridAreaUsedDomainLocation
Identification	3	Unique identification of the metering grid area.	EIC-Y code from ENTSO-E is used for identification of metering grid areas.	1..1	A16		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering grid area*	*Identification of the agency maintaining the metering grid area identification.* ***305 EIC***	*1..1*	*A3*	305	*schemeAgencyIdentifier*
Balance Responsible	2	Balance responsible for the Energy Time Series		0..1			BalanceResponsibleInvolvedEnergyParty
Identification	3	Unique identification	All parties are identified by using Global Location	1..1	A13		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		of the balance responsible.	Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2] .				
schemeAgencyIdentifier	3	*Attribute to the identification of the balance responsible*	*Identification of the agency maintaining the identification of balance responsibles.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Balance Supplier	2	Balance supplier for the Energy Time Series		0..1			BalanceSupplierInvolvedEnergyParty
Identification	3	Unique identification of the balance supplier.	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2] .	1..1	A13		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the balance supplier*	*Identification of the agency maintaining the identification of balance suppliers.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Observation	2	Observation class for interval values	**This class is only used for continuous time series and is mutually exclusive with the ProfiledObservation class below (xsd:choice).**	0..9999			Observation
Sequence	*2*	*The ordinal postion of this observation in this set of validated data.*		*1..1*	*I4*		*Sequence*
Metered	3	The value as read from the register for this observation. (quality code = 127)	**Only one of the quantities Metered, Estmated, Temporary and Calculated is used per observation (xsd:choice)**	0..1	Decimal(15.3)		Metered
Estimated	3	Estimated quantity	Quantity estimated according to the VEE guide with quality code 56 or 81.	0..1	Decimal(15.3)		Estimated
Quality	3	*The quality of the quantity*	***56** Estimated* ***81** Final estimate*	*1..1*	*A2*		*Quality*
Validation code	3	*Type of validation used when validating the*	*Valid codes: Ref. Validation code*	*1..1*	*A4*		*ValidationCode*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		meter reading					
Estimation code	3	*Estimation method used when estimating meter reading*	*Valid codes: Ref. Estimation code*	*1..1*	*A4*		*EstimationCode*
Temporary	3	Quantity regarded as temporary (quality code = 21)		0..1	Decimal(15.3)		Temporary
Validation code	3	*Type of validation used when validating the meter reading*	*Valid codes: Ref. Validation code*	*1..1*	*A4*		*ValidationCode*
Estimation code	3	*Estimation method used when estimating the temporary meter reading*	*Valid codes: Ref. Estimation code*	*0..1*	*A4*		*EstimationCode*
Calculated	3	Calculated quantity.	Volume calculated by Elhub.	0..1	Decimal(15.3)		Calculated

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		May be negative					
ImbalanceSettlement	3	*Indicator to signal if the Calculated value is the same as used in the Imbalance Settlement (D+5) and sent to NBS.*	*true if the Calculated value is D+5 otherwise not used*	*0..1*	boolean	true	*ImbalanceSettlement*
Profiled Observation	2	Observation class for period volumes and indexes	**This class is only used for period volumes and indexes, and is mutually exclusive with the Observation class above and AnnualPeriodEstimatedMetrics below (xsd:choice)**	0..1			ProfiledObservation
Metered	3	The value as read from the register for this observation. (quality code = 127)	**Only one of the elements Metered, Estimated, Stipulated or Withdrawn is used per observation (xsd:choice)**	0..1	Decimal(15.3)		Metered
Reason for meter reading	3	*The reason for this meter reading.*	*Valid codes. Ref. Meter read reason code*	*1..1*	*A1*		*MeterReadReasonCode*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Estimated	3	Estimated quantity. May be negative.	Volume estimated by Elhub.	0..1	Decimal(15.3)		Estimated
Stipulated	3	Stipulated quantity. May be negative	Volume stipulated by the metered data responsible.	0..1	Decimal(15.3)		Stipulated
Reason for meter reading	3	*The reason for this meter reading.*	*Valid codes. Ref. Meter read reason code*	*1..1*	*A1*		*MeterReadReasonCode*
Withdrawn	3	Withdrawn indicator (quality code = 58)		0..1	boolean	true	Withdrawn

6.2.18 RequestUpdateMasterDataMeteringPoint

6.2.18.1 Header

Ref. Header

6.2.18.2 Process

Ref. Process

6.2.18.3 Payload

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
MasterData Metering Point Event	1	MasterData Metering Point Event Class	Repeating payload is only allowed for BRS-NO-317, Update estimated annual consumption.	1..9999			PayloadMasterDataMPEvent
Start of occurrence	2	The valid start date and time for the MasterData changes.	For additional information, ref.DateTime elements	0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	StartOfOccurrence
Identification	2	Identification of the individual payload.	Valid for BRS-NO-317 only.	0..1	A36	UUID	Identification
Original Business Document Reference	2	The identification of the original RequestUpdateMasterDataMeteringPoint message used in case of a rollback.		0..1	A36	UUID	OriginalBusinessDocumentReference
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point*	*1..1*	*A1*	9	*schemeAgencyIdentifier*

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			identification. ***9 GS1***				
Metering Grid Area	2	Identification of the metering grid area the Metering Point is connected to		0..1			MeteringGridAreaUsedDomainLocation
Identification	3	Unique identification of the metering grid area.	EIC-Y code from ENTSO-E is used for identification of metering grid areas.	1..1	A16		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering grid area*	*Identification of the agency maintaining the metering grid area identification.* ***305 EIC***	*1..1*	*A3*	305	*schemeAgencyIdentifier*
Metering Point Address	2	Specification of the address of the Metering Point		0..1			MPAddressMeteringPointAddress
Street name	3	Name of street		0..1	A150		StreetName
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality the address belongs to	The Norwegian municipality code follows a string[4] format specification and has currently values from 0101 to 2030.	0..1	A10		MunicipalityCode
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Metering Point Geographical Coordinate	2	Geographical coordinates of the Meter connected to the Metering Point	WGS84 scheme should be used for GPS coordinates.	0..1			MPPositionMeteringPointGeographicalCoordinate
Latitude	3	The latitude part of the coordinate		1..1	Decimal (8.5)		Latitude

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Longitude	3	The longitude part of the coordinate		1..1	Decimal (8.5)		Longitude
Metering Point Address Cadastral	2	The address cadastral	In Norwegian this is Gårdsnr (Gnr), Bruksnr (Bnr), Seksjonsnr (Snr), Festenr (Fnr)	0..1			MPAddressCadastral
Gårdsnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		1..1	A10		Gnr
Bruksnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		1..1	A10		Bnr
Seksjonsnummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		0..1	A10		Snr
Festenummer	3	Specific location parameter as governed (in Norway) by the Norwegian Mapping Authority.		0..1	A10		Fnr
Metering Point Characteristics	2	Metering point characteristics		0..1			MpDetailMeteringPointCharacteristic
Metering Point type	3	A code specifying the direction of the active energy flow in this Metering Point, such as consumption, production.	Codes according to ebIX. Ref. Metering Point Type	0..1	A3		MeteringPointType
listAgencyIdentifier	3	*Attribute to the metering point type*	*Identification of the agency maintaining metering point*	*1..1*	*A3*	260	*listAgencyIdentifier*

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			types. ***260 ebIX***				
Metering point subtype consumption	3	A code specifying the type of consumption for consumption metering points.	Valid codes: Ref. Subtype Consumption Note that on metering points of type Combined, both metering point subtype consumption and metering point subtype production is used.	0..1	A3		MeteringPointSubTypeConsumption
listAgencyIdentifier	3	*Attribute to the metering point subtype consumption element*	*Identification of the agency maintaining metering point subtype consumption codes* ***89 Elhub***	*1..1*	*A2*	89	*listAgencyIdentifier*
Metering point subtype production	3	A code specifying the type of production for production metering points.	Valid codes: Ref. Subtype Production	0..1	A3		MeteringPointSubTypeProduction
listAgencyIdentifier	3	*Attribute to the metering point subtype production element*	*Identification of the agency maintaining metering point*	*1..1*	*A2*	89	*listAgencyIdentifier*

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			subtype production codes ***89 Elhub***				
Meter Reading Characteristics	3	A code specifying how the Metered Data Collector collects data from the Meter for this Metering Point, such as Automatic or Manually.	Valid codes: Ref. Meter Reading Characteristics	0..1	A3		MeterReadingCharacteristics
listAgencyIdentifier	3	*Attribute to the meter reading characteristics*	*Identification of the agency maintaining meter reading characteristics codes.* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Settlement Method	3	A code specifying how the energy volumes are treated for settlement for this Metering Point, such as profiled or non-profiled	Ref. Settlement Method Type	0..1	A3		SettlementMethodType
listAgencyIdentifier	3	*Attribute to the settlement method*	*Identification of the agency maintaining settlement methods* ***89 Elhub*** ***260 ebIX***	*1..1*	*A3*		*listAgencyIdentifier*
Physical Status of Metering Point	3	A code specifying if the installation of the Metering Point is physically connected to the grid	Codes according to ebIX.	0..1	A3		PhysicalStatusType

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			Ref. Physical Status Type				
listAgencyIdentifier	3	*Attribute to the physical status type*	*Identification of the agency maintaining physical statuses* ***260 ebIX***	*1..1*	*A3*	260	*listAgencyIdentifier*
Load limit	3	Load limit on the metering point	The maximum load in kW in a consumption metering point a specific point in time. If stored as Ampere in the source system this must be converted to effect.	0..1	I9		ContractedConnectionCapacityValue
Installed capacity	3	Installed capacity for production metering points	Installed capacity, or maximum effect, is the intended full-load sustained output of a facility such as a power plant.	0..1	I9		InstalledCapacity
Meter reading start date	3	Start date and time of meter reading	Use together with meter reading frequency (ref. below) to calculate	0..1	dateTime		MeterReadingStartDate

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			next planned meter reading				
Meter reading frequency	3	The expected reading interval for a manually read meter in number of readings per year		0..1	I4		MeterReadingFrequencyDuration
Description	3	For consumption metering points: Free text description of the metering point. Optional. For production and combined metering points: Name of production unit. Required.		0..1	A80		Description
Priority	3	Code to indicate if the metering point is interruptible or not	Valid codes: Ref. Priority codes	0..1	A1		Priority
Blocked for switching	3	Indicator to block the metering point for switching of balance supplier	True if the metering point is blocked for switching	0..1		true/false	BlockedForSwitching
Estimated annual consumption	2	kWh for consumption. Updated for profiled metering points		0..1			AnnualPeriodEstimatedMetrics
Total	3	Expected consumption value		1..1	I12		Total
Calculation method	3	Code to indicate how the EAC is calculated	Valid codes. Ref. Calculation Method	1..1	A9		CalculationMethod
Meter information	2	Information regarding the meter connected to the Metering Point		0..1			MeteringInstallationMeterFacility
Meter Identification	3	Identification number of the meter at the metering point		1..1	A18		MeterIdentification
Number of digits	3	Number of significant digits on a profiled/manually read meter		0..1	I2		NumberOfDigits

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Meter constant	3	Value to convert the register read to actual consumption/production		0..1	Decimal (12.5)		Constant
Meter location	3	Description of the meter location		0..1	A80		MeterLocation
Taxation Profile	2	Information regarding various tax elements on the metering point		0..1			MPTaxationProfile
VAT Code	3	Code to indicate the Value Added Tax percentage.	Valid codes: Ref. Vat Code	0..1	A1		VATCode
Enova fee type	3	Type of the Enova fee: Fixed or dependent on consumption	Valid codes: **Fixed ConsumptionDependent**	0..1	A20	Fixed or Consumption Dependent	EnovaFeeType
Enova fee share	3	The share of the volume which will be used for the Enova fee calculations (in percentage points)		0..1	Decimal (5.2)		EnovaFee
El fee share	3	The share of the volume which will be used for the El fee calculations (in percentage points)		0..1	Decimal (5.2)		ElFee
El certificate share	3	The share of the volume which will be used for El-certificate calculations (in percentage points)		0..1	Decimal (5.2)		ElCertificateShare
ConsumptionCode	3	Code describing the consumption in the metering point	Ref. Consumption Code	0..1	A10		ConsumptionCode
NACE DivisionCode	3	The DivisionCode ("Næringskode") of the customer.	Valid codes. Ref. .NACE Division Codes (Næringskode) v1.8	0..1	A10		NACE_DivisionCode

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Measurement Definition	2	Specification of the characteristics of the metering taking place on the metering point.		0..99			MeasurementDefinition
Product Included Product Characteristics	3	Product Included Product Characteristics Complex Type		1..1			ProductIncludedProductCharacteristics
Product	4	Identification of an energy product such as power, energy, reactive power, transport capacity, etc.	This identifies the product for which the time series is reporting. Valid codes. Ref. Product identifier	1..1	A13		Identification
schemeAgencyIdentifier	4	*Attribute to the Product*	*Identification of the agency issuing the identifiers used for energy products* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Unit type	4	The unit of measure that is applied to the quantities in which the metering values are expressed.	Valid codes: Ref. Unit Type	1..1	A5		UnitType
Direction	3	A code specifying the direction of the energy flow.	Valid codes: **In** - Production **Out** - Consumption	1..1	A3	In/Out	Direction
Resolution	3	Code for the resolution of the metering values	Valid codes: **PT60M/PT1H** 60 min resolution **PT15M** 15 min	1..1	A5	PT60M/PT1H/ PT15M/N	Resolution

PointCharacteristics class Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			resolution **N** Non continous				

6.2.19 RequestUpdateCustomerInformation

6.2.19.1 Header

Ref. Header

6.2.19.2 Process

Ref. Process

6.2.19.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload MasterData MP Event	1	Payload Metering Point Event Class		1..1			PayloadMasterDataMPEvent
Start of occurrence	2	The requested date and time from when the customer information is valid.	The time part of the element is currently not in used. Retained for possible future use. For additional information, ref.DateTime elements	0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	StartOfOccurrence
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification and name of the customer on the metering point		1..1			ConsumerInvolvedCustomerParty
Identification	3	Identification of the customer.	Company customer: Organization number Household customer: Birth number or D Number	1..1	A11		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the customer*	*Identification of the agency maintaining the identification of customers.* *Organization number:* ***82 Brønnøysundregistrene*** *Birth number or D Number* ***Z01 Folkeregisteret***	*1..1*	*A3*		*schemeAgencyIdentifier*
Name	3	Customer name	Name of company	0..1	A80		Name
Given name	3	First name of customer	Household customer ,first name	0..1	A80		GivenName

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Family name	3	Family name of customer	Household customer ,family name	0..1	A40		FamilyName
Extended storage of metering values	3	Indicator if the end-user wants extended storage of metering values	Standard is three years. Extended storage is 10 years.	1..1	boolean	true/false	ExtendedStorageMeteringValues
Communication	3	Means for communication with the customer		0..99			Communication
Communication channel	4	The code specifying the channel or manner in which a communication can be made, such as telephone or email.	Valid codes: Email Mobile Phone Telefax	1..1	A7		CommunicationChannel
Identification	4	A text string that make up the complete identification for this communication such as telephone number or email address		1..1	A100		CompleteNumber
Description	4	Description of the communication with the customer		0..1	A100		Description
Customer address	2	Specification of customer address		1..2			ConsumerInvolvedCustomerAddress
Address type	3	Type of address	Specifies whether the address is the postal adress of the customer or invoice address. Valid codes:	1..1	A10	postaladr or invoiceadr	AddressType

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			postaladr invoiceadr				
Street name	3	Name of street		0..1	A150		StreetName
Street code	3	This may be set to the code identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality the address belongs to	The Norwegian municipality code follows a string[4] format specification and has	0..1	A10		MunicipalityCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			currently values from 0101 to 2030.				
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Postoffice box	3	Postoffice box number		0..1	A40		PostOfficeBox
Care of	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'care of' or 'C/O'		0..1	A80		CareOf
Attention Of	3	The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for attention of' or 'FAO' or 'ATTN' for this address		0..1	A80		AttentionOf

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
On Behalf	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'v/'		0..1	A80		OnBehalf

6.2.20 NotifyCustomerInformation

6.2.20.1 Header

Ref. Header

6.2.20.2 Process

Ref. Process

6.2.20.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload MasterData MP Event	1	Payload Metering Point Event Class		1..1			PayloadMasterDataMPEvent
Original Business Document Reference	2	The identification of the message which this message is a response to, if any.		0..1	A36	UUID	OriginalBusinessDocumentReference

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Start of occurrence	2	The valid start date and time for the MasterData changes.	Used if this message is generated based on the RequestUpdateCustomerInformation message.	0..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	StartOfOccurrence
Snap shot occurrence	2	The date and time when the customer information was extracted from the metering point database.	For additional information, ref.DateTime elements	1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	SnapShotOccurrence
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification and name of the customer on the metering point		1..1			ConsumerInvolvedCustomerParty

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Identification	3	Identification of the customer.	Company customer: Organization number Houshold customer: Birth number or D Number	0..1	A11		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the customer*	*Identification of the agency maintaining the identification of customers.* *Organization number:* ***82 Brønnøysundregistrene*** *Birth number or D Number:* ***Z01 Folkeregisteret***	*1..1*	*A3*		*schemeAgencyIdentifier*
Name	3	Customer name	Name of company	0..1	A80		Name
Given name	3	First name of customer	Household customer ,first name	0..1	A80		GivenName
Family name	3	Family name of customer	Household customer ,family name	0..1	A40		FamilyName
Extended storage of metering values	3	Indicator if the end-user wants extended storage of metering values	Standard is three years. Extended storage is 10 years.	1..1	boolean	true/false	ExtendedStorageMeteringValues
Communication	3	Means for communication with the customer		0..99			Communication
Communication channel	4	The code specifying the channel or	Valid codes: Email Mobile	1..1	A7		CommunicationChannel

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		manner in which a communication can be made, such as telephone or email.	Phone Telefax				
Identification	4	A text string that make up the complete identification for this communication such as telephone number or email address		1..1	A100		CompleteNumber
Description	4	Description of the communication with the customer		0..1	A100		Description
Customer address	2	Specification of customer address		0..2			ConsumerInvolvedCustomerAddress
Address type	3	Type of address	Specifies whether the address is the postal adress of the customer or invoice address. Valid codes: postaladr invoiceadr	1..1	A10	postaladr or invoiceadr	AddressType
Street name	3	Name of street		0..1	A150		StreetName
Street code	3	This may be set to the code	Mainly included for compatibility with ebIX.	0..1	A10		StreetCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		identifying a street within a municipality (according to the reference provided by the Norwegian Mapping Authority).					
Building number	3	Building number in street		0..1	A10		BuildingNumber
Floor identification	3	Floor identification in building		0..1	A10		FloorIdentification
Room identification	3	Room identification in building		0..1	A10		RoomIdentification
Post code	3	Post code linked to the city name		1..1	A10		Postcode
City name	3	Name of city		1..1	A50		CityName
City sub division name	3	A sub-division of the city name. Not used for addresses in Norway, although the location exists.	Mainly included for compatibility with ebIX.	0..1	A50		CitySubDivisionName
Municipality code	3	Code to identify the municipality	The Norwegian municipality code follows a string[4] format	0..1	A10		MunicipalityCode

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		the address belongs to	specification and has currently values from 0101 to 2030.				
Country	3	Country code	The country code according to ISO 3166-1 alpha-2.	1..1	A2		CountryCode
listAgencyIdentifier	3	*Attribute to the country code*	*Identification of the agency maintaining the codelist used for country codes .* ***5 ISO***	*1..1*	*A1*		*listAgencyIdentifier*
FreeForm	3	A free form representation of this address, expressed as text		0..1	A100		AddressFreeForm
Postoffice box	3	Postoffice box number		0..1	A40		PostOfficeBox
Care of	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'care of' or 'C/O'		0..1	A80		CareOf
Attention Of	3	The name, expressed as text, of a person or department in the organization		0..1	A80		AttentionOf

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		to whom incoming mail is marked with words such as 'for attention of' or 'FAO' or 'ATTN' for this address					
On Behalf	3	The name, expressed as text, of a person or organization at this address to whom incoming mail is marked with words such as 'v/'		0..1	A80		OnBehalf

6.2.21 PriceVolumeCombinationForReconciliation

6.2.21.1 Header

Ref. Header

6.2.21.2 Process

Ref. Process

6.2.21.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Energy Time Series	1	Time Series Class		1.. 9999			PayloadEnergyTimeSeries
Identification	2	Unique identification of the time series.		1..1	A36	UUID	Identification
Currency	2	Currency code for the prices in the time series	**DKK** **EUR** **NOK** **SEK**	1..1	A3		Currency
listAgencyIdentifier	2	*Attribute to the currency code*	*Identification of the agency issuing the code list for currency codes* ***5** ISO*	*1..1*	*A1*	5	*listAgencyIdentifier*
Reconciliation date/time	2	Start date/time of the Reconciliation job		1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	ReconciliationDate
Request reference	2	Reference to the request for this set of reconciliation data if any.	Used if this set of reconciliation data is generated based on a request/query message.	0..1	A36	UUID	RequestReference

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Observation Period	2	A specific period of time describing the duration of the time series.		1..1			ObservationPeriodTimeSeriesPeriod
Resolution	3	The resolution of this time series expressed as a duration between the start and end of subsequent observations.	The resolution is expressed a code. Ref. Resolution	1..1	A5		ResolutionDuration
Start date/time	3	Start date/time of the observation period		1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	Start
End date/time	3	End date/time of the observation period		1..1		YYYY-MM-DDTHH:MM:SSZ or YYYY-MM-DDTHH:MM:SS[+-][HH:MM]	End
Product Included Product Characteristics	2	Product Included Product Characteristics Complex Type		1..1			ProductIncludedProductCharacteristics
Product	3	Identification of an energy	This identifies the product for	1..1	A13		Identification

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		product such as power, energy, reactive power, transport capacity, etc.	which the time series is reporting. Valid codes. Ref. Product identifier				
schemeAgencyIdentifier	3	*Attribute to the Product*	*Identification of the agency issuing the identifiers used for energy products* ***9** GS1*	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Unit type	3	The unit of measure that is applied to the quantities in which the time series is expressed.	Valid codes: Ref. Unit Type	1..1	A5		UnitType
Metering point characteristics	2	Specification of metering point characteristics		1..1			MPDetailMeasurementMeteringPointCharacteristic
Direction	3	A code specifying the direction of the energy flow.	**In** - Production **Out** - Consumption	1..1	A3		Direction
Settlement method	3	A code specifying how the energy	Codes according to ebIX.	1..1	A3		SettlementMethodType

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
		volumes are treated, such as profiled or non-profiled	Ref. Settlement Method Type				
listAgencyIdentifier	3	*Attribute to the settlement method*	*Identification of the agency maintaining settlement methods.* ***89 Elhub*** ***260 ebIX***	*1..1*	*A3*	89 or 260	*listAgencyIdentifier*
Metering Grid Area	2	Identification of the metering grid area for this time series		1..1			MeteringGridAreaUsedDomainLocation
Identification	3	Unique identification of the metering grid area.	EIC-Y code from ENTSO-E is used for identification of metering grid areas.	1..1	A16		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering grid area*	*Identification of the agency maintaining the metering grid area identification.* ***305 EIC***	*1..1*	*A3*	305	*schemeAgencyIdentifier*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Balance Supplier	2	Balance supplier for the Energy Time Series		1..1			BalanceSupplierInvolvedEnergyParty
Identification	3	Unique identification of the balance supplier.	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2] .	1..1	A13		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the balance supplier*	*Identification of the agency maintaining the identification of balance suppliers.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Observation	2	Observation class.		1.. 9999			Observation
Sequence	*2*	*The ordinal postion of this observation in this time series.*		*1..1*	*I4*		*Sequence*

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Balance volume	3	The energy quantity for this observation.		1..1	Decimal(15.3)		BalanceVolume
Balance amount	3	The amount for this observation.		1..1	Decimal (12.2)		BalanceAmount

6.2.22 UpdateThirdPartyAccess

6.2.22.1 Header

Ref. Header

6.2.22.2 Process

Ref. Process

6.2.22.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Payload Metering Point Event	1	Payload Metering Point Event Class		1..1			PayloadMPEvent
Update indicator	2	Indicator for Add, Delete or Update of metering point	**Add** Metering point is added to the senders list of metering points which he has access to **Delete** Metering point is deleted from the list of metering points which he has access to **Update** The period the sender	1..1	A6	Add/Delete/Update	UpdateIndicator

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
			has access to the metering point is updated according to the content of Start and End in the period below.				
Metering Point	2	Identification of the metering point		1..1			MeteringPointUsedDomainLocation
Identification	3	Unique identification of the metering point.	Global Service Relationship Number (GSRN) from GS1 is used for identification of metering points.	1..1	A18		Identification
schemeAgencyIdentifier	3	*Attribute to the identification of the metering point*	*Identification of the agency maintaining the metering point identification.* ***9 GS1***	*1..1*	*A1*	9	*schemeAgencyIdentifier*
Customer	2	Identification of the customer on the metering point		0..1			ConsumerInvolvedCustomerParty
Extended storage of metering values	3	Indicator if the end-user wants extended storage of metering values	Standard is three years. Extended storage is 10 years. It is only allowed to change to true.	0..1	boolean	true	ExtendedStorageMeteringValues

6.2.23 Acknowledgement

6.2.23.1 Header

Ref. Header

Document type for outgoing Acknowledgements from Elhub: 294 - Application acknowledgement and error report

elhub

6.2.23.2 Process

Ref. Process

6.2.23.3 Payload

Element *Attribute*	Lv	Definition	Description	Card	Max Length	Content	XML element
Response Event	1	Response event class		1..1			PayloadResponseEvent
Status	2	Code indicating if the business document was accepted or rejected.	Valid codes: 39 –Accepted 41 –Rejected	1..1	A2		StatusType
listAgencyIdentifier	2	*Attribute to the status code*	*Identification of the agency maintaining the status codes.* ***6** UN/CEFACT*	*1..1*	*A1*	6	*listAgencyIdentifier*
Response reason	2	Code indicating the reason(s) for the rejection	Valid codes: Error codes and messages	0..999	A5		ResponseReasonType
listAgencyIdentifier	2	*Attribute to the response reason code*	*Identification of the agency maintaining the reason codes.* ***260 ebIX*** ***89 Elhub***	*1..1*	*A3*	260 OR 89	*listAgencyIdentifier*
Original Business Document Reference	2	The identification of the business document which is acknowledged		1..1	A36		OriginalBusinessDocumentReference
Original Payload Reference	2	The identification of a payload within a message (used for CollectedData messages containing errors)		0..1	A36		OriginalPayloadReference

6.2.24 PollForData

The polling message will be as described below. The Acknowledgement message with status 39 (Accepted will be used when confirming the receipt of the poll result).

The polling message will use the standard Header and Process Context from the BIM. The payload part will specify the market party and role to get data for. The market party id is only relevant for service providers. The role is most relevant for service providers and grid owners. The valid codes for roles and scheme/list identifies are the same as the similar definitions in the header structure as shown in the BIM.

6.2.24.1 Header

Ref. Header

6.2.24.2 Process

Ref. Process

6.2.24.3 Payload

Element Attribute	Lvl	Definition	Description	Card	Max Length	XML element
Payload	1	Payload class		1..1		Payload
Energy Party	2	Energy Party Complex Type		0..1		EnergyParty
Identification	3	Unique identification of the market party to retrieve data for	All parties are identified by using Global Location Number (GLN). GLN numbers are unique identifiers containing a 13 digit number issued by GS1, ref. [2]. If a value is specified, only messages related to this market party will be returned. If no value is specified, messages for all market parties relevant for the sending market party will be returned. This element is only relevant for service providers.	1..1	A13	Identification

Element Attribute	Lvl	Definition	Description	Card	Max Length	XML element
schemeAgency Identifier	3	*Attribute to the Identification element*	*Identification of the agency issuing the identifier used as sender identification* ***9** GS1*	1..1	A1	*schemeAgencyIdentifier*
Energy Business Process Role	2	The role to receive data for	For a complete overview and description of the business process roles, ref. Roles and domains If a value is specified, only messages related to this role will be returned. If no value is specified, messages for all roles relevant for the sending market party will be returned. It is valid to specify both Energy Party and Energy Business Process Role, only one of them or none.	0..1	A3	EnergyBusinessProcessRole
listAgencyIdentifier	2	*Attribute to the Energy Business Process Role*	*Identification of the agency maintaining the code list for energy business process roles. The attribute is only applicable if the main element (Energy Business Process Role) is specified* ***6** UN/CEFACT* **89** Elhub	1..1	A2	*listAgencyIdentifier*

7 Appendix

7.1 Code lists

7.1.1 Document type

7.1.1.1 ebIX codes

In the table below the document types defines by ebIX which are used by Elhub are listed.

Code	Name	Description
E02	Cancellation of supply	A message ending a supply contract for a metering point.
E07	Master data, metering point	A message containing master data for a metering point (sent by the metering point administrator) **Responsible role:** Metering point administrator
E10	Request for Master data, Metering point	A message (sent to the meter administrator) containing a request for update of master data. **Responsible role:** Metering point administrator
E13	Metering data (time series), quantity per period	Message containing time series (e.g. energy (volume) or maximum power per period). From metered data aggregator to balance supplier.
E30	Collected data, from Metered data collector	Message containing collected register readings. Sent from a Metered data collector. **Responsible role:** Metered data collector
E31	Aggregate metering data from the Metered data aggregator, local	A message containing aggregated metering data. Sent from the Metered data aggregator, local. **Responsible role:** Metered data aggregator, local
E39	Request metering data	Request metering data to Metered data responsible. **Responsible role:** Metered data responsible
E58	Request to change metering point attributes	A business document containing a request to change metering point characteristics sent to the Metering Point Administrator. **Responsible role:** Metering point administrator
E65	Validated metered data, meter indexes	A business document containing validated metered data, indexes.

Code	Name	Description
		Responsible role: Metered data responsible
E66	Validated metered data, time series	A business document containing validated metered data, time series. **Responsible role:** Metered data responsible
E67	Cancellation	A business document cancelling a business process
ERR	Information on rejection	From whomever to whoever; generic UTILxx message for informing on the rejection of a message received from the addressee of the ERR-message **Responsible role:** Not applicable.

7.1.1.2 UN/CEFACT codes

The following 1001 Document Name Code are used. Ref. http://www.unece.org/fileadmin/DAM/trade/untdid/d13a/trmd/trmdi1.htm. Choose UTILTS/BGM segment and then 1001 Document name code.

Code	Name	Description
21	Query	Request information based on defined criteria.
294	Application acknowledgement and error report	A message used by an application to acknowledge reception of a message and/or to report any errors.
392	Notification of change of supplier	A notification of a change of supplier.
406	Notification to supplier of contract termination	Notification to the supplier regarding the termination of a contract.
414	Acknowledgement of change of supplier	Acknowledgement of the change of supplier.
432	Notification to grid operator of contract termination	Notification to the grid operator regarding the termination of a contract.

7.1.2 Error codes and messages

7.1.2.1 ebIX Error codes and messages

This codelist contains ebIX codes for business rejection reasons. ListAgencyIdentifier is 260.

Code	Name	Description
E09	Installation address not in grid (Rejected)	The original transaction is rejected because the installation address could not be found within the Metering grid area.
E10	Installation address or metering point not identifiable (Rejected)	The original transaction is rejected because the installation address or Metering point id not could be validated.
E11	Measuring problem (Rejection)	The original transaction is rejected due to a measuring problem (e.g. problem reading the meter).
E12	Unclear delivery relation (Rejection)	The original transaction is rejected due to a problem finding the relations for the delivery.

Code	Name	Description
E13	Balancing problem (Rejection)	The original transaction is rejected due to a problem with the balancing.
E14	Other reason (Rejection)	The original transaction is rejected due to an unspecified problem.
E15	No corrections (Confirmation)	The original transaction is accepted without corrections.
E16	Unauthorised Balance supplier (Rejection)	The original transaction is rejected because the Balance supplier is unauthorised.
E17	Requested switch date not within time limits (Rejection)	The original transaction is rejected because the requested switch date not is within time limits.
E18	Unauthorised Balance responsible party (Rejection)	The original transaction is rejected because the Balance responsible party is unauthorised.
E19	Meter index reading not within limits (Rejection)	The original transaction is rejected because the meter index reading not is within limits.
E22	Metering point blocked for switching (Rejection)	The original transaction is rejected because the metering point is blocked for switching due to that the metering point is for instance a large production plant which requires special routines regarding supplier switching.
E29	Product code unknown or not related to metering point (Rejection)	The product id is unknown or invalid for the current process.
E36	No valid collaboration contract (Rejection)	The transaction is rejected because there is no valid collaboration contract (Rejection)
E37	No valid access contract (Rejection)	The transaction is rejected because there is no valid access contract (Rejection)
E47	No ongoing switch for metering point (Rejection)	There appears to be no ongoing switch for the proposed switch index.
E49	Metering grid area not identifiable (Rejection)	The transaction is rejected because the Metering Grid Area id not could be validated.
E50	Invalid period (Rejection)	The document has been rejected because it contains one or more periods that do not comply with the relevant rules.
E51	Invalid number of decimals (Rejection)	The document has been rejected because the attribute contains a number of digits that does not comply with the relevant rules.
E52	Invalid load profile (Rejection)	The document has been rejected because the identifier for the profile (category) does not comply with the relevant rules.
E54	Unauthorised transport capacity responsible party (Rejection)	The original transaction is rejected because the transport capacity responsible party is unauthorised.
E55	Unauthorised metered data collector (Rejection)	The original transaction is rejected because the metered data collector is unauthorised.
E59	Already existing relation (Rejection)	The requestor asks for a change to an already existing relation in a database
E61	Meter not identifiable (Rejection)	The original transaction is rejected because the meter ID cannot be validated.

Code	Name	Description
E62	Register not identifiable (Rejection)	The original transaction is rejected because the register ID cannot be validated.
E72	Asset not identifiable (rejection)	The transaction is rejected because the asset ID is not known.
E73	Incorrect measure unit (rejection)	The transaction is rejected because the measure unit used is not correct.
E81	Metering Point is not connected	The metering point in not connected
E86	Incorrect value (rejection)	The value is incorrect according to business rules
E87	Number of observations does not fit observation period/resolution (rejection)	The number of observations in a time series differs from the number of observations calculated from the related time period and resolution.
E90	Measurement Beyond plausible limits	Measurement Beyond plausible limits
E91	Estimate is not acceptable	Estimate is not acceptable
E97	Measurement should not be zero	Measurement should not be zero
E98	Measurement has a wrong sign	Measurement has a wrong sign
E0H	Data not available	Data not available
E0I	Unauthorised Grid Access Provider	Unauthorised Grid Access Provider
E0J	Unauthorised Metered Data Aggregator	Unauthorised Metered Data Aggregator
E0K	Unauthorised Metered Data Collector	Unauthorised Metered Data Collector
E0L	Unauthorised Party Connected to Grid	Unauthorised Party Connected to Grid
E0M	Unauthorised Reconciliation Responsible	Unauthorised Reconciliation Responsible

7.1.2.2 Elhub specific Error codes and messages (listAgencyIdentifier=89)

This codelist contains Elhub specific codes for rejection reasons.

Code	Name	Description
EH001	NOT IN USE - "Field Name" is missing	NOT IN USE - The field "Field name" is missing
EH002	NOT IN USE - "Field Name" should be NULL	NOT IN USE - The field "Field Name" should be NULL or empty
EH003	Requested date is not within limits	The date for the requested change in Elhub is not within limits
EH004	Metering Point already exists	The Metering point ID that you are trying to create already exists in the database
EH005	Technical error - try again later	There is an internal technical problem in Elhub. The operator is notified. Try again later.

Code	Name	Description
EH006	Start Date doesn't correspond to start of Last Resort	The date for change from Last Resort has to correspond with the start date of the Last Resort contract
EH007	Metering Point already activated	The Metering point that you try to activate is already active.
EH008	Metering point is not terminated	The Metering point has not been terminated
EH009	Metering point is terminated	The Metering point has been terminated
EH010	Metering point not accountable	The Metering point is not accountable and cannot have a supply contract
EH011	Incorrect Document Type	The Document Type in the message is not correct for this process
EH012	Incorrect Recipient	Incorrect recipient - should be Elhub
EH013	Incorrect Business Role	Incorrect Business Role - not correct for this process
EH014	Address is missing	Address is missing - at least one address must be present
EH015	Search criteria not correct	Search criteria are not correct, missing, or wild cards rules are not followed.
EH016	No contract exists on the metering point	There is no contract on the metering point, the process cannot proceed
EH017	Contract exists on the metering point	There is a current or future contract on the metering point, the process cannot proceed
EH018	Incorrect End-User on metering point	The End-User is incorrect for the metering point, the process cannot proceed
EH019	Current contract not Last Resort	The current contract is not on Last Resort, the process cannot proceed
EH020	End-User not valid	The End-User doesn't exist or is not valid for this process
EH021	Metering point not linked to Grid Access Provider	The metering point is not valid for the Grid Access Provider
EH022	Metering grid area not linked to Grid Access Provider	The metering grid area is not valid for the Grid Access Provider
EH023	Not authorised to start this process	The process initiator is not allowed to start this process (rollback)
EH024	Error in original process	Original Process was not the last change on the metering point
EH025	Incorrect identifier	Incorrect identifier for the code used
EH026	Metering Point Characteristics missing or invalid	Metering Point Characteristics is missing or invalid
EH027	Meter information missing or invalid	Meter information is missing or invalid
EH028	Taxation Profile missing or invalid	Taxation information is missing or invalid
EH029	Measurement Definition missing or invalid	Measurement information is missing or invalid
EH030	Estimated Annual Consumption missing or invalid	Estimated Annual Consumption missing or invalid

Code	Name	Description
EH031	Customer information missing or invalid	Customer information missing or invalid
EH032	Date missing or invalid	Date missing or invalid
EH033	OriginalBusinessDocumentReference missing or invalid	OriginalBusinessDocumentReference missing or invalid
EH034	Required information missing or invalid	Required information missing or invalid
EH035	Metering Grid Area status not valid	Metering Grid Area status not valid
EH036	Original process is not active	Original process is not active
EH037	Original process is already rolled back	Original process is already rolled back
EH038	Settlement Method missing or invalid	Settlement Method missing or invalid
EH039	Metering Point Type missing or invalid	Metering Point Type missing or invalid
EH040	Invalid Business Process ID	Invalid Business Process ID
EH041	Metering Grid Area missing	Metering Grid Area missing
EH042	Metering Point is not inactive	Metering Point is not inactive
EH043	Process rejected due to an ongoing Change of Supplier	Process rejected due to an ongoing Change of Supplier
EH044	Process rejected due to an ongoing Move In	Process rejected due to an ongoing Move In
EH045	Process rejected due to an ongoing Move Out	Process rejected due to an ongoing Move Out
EH046	Process rejected due to an ongoing End Of Supply	Process rejected due to an ongoing End Of Supply
EH047	Process cancelled due to a Move In	Process cancelled due to a Move In
EH048	Process cancelled due to a Move Out	Process cancelled due to a Move Out
EH049	End User transferred to Balance Supplier of Last Resort	End User transferred to Balance Supplier of Last Resort
EH050	Process cancelled due to a conflicting process	Process cancelled due to a conflicting process
EH051	Search criteria matched with more than the allowed number of results	Search criteria matched with more than the allowed number of results
EH052	Category not valid	Category is not valid
EH053	The metering point is not associated with an MGA at that time.	The metering point is not associated with an MGA at that time.
EH054	No allowed access periods for market party within requested period	No allowed access periods for market party within requested period
EH055	The message type cannot be used for this process	The message type cannot be used for this process
EH056	The contract does not have an end date	The contract does not have an end date
EH057	Metering point ID is mandatory in the message	Metering point ID is mandatory in the message
EH058	Start date cannot be later than the end date	Start date cannot be later than the end date
EH059	Balance Supplier should not be included in the message	Balance Supplier should not be included in the message
EH060	Balance Supplier missing or invalid	Balance Supplier missing or invalid
EH061	NACE code missing or invalid	NACE code missing or invalid

Code	Name	Description
EH062	No metering values exist for the metering point for requested time period	No metering values exist for the metering point for requested time period
EH063	Number of metering values for the requested time period is larger than the set limit.	Number of metering values for the requested time period is larger than the set limit.
EH064	Metering Grid Area not allowed	Metering Grid Area not allowed
EH065	Requesting positive Acknowledgement is not supported	Requesting positive Acknowledgement is not supported
EH066	Meter index not allowed	Meter index not allowed
EH067	Resolution is not allowed	Resolution is not allowed
EH068	Meter index must be specified	Meter index must be specified
EH069	SnapShotOccurrence is not allowed	SnapShotOccurrence is not allowed
EH070	BusinessType is not allowed	BusinessType is not allowed
EH071	Metering point ID is not allowed	Metering point ID is not allowed
EH072	Product must be specified	Product must be specified
EH073	Invalid observation type	Invalid observation type
EH074	Payload Identification must be specified	Payload Identification must be specified
EH075	Resolution must be specified	Resolution must be specified
EH076	Invalid resolution	Invalid resolution
EH077	Invalid sequence values	Invalid sequence values
EH078	No matching volume to withdraw	No matching volume to withdraw
EH079	Related metering value was rejected	Related metering value was rejected
EH080	Original process is not Completed	Original process is not Completed
EH081	The rollback process does not correspond with original process	The rollback process does not correspond with original process
EH082	Estimation Code used in wrong context	Estimation Code used in wrong context
EH083	Request is for a period before the creation date of the metering point	Request is for a period before the creation date of the metering point
EH084	Replacement without witdrawal	Replacement without witdrawal
EH085	Rejection reason not specified	Rejection reason not specified
EH086	OriginalPayloadReference missing or invalid	OriginalPayloadReference missing or invalid
EH087	Incorrect Status Type	Incorrect Status Type
EH088	End user did not accept third party access request	End user did not accept third party access request
EH089	Reported meter reading index is equal to estimated meter reading index	Reported meter reading index is equal to estimated meter reading index
EH090	Meter is automatically read	Meter is automatically read
EH091	Metering point is linked to a sub grid	Business process cannot be performed as metering point is linked to a sub grid
EH092	Invalid use of payload	Invalid use of payload
EH093	Grid Area has changed Balance Supplier of Last Resort	Business process cannot be performed as there is a change in Balance Supplier of Last Resort after change date

Code	Name	Description
EH094	Placeholder	Placeholder
EH095	Placeholder	Placeholder
EH096	Placeholder	Placeholder
EH097	Placeholder	Placeholder
EH098	Placeholder	Placeholder
EH099	Placeholder	Placeholder

7.1.3 Roles and domains

See English Glossary. All definitions are to be moved to the common glossary.

This codelist contains UN/EDIFACT codes for roles and domains.

ETSO/Ediel			EDIFACT	
Name	**Description**	**Code**	**Name**	**Description**
Balance responsible party	A company that has a balance responsible contract (providing financial security and identifying balance responsibility) with the Imbalance settlement responsible of the balance area.	DDK	Balance responsible party	A party responsible for balancing supply and consumption.
Balance supplier	A party that markets the difference between actual metered consumption and energy bought from firm energy suppliers to the party connected to the grid. In addition he markets any difference with the firm energy commitment and the metered production. There is only one balance supplier for each metering point.	DDQ	Balance power supplier	The supplier of balance power.
Grid access provider	A party responsible for the grid usage agreement with the party connected to the grid. The grid access provider is responsible for billing of the grid usage.	DDM	Grid operator	A party operating a grid
Imbalance settlement responsible	A party that is responsible for settlement of the difference between planned and realised quantities of energy products for the balance responsible parties in a balance area.	DDX	Imbalance settlement responsible party	A party that is responsible for settlement of the difference between planned and realised quantities.

ETSO/Ediel			EDIFACT	
Metered data responsible	A party responsible for the establishment and validation of metered data based on the collected data received form the Metered Data Collector. The party is responsible for the history of metered data in a metering point.	MDR	Metered data responsible	
Metered data collector	A party responsible for meter reading and quality control of the reading.	DDE	Meter reader	A party physically reading the meter.
Metering point administrator	A party responsible for knowing the parties linked to the metering points in a grid area and its technical specification. He is responsible for creating and terminating metering points. The metering point administrator is responsible for the grid usage agreement with the party connected to the grid.	DDZ	Metering point administrator	A party responsible for registering the technical specifications of metering points and the parties linked to them.
Third party	The Third Party is an actor that has access to the meter data of specific Metering Points, based on a contract between the Third Party and the customer (through a metering point).	AG	Agent/representative	Party authorized to act on behalf of another party.
NECS		PQ	Certifying party	

7.1.3.1 Elhub specific roles

7.1.3.1.1 Balance Supplier of Last Resort - SLR

Balance supplier which is obliged to deliver energy in a metering grid area to end-users who have not a chosen a balance supplier and to end-users in a metering grid area who have their supply contracts terminated by the balance supplier.
In Norway this role is played by the grid owner in a metering grid area. May be changed in the future.

7.1.3.1.2 Balance Supplier for Losses - BSL

7.1.3.1.3 Query Role - QRY

This role may only be used when sending the RequestUpfrontMeteringPointCharacteristics message from a Balance Supplier.

7.1.4 Country codes

The code list used for country codes is ISO 3166-1 alpha-2. This is a two letter code. For the Nordic countries the country codes are:

- **NO** Norway
- **SE** Sweden

- **DK** Denmark
- **FI** Finland

7.1.5 Metering Point Type

Codes according to ebIX:

- **E17** Consumption
- **E18** Production
- **E19** Combined
- **E20** Exchange

7.1.6 Meter Reading Characteristics

Codes according to ebIX:

- **E13** Automatic
- **E14** Manual
- **E16** Not metered

7.1.7 Physical Status Type

Codes according to ebIX:

- **E22** Active
- **E23** Inactive
- **E31** Terminated

7.1.8 Settlement Method Type

Codes according to ebIX:

- **E01** Profiled
- **E02** Non-profiled

Elhub specific code:

- **Z01** Not settled

7.1.9 Resolution

- **PT15M** Each 15. Minute
- **PT30M** Each 30. Minute
- **PT60M** Each hour
- **PT1H** Each hour
- **P1D** Each day
- **P1M** Each month
- **P1Y** Each year

7.1.10 Meter read reason code

- **1** Periodical
- **4** Change of meter (last reading old meter)

7.1.11 Validation code

Valid codes (Ref. VEE guide for detailed description):

- **V001** Power failure
- **V002** Missing interval values
- **V003** Register errors
- **V004** Time stamp
- **V011** Positive numerical value
- **V012** Active versus reactive energy
- **V013** Volumes versus meter reading
- **V014** Volumes versus balancecontrol
- **V999** Other validations

7.1.12 Estimation code

Valid codes (Ref. VEE guide for detailed description):

- **E001** Actual volume and history based
- **E002** Actual volume and MGA profile based
- **E003** Total volume and history based
- **E004** Volume based on expected annual consumption and MGA profile
- **E005** Power failure. Estimated volume is set to 0.
- **E006** Volume based on planned consumption/exchange/production
- **E007** Volume based on balancecontrol
- **E008** Manual change (editing)

7.1.13 Quantity quality code

- **21** Temporary
- **56** Estimated
- **58** Withdrawn
- **81** Final estimate
- **127** Measured

7.1.14 Unit Type

- **kWh** Kilowatt hour
- **kvarh** Kilo volt-ampere reactive

7.1.15 Product identifier

Codes defined by GS1:

- **8716867000030** Energy Active
- **8716867000047** Energy Reactive
- **8716867000139** Energy Reactive, capacitive
- **8716867000146** Energy Reactive, inductive

7.1.16 Query Type

- **MVRV** Metering values, meter read and volume

- **MVTS** Metering values, time series
- **MVVT** Metering values, both meter read and volume and time series
- **MDCU** Masterdata customer
- **MDMP** Masterdata metering point
- **STLM** Settlement

7.1.17 NACE Division Codes (Næringskode)

Use codes published by Statistics Norway (SSB) in Standard For Næringsgruppering or one of the following codes:

- **XX** – Husholdning
- **XY** - Hytter og fritidseiendom
- **YY** – Gatelys
- **YZ** – Drivhus
- **ZZ** - Annet energisalg

7.1.18 Priority codes

- **P** – Priority (Not interruptible)
- **A** – Interruptible, 2 hours notice
- **B** – Interruptible, 12 hours notice
- **C** – Interruptible, 15 minutes notice
- **D** – Interruptible, 15 minutes notice, limited duration up to 2 hours

7.1.19 Reason for transaction codes

- **Z41** – Death
- **Z42** – Move (Customer move out)
- **Z44** – Bankruptcy
- **Z45** – Change (Supplier change)

7.1.20 Elhub BRS identifications

Code	Description
BRS-NO-101	Start of supply - change of supplier
BRS-NO-102	Start of supply - move in - in the future
BRS-NO-103	Start of supply - move in - back in time
BRS-NO-104	Change of supplier from last resort
BRS-NO-111	Rollback - start of supply
BRS-NO-121	New metering point
BRS-NO-122	Activation of metering point
BRS-NO-123	New grid access contract - move in
BRS-NO-131	Rollback of new metering point
BRS-NO-132	Rollback of activation of metering point
BRS-NO-133	Rollback of new grid access contract

Code	Description
BRS-NO-201	End of supply due to move out
BRS-NO-202	End of supply
BRS-NO-211	Move out from metering point - from grid access provider
BRS-NO-212	Deactivation of metering point
BRS-NO-213	Removal of metering point
BRS-NO-221	Rollback of end of supply
BRS-NO-222	Rollback of move out
BRS-NO-223	Rollback of deactivation of metering point
BRS-NO-224	Rollback of removal of metering point
BRS-NO-301	Update master data - balance supplier
BRS-NO-302	Update master data - grid owner
BRS-NO-303	Request master data
BRS-NO-305	Changes initiated by Elhub
BRS-NO-306	Settlement type change
BRS-NO-311	Metering reading and expected annual consumption from balance supplier
BRS-NO-312	Reporting of metering values for profiled metering points
BRS-NO-313	Reporting of metering values for non-profiled metering points
BRS-NO-314	Reminders of metering values to metered data responsible
BRS-NO-315	Request for metering values
BRS-NO-317	Update expected annual consumption
BRS-NO-318	Update grid loss parameters
BRS-NO-321	Quality assurance - grid owner
BRS-NO-322	Preliminary profiles consumption to to balance supplier
BRS-NO-324	Request basis for settlement - balance supplier/responsible
BRS-NO-332	Withdrawal of metering values for profiled metering points
BRS-NO-402	Corrections of master data - from grid owner
BRS-NO-501	Report structure data for imbalance settlement
BRS-NO-502	Reporting data for imbalance settlement
BRS-NO-503	Reporting data for reconciliation
BRS-NO-511	Reporting produced volume to registry responsible elcertificates
BRS-NO-512	Reporting quota obliged consumption elcertificates
BRS-NO-601	Request to grid owner
BRS-NO-611	Pre-switch check og metering point characteristics
BRS-NO-622	Update 3rd party access
BRS-NO-623	Overview of 3rd party access
POLL	Polling of messages

7.1.21 Consumption Code

Known as "sluttbrukergruppe". Elhub does not validate the list, but it should be in accordance to NVE Publication Nr 7/2018 Veileder til leveringskvalitetsforskriften. Allowed values are included here for reference.

- **1** Jordbruk, skogbruk og fiske
- **1a** Herav drivhus og veksthus
- **2** Bergverksdrift
- **3** Utvinning av råolje og naturgass
- **4** Tjenester tilknyttet utvinning av råolje- og naturgass
- **5** Produksjon av papirmasse, papir og papp
- **6** Produksjon av kjemiske råvarer
- **7** Produksjon av jern og stål
- **8** Produksjon av ferrolegeringer
- **9** Produksjon av primæraluminium
- **10** Produksjon av andre ikke-jernholdige metaller
- **11** Næringsmiddelindustri
- **12** Raffinerier
- **13** Annen industri
- **14** Produksjon, overføring, distribusjon og handel med elektrisitet
- **15** Produksjon og distribusjon av gass gjennom ledningsnettet
- **16** Fjernvarme
- **17** Vannforsyning, avløps- og renovasjonsvirksomhet
- **18** Bygg og anleggsvirksomhet
- **19** Varehandel, reparasjon av motorvogner
- **20** Jernbane, sporveis- og forstadsbane
- **21** Annen transport og lagring
- **22** Post- og distribusjonsvirksomhet
- **23** Overnattings- og serveringsvirksomhet
- **24** Informasjon og kommunikasjon
- **25** Finansiell tjenesteyting, forsikring og pensjonskasser
- **26** Omsetning og drift av fast eiendom
- **27** Faglig, vitenskapelig og teknisk tjenesteyting
- **28** Forretningsmessig tjenesteyting
- **29** Offentlig administrasjon og forsvar
- **29a** Herav Gate- og veilys
- **30** Undervisning
- **31** Helse- og sosialtjenester
- **32** Kunstnerisk virksomhet, bibliotek mv, sport og fritid
- **33** Aktiviteter i medlemsorganisasjoner
- **34** Tjenesteyting ellers
- **35** Husholdninger
- **36** Hytter og fritidshus

7.1.22 Subtype Production

- **B14** Nuclear
- **B16** Solar
- **B20** Other
- **Z04** Thermal
- **Z05** Wind
- **Z06** Hydro

7.1.23 Subtype Consumption

- **A04** Consumption
- **A07** Net production/consumption (combined pumped storage)
- **A15** Losses settled as consumption. Intended for the metering point representing the loss in a sub grid area to make the total grid loss 0. Consumption values on this metering point will still be considered as consumption and not as loss in calculations
- **B27** Pumped

7.1.24 Business type

- **SE02** - Sum infeed per MGA
- **SE04** - Sum exchange
- **SE05** - Sum supply of last resort consumption per MGA
- **SE06** - Sum pumped consumption per MGA
- **SE07** - Adjusted Load Profile per MGA
- **SE08** - Sum consumption for Balance Responsible Party per MGA (Pumped consumption types excluded)
- **SE09** - Sum production for Balance Responsible Party per MGA
- **SE10** - Sum consumption for Balance Supplier per MGA (Pumped consumption types excluded)
- **SE11** - Sum production for Balance Supplier per MGA
- **SE12** - Sum consumption for Balance Supplier for profiled metering points per MGA (Pumped consumption types excluded)
- **SE13** - Sum consumption for Balance Supplier for non-profiled metering points per MGA (Pumped consumption types excluded)
- **SE14** - Sum pumped storage consumption per MGA
- **SE15** - Sum pumped consumption per Balance Supplier per MGA
- **SE16** - Sum pumped storage consumption per Balance Supplier per MGA
- **SE17** - Sum pumped consumption per Balance Responsible Party per MGA
- **SE18** - Sum pumped storage consumption per Balance Responsible Party per MGA
- **SE19** - MGA exchange in
- **SE20** - MGA exchange out
- **SE21** - Sum consumption for Balance Responsible Party for profiled metering points per MGA (Pumped consumption types excluded)
- **SE22** - Sum consumption for Balance Responsible Party for non-profiled metering points per MGA (Pumped consumption types excluded)
- **SE23** - Sum production per MGA
- **SE24** - Sum consumption for non-profiled metering points per MGA (Pumped consumption types excluded)
- **RE01** - ATAM for non-profiled metering point
- **RE02** - APAM for profiled metering points.
- **HP01** - Preliminary profiled consumption per profiled metering point (PPC)
- **HP02** - Final preliminary consumption per profiled metering point (PPC)
- **HP03** - Temporary profiled consumption (TPC)
- **HP04** - Metered consumption per profiled metering point (FPC)
- **MP01** - Metering values per non-profiled metering point
- **MP02** - Start and end index as well as volume per profiled metering point
- **LS01** - Grid loss
- **LS02** - Final grid loss

7.1.25 Metering Type

Codes according to ebIX:

- **E17** Consumption
- **E18** Production

7.1.26 Vat Code

Code to indicate the VAT percentage

- **S** - Standard (Normal rate according to The Norwegian Tax Administration)
- **E** - Excempt (0 %)

7.1.27 Calculation Method

Code to indicate how the Estimated Annual Consumption (EAC) is performed

- **Automatic** - The EAC is calculated automatically based on the history of metering values
- **Manual** - The EAC is calculated manually

7.1.28 Reminder type

Code to indicate the type of reminder which is sent to the Metered Data Responsible:

- **IV** - Interval Volume
- **PV** - Period Volume
- **MI** - Missing confirmation from MDR of Meter Index received from Balance Supplier
- **EAC** - Outdated Estimated Annual Consumption

7.1.29 Grid Access Provider request category

Code to indicate the main intent of the request to grid access provider.
Note that the codes are NOT an enumerated list due to flexibility regarding adding or deleting codes. Changes to the set of codes will be published on Elhub.no.

- **GAP_MASTERDATA** Requests regarding master data, requests to change master data, activation, change in settlement method, etc.
- **GAP_METERING** Requests regarding metering data
- **GAP_SETTLEMENT** Requests regarding calculations, invoices, payment, etc.
- **GAP_GRID** Requests regarding the grid quality, ground fault, deactivation, etc.
- **GAP_KILE** Requests for compensation for not delivered energy
- **GAP_INSTALLATION** Requests regarding installation, changes in installation
- **GAP_OTHER** Other requests to grid access provider