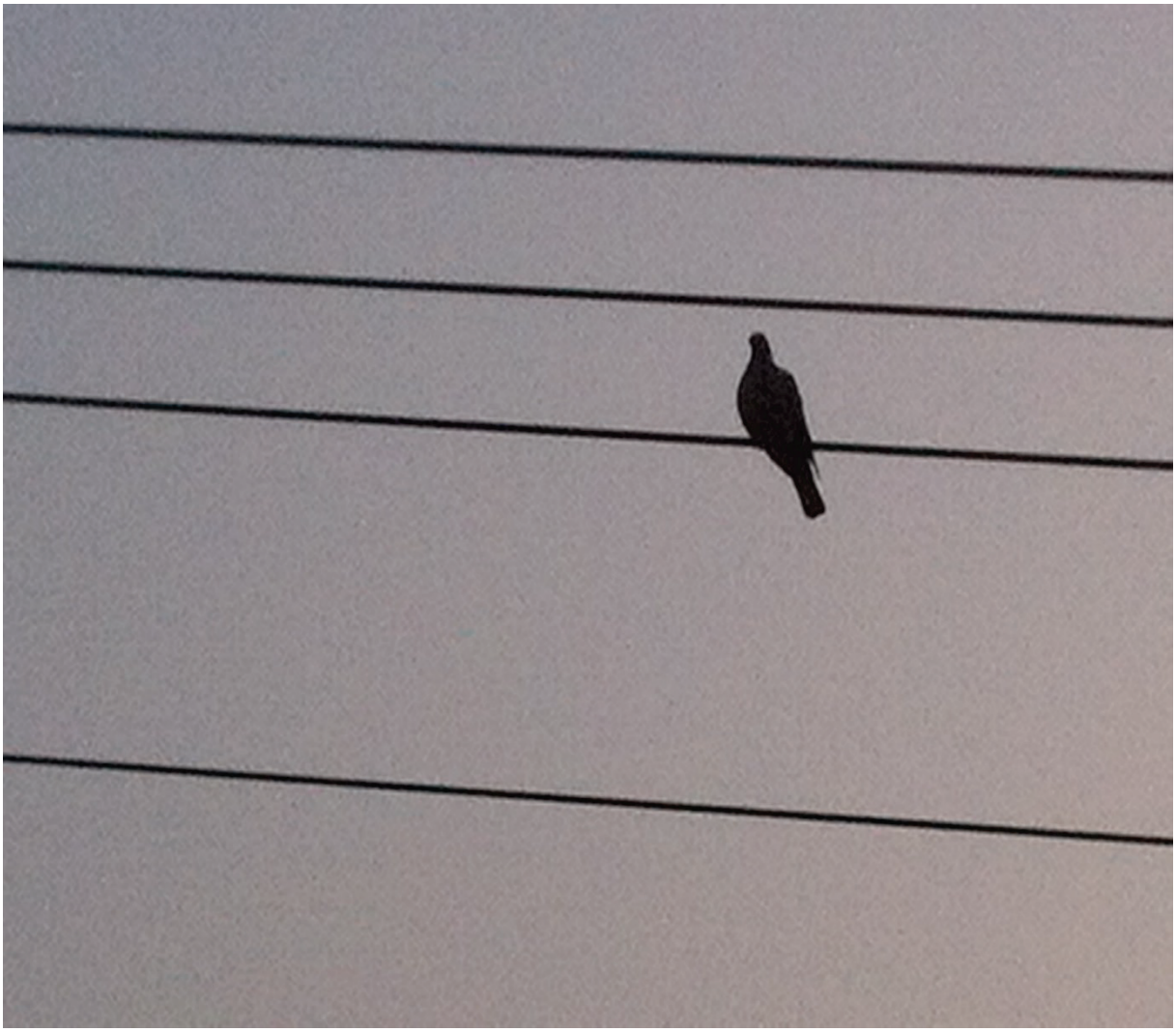
NEG
Nordic Ediel Group

# Business Requirement Specification

## *for a*

# *Harmonised Nordic Retail Market*

### *Business processes, message format, content and interface*



| | |
|---|---|
| Status: | Final version, including comments after public consultation |
| Version: | 2.0 |
| Revision: | A |
| Date: | May 22nd 2014 |

**CONTENT**

# 0 Preamble from the editor

The *Harmonised Nordic Retail Market - Business processes, message format, content and interface project* was initiated by NordREG to get a recommendation for technical requirements for message exchanges in a harmonised Nordic retail market.

The target groups of the report are among others political decision makers, regulators, TSOs, national and Nordic industry organisations and national Ediel organisations. The BRS report is intended to be a base for development of information exchange systems (including datahubs), but also as a reference standard when discussing harmonisation of Nordic business rules (UseCases) and legislation. We hope that the BRS will be used in coming data interchange project and that it will be a "living document" that can be updated when new requirements arises.

The project started up early summer 2013, with participants from the four Nordic countries. The participants have long experience from message exchanges in their respective countries and have worked hard to find the best harmonised solution, shown in this Business Requirements Specification (BRS).

The centrepiece of the BRS is the proposal for content of the proposed harmonised documents to be exchanged. You will see that several elements only are used in certain countries. Most of these elements are present because of different legislation and market rules in the four Nordic countries. We advise the Nordic regulators to see if national legislation and market rules can be harmonised, so that national specialities can be avoided where possible.

When harmonising the Nordic data exchange documents and their format (syntax), all countries have to give away some of the principles used today. An example of this is the split of confirmation documents and the related set of master data. Today, in Finland, Norway and Sweden the confirmation document for change of supplier and customer move-in contain all the master data the *Balance Supplier* (energy supplier) needs. In the proposed HNR model, this is split into two documents, one plain confirmation document and one document containing the master data. By doing it this way we can reuse the master data document in all processes where master data for a *Metering Point* needs to be exchanged. In addition, all confirmation documents used in various processes is proposed built on the same structure.

Another issue that has caused differences between the four Nordic countries is the way of handling "commercial terms". In the proposed model, a Finnish *Balance Supplier* can inform the *Metering Point Administrator* (MPA) (a DSO or a datahub) of certain commercial terms that apply to the contract with the *Customer*, such as end date for current fixed term supply contract, notice period (number of days or months) and cancellation fee (true/false). The information is forwarded to a potential new *Balance Supplier* in the change of supplier process. Denmark and Norway do not want to exchange these elements, while Sweden has not yet decided. The argument for adding the commercial terms is that it is *Customer* friendly and it gives a more efficient process, when informing the *Customer* that a cancellation fee may apply if she changes the *Balance Supplier*. The argument against is that these commercial terms are a matter between the *Balance Supplier* and the *Customer*, and that the *Metering Point Administrator* not should be involved in contracts matters between the *Balance Supplier* and the *Customer*.

However, dependent elements, such as the commercial terms mentioned above, are no big obstruction to a harmonised Nordic Retail market. A more important issue is the structure of name and address fields. For instance, this BRS propose to split the household customer name into a first-, middle and family name. The harmonised Nordic retail market will not work properly unless all countries agree on the same structure and rules regarding names (and addresses). If one country decides to send the household Customer names (first-, middle and family name) in one continuous string (one data element), it is very difficult for the recipient to split it into separate first-, middle and family name. It is a huge and costly change for the actors to put all the addresses and names according to this new structure, hence there must be a long enough transition period. Most likely, a national decision also has to be made to make this change possible.

Denmark, Norway and Sweden have a new sub-process, as part of the move in process, i.e. a process where the new *Balance Supplier* in the *Metring Point* a *Customer* moves in to may end the supply in the old *Metring Point* where the *Customer* move-out. This process is required by the draft NordREG move report [2]. The process is already implemented in Finland, who think it is a customer friendly and well working process. However, the HNR participants from the other Nordic countries see problems with letting a possibly unknown *Balance Supplier* end the supply in a *Metering Point* he is not related to beforehand, at least there is a need for a power of attorney.

Even if there are some differences between the four Nordic countries, the proposed model in this BRS shows that it is possible to harmonise the data exchange in the Nordic Retail market to a great extent. All documents are based on the same structure and syntax, and all processes are basically the same.

*Ove Nesvik*
(Project coordinator and editor)

# 1 Summary

This document is a Business Requirement Specification (BRS), providing a proposal for a technical solution for a harmonised Nordic data exchange system in the electricity market. There are two core parts of the document; a business requirements view (chapter 5), describing the needed data exchange processes in a harmonised Nordic retail market, and a business entity view (chapter 7), describing the content of the electronic documents that will be exchanged between the market players. Both the business requirements view and the business entity view are written according to UN/CEFACT Modelling Methodology (an Introduction to UMM and UML is found in Appendix A). In addition, there are several supplementary chapters describing areas such as roles and domains, proposals for time frames for the processes, acknowledgements, cancellations and means of communication.

The target groups of the document are among others political decision makers, regulators, national and Nordic industry organisations, national Ediel organisations and the actors in the electricity market, such as TSOs, DSOs and electricity suppliers. Among others the document is intended as a reference document, when developing information exchange systems (including datahubs), and a reference standard when discussing harmonisation of Nordic business rules (UseCases) and legislation.

The focus of the document is data exchange between roles related to the DSOs (grid companies), such as *Metering Point Administrator* and *Metered Data Responsible*, and the electricity suppliers (in the rest of the BRS called *Balance Suppliers*, which is according to the Harmonized European Electricity Market Role Model [5]). The *Customers* is only referenced when manual processes are relevant, since there is no standardised data exchange between the *Customers* and the actors in the energy market. For countries that have a datahub, such as Denmark and Norway (Norway from October 2016), the communication described in this document is the one between the datahubs and the electricity suppliers.

The BRS is made by the HNR (Harmonised Nordic Retail Market) project, which had representatives from the four Nordic countries with long experience from the energy industry and the data exchange standards used in their respective countries. The participants in the project represented DSOs (grid companies), TSOs (system operators), electricity suppliers and the industry organisations. The HNR project had its first meeting summer 2013 and delivered the business requirements specification by the end of March 2014.

Thereafter, the BRS was on public consultation for four weeks in April 2014 and a Public hearing was held in Oslo April 24th. Seven answers were received after the public consultation. A summary of the answers is found in Appendix H, together with an evaluation of the answers where relevant. The answers to the public consultation are in general positive and the typical comment suggests extensions, further elaboration of the processes described or clarifications of business rules. Many of the proposed extensions are non-technical, such as related to business rules, hence outside the scope of the HNR project. Other proposals are relates to process that are under discussion in the Nordic countries, such as the process for combined billing and one or more contracts towards the Customers. However, NordREG or other industry projects must specify the business rules for these processes before technical solutions can be elaborated. In appendix H.3 the comments for possible

further elaboration in the HNR project group are listed and in appendix H.4 the comments for further elaboration by NordREG or industry bodies are listed.

In chapter 5 of the document, the data exchange processes identified by the HNR project as needed in a harmonised Nordic retail market are detailed. The processes are described using UseCase diagrams and UseCase descriptions, as recommended by the UN/CEFACT Modelling Methodology. The UseCases are based on similar business requirements specifications from ebIX®, see [8] and [9], but modified to fit the Nordic electricity market. In addition the "switching report" and draft metering and moving reports from NordREG, and the current implementations in each of the four Nordic countries, have been the main input for the HNR project. Altogether, 14 main UseCase has been identified, many of these containing "sub-UseCases", such as the Change of Supplier UseCase that includes the request for change of electricity supplier, notification to the old electricity supplier of end of supply, exchange of master data and metered data after the switch etc. The main processes are:

- Change of Supplier
- Customer move, split into:
    - Customer move in
    - Customer move out
- End of supply
- Exchange of metered data, split into:
    - Request for metered data from electricity supplier
    - Notification of metered data
    - Update of metered data from electricity supplier
- Supplementary processes:
    - Notification of Metering Point characteristics (Master Data)
    - Request for Metering Point characteristics (Master Data)
    - Upfront Request for Metering Point Characteristics (run before Change of Supplier or Customer move-in processes)
    - Notify update Customer information from electricity supplier
    - Request Customer information from DSO
    - Request Change of Balance Responsible Party
    - Notify Change of Meter

In chapter 7 of the document, a proposal for content of the electronic documents that are suggested exchanged between the Nordic market players are detailed. Altogether, 50 documents have been described in the HNR project. For each of the documents, the current usage of data elements in each of the Nordic countries are specified together with the proposed content from the HNR project. In addition, changes to the current national documents, common codes to use for coded data elements etc. are specified.

The HNR project has also made recommendations for needed technical harmonisation of areas supporting the basic processes and documents, such as recommendation of identification schemes for the different objects that need a harmonised and unique identification, a harmonised way of acknowledge receipt of documents, how to cancel a started process and related time frames.

Examples of objects that need a harmonised and unique identification are parties (actors), Metering Points, Metering Grid Areas and Market Balance Arias etc.

The HNR project think it is important to keep up the momentum in the technical harmonisation work, i.e. as a next step, a short-time continuation of the HNR project for updating the BRS according to comments in appendix H.3 (Comments for possible further elaboration in the HNR project group) is proposed. In a medium run, NEG (Nordic Ediel Group) could continue the development of technical documentation, i.e. make necessary technical documentation for implementing a harmonised Nordic retail market information exchange system, used by system vendors, it-departments etc. In a longer perspective, it should be considered if a permanent Nordic body should be established for maintaining common Nordic data exchange standards.

Further on, the HNR project think it is crucial to get political support for the Nordic harmonisation work and to increase the effort in harmonisation of business rules and national legislation. As a next step, a continuation of the harmonisation process should get support by the Nordic ministers. In addition, it is important to continue harmonisation of Nordic business rules (UseCases) and legislation, such as proposed in appendix H.4 (Comments for further elaboration by NordREG or industry bodies).

It should also be mentioned that the industry (TF BuP input team) has made UseCases for the move process, i.e. describing business rules for how to run the sub-processes, including time frames, responsibilities etc., and how to handle exceptions. The HNR project used these moving UseCases for verification of the move process described in this document and will urge the industry to make similar UseCase descriptions of the other processes described in this document.

# 2 About this document

This document is a Business Requirements Specification (BRS) for a Harmonised Nordic Retail Market, intended to be used as a base for development of information exchange systems (including datahubs). In addition, the BRS is meant as a reference standard when discussing harmonisation of Nordic business rules (UseCases) and legislation.

The target groups of the report are among others political decision makers, regulators, TSOs, national and Nordic industry organisations and national Ediel organisations.

The focus of the document is data exchange between roles related to the grid-companies, such as *Metering Point Administrator* and *Metered Data Responsible*, and the *Balance Suppliers* (electricity suppliers). There is no standardised data exchange between the *Customers* and the actors in the energy market; hence, the *Customer* is only referenced when manual processes are relevant. For countries that have a datahub, such as Denmark and Norway (from October 2016), the communication described in this BRS is the one between the datahubs and the *Balance Suppliers*.

The document is based on ebIX® Business Requirements Specifications for the structuring and measuring processes of the European energy market. The BRS is written according to UN/CEFACT Modelling Methodology, version 2 (UMM2). An Introduction to UMM and UML is found in Appendix A.

In addition, the roles defined in the Harmonised Electricity Market Role Model from ebIX®, EFET and ENTSO-E [5] are used in this document. The usage of harmonised roles makes it easier to define data exchanges independent of type of company. For instance, the role Metering Point Administrator will be handled by the Datahub in Denmark and Norway (from October 2016) and by the DSO in Finland and Sweden.

The intention is to complete the BRS with a Business Information Model (BIM), or similar technical documents, also in line with UMM 2, at a later stage. The Business Information Model will thereafter be the basis for creation of electronic documents (i.e. XML schemas) to be used for message exchange in a Harmonised Nordic Retail Market.

This BRS is a “requirement specification” and technical details, such as definition and restrictions to the available codes must be further elaborated.

The project has tried to avoid national specialities in the final BRS, there are however some differences, such as different Identifiers used in the different countries, e.g. Customer ID may be Social Security Number or Date of birth.

The BRS is assuming a supplier centric model, as stated by NordREG.

The project has assumed combined billing, according to NordREG recommendations (*“In line with previous recommendations the cost for electricity supply and the cost for the grid shall be combined in a single invoice and sent to the customer by the supplier”*), with the following exceptions:

- Since the combined billing process still is under discussions in the Nordic countries (except for Denmark), possible processes for exchange of tariffs, fees and subscriptions must be specified later.
- Exchange of invoice address is included, but should be removed if combined billing is implemented

## 2.1 Public consultation

April 1st 2014, NordREG asked for a public consultation until April 29th 2014 and NordREG received seven answers. A summary of the answers with an evaluation can be found in Appendix H to this document.

The answers to the public consultation are in general positive and propose extensions or further elaboration of the BRS and clarifications of business rules. However, the latter is outside the scope of the HNR project, hence must be handled by NordREG or other industry projects.

The comments can be split into the following categories:

- Missing processes in the BRS
    - Several commenters are missing processes, such as combined billing, making and ending contracts, national processes related to electricity certificates and information flows to the balance responsible parties (BRP). However, some of these processes are outside the scope of the HNR project, such as:
        - information flows to BRPs
        - national processes related to electricity certificates

      and others are under discussion and not mature enough for making technical specification, such as:
        - combined billing
        - making and ending contracts
- Proposals for further elaboration of processes in the BRS
    - Proposals for possible extensions of the BRS is listed in appendix H.3. Extending the BRS with these proposals will make the BRS more complete, but is not seen as critical for using the BRS as a basis for further harmonisation of a harmonised Nordic retail market, which is the main intention with the BRS.
- Comments for further elaboration by NordREG or industry bodies
    - All commenters are missing harmonisation of Nordic business rules and legislation, which should detail areas such as timeframes, responsibilities and how to handle exceptions. In addition, several commenters thinks that there are too many national exceptions in the BRS. Important areas where harmonisation of business rules is vital for the harmonisation process are listed in appendix H.4. The list covers areas, such as:
        - Harmonisation of how to handle “commercial terms”, such as fixed long-term supply contracts that can trigger a cancellation fee for the customer when changing supplier.
        - UseCases describing business rules for how to run the different processes (time frames, responsibilities etc.) and how to handle exceptions. The

industry (TF BuP input team) has made proposals for such UseCases for the move process. Similar descriptions for the other processes described in the BRS are vital for the continued Nordic harmonisation work.
    - Harmonised rules for combined billing.
    - Harmonised rules for grid and supply contracts towards the customers.
    - How to handle supplier of last resort and default supplier.
- Examples of weaknesses as seen from individual commenters
    - Too many national exceptions
    - The BRS opens for retroactive moves on a national level (based on the draft NordREG moving report available at the time)
    - The BRS requires a start and end meter stand to be exchanged (based on the NordREG "Harmonised Model for Supplier Switching)
    - The BRS specifies a process where the new supplier in the metering point a customer moves in to, can end the supply in the metering point the customer is moving out of (based on the draft NordREG moving report available at the time).

## 2.2 Terms and notation

### 2.2.1 Abbreviations

Abbreviations used in this document:

Roles and domains:

| | |
|---|---|
| **BRP** | Balance Responsible Party |
| **BS** | Balance Supplier |
| **MGA** | Metering Grid Area |
| **MP** | Metering Point |
| **MPA** | Metering Point Administrator |
| **TSO** | Transmission System Operator |

Other terms:

| | |
|---|---|
| **WS** | Web Services |
| **HNR** | Harmonised Nordic Retail Market |

Element classification:

D Dependent, the dependency rule shall be stated
N Not used
O Optional
R Required

## 2.3 References

### 2.3.1 NordREG documents

[1] Harmonised Model for Supplier Switching, NordREG, June 2013, http://www.nordicenergyregulators.org/wp-content/uploads/2013/02/Future-model-for-switching.pdf

[2] Harmonised Model for Moving, NordREG (not yet available) http://www.nordicenergyregulators.org/

[3] "Metering report", NordREG (not yet available) http://www.nordicenergyregulators.org/

### 2.3.2 Standards

[4] UML Profile for UN/CEFACT's Modelling Methodology (UMM), Base Module 2.0., www.untmg.org/specifications/

[5] The Harmonized Electricity Market Role Model by ebIX®, ENTSO-E, and EFET, www.ebix.org

### 2.3.3 ebIX® Documents

[6] Introduction to ebIX® Business Requirements and Business Information Models, www.ebix.org

[7] Recommended Identification Schemes for the European Energy Market, www.ebix.org

[8] ebIX® Business Requirements for metered data, www.ebix.org

[9] ebIX® Business Requirements for structuring of the European energy market (www.ebix.org)

[10] A Regional Reference Model for the Change of Supplier Process, see http://www.ebix.org/documents/Eurelectric-ebIX_CoS_model_v1.0_FINAL_EE.pdf

### 2.3.4 ENTSO-E Documents

[11] ENTSO-E implementation guides, see https://www.entsoe.eu/publications/electronic-data-interchange-edi-library/, e.g.: ENTSO-E Acknowledgement process

### 2.3.5 NEG Documents

[12] Common Nordic XML rules and recommendations, see http://www.ediel.org/

[13] Business Requirement Specification for Nordic Balance Settlement (NBS), see www.ediel.org

## 2.4 Participants in the project

The Business Requirement Specification has been made in a project with the following members:

Anne Stine Hop, Statnett, Anne.Stine.Hop@statnett.no
Christian Odgaard, Energinet.dk, cco@energinet.dk
Emma Lindgren, Vattenfall, emma.lindgren@vattenfall.com

Helga Kleppe, Fjordkraft, helga.kleppe@fjordkraft.no
Jan Owe, Svenska kraftnät, Jan.Owe@svk.se (Convenor)
Jan Pedersen, Energitilsynet, JHP@energitilsynet.dk (NordREG observer)
Jari Hirvonen, Fingrid, Jari.Hirvonen@fingrid.fi
Jari Jaakola, Pohjois-Suomen Energiatieto Oy, jari.jaakola@psenergiatieto.fi
Markus Piispanen, Energiateollisuus ry (Finnish Energy Industries), Markus.Piispanen@energia.fi
Minna Arffman, Fingrid, Minna.Arffman@fingrid.fi
Ove Nesvik, EdiSys, ove.nesvik@edisys.no (Project coordinator and editor of the BRS)
Poul Berthelsen, NRGi, plb@nrgi.dk
Preben Høj Larsen, Energinet.dk, phq@energinet.dk
Suvi Lehtinen, Energiamarkkinavirasto (Energy authority), Suvi.Lehtinen@energiamarkkinavirasto.fi (NordREG observer)
Trygve Kloster, Lyse, Trygve.Kloster@lyse.no

## 2.5 The way forward

A continuation of the HNR project is important to keep up the momentum in the technical harmonisation work. In addition, it is important to get political support for the Nordic harmonisation work and to increase the effort in harmonisation of business rules and national legislation.

In the short run, the NEG (Nordic Ediel Group) could continue development of technical documentation, which are necessary documentation for implementing information exchange systems, used by system vendors, it-departments etc., such as:

- A technical handbook, which is a description of the standards used, definitions of data elements and codes, how to implement the needed processes etc. This is necessary documentation for implementation
- XML schemas describing the syntax for the electronic documents to be exchanged
- User guides or Implementation guides, describing and defining the electronic document structure and the data elements to be exchanged

In a longer perspective, it should be considered if a permanent Nordic body should be established for maintaining common Nordic data exchange standards.

The table below shows a proposal for further work with a harmonised Nordic retail market:

- Short perspective (2014):
  - Approval of the report and asking support for continuation of the project by:
    - Nordic ministers
    - MSG (TSO Market Steering Group), via NEG
  - Update of the BRS according to comments in appendix H.3 (Comments for possible further elaboration in the HNR project group)
- Medium perspective (2015/2016):
  - Continuation of technical projects
    - A Nordic technical handbook
    - Development and later on maintenance of documents, such as xml-schemas
    - Coordination of the national implementations
  - Harmonisation of Nordic business rules (UseCases) and legislation, such as proposed in appendix H.4 (Comments for further elaboration by NordREG or industry bodies)

## 2.6 Main changes since last version

| Ver/rel/rev | Changed by | Date | Changes |
|---|---|---|---|
| 2.0.A | Ove Nesvik | 20140516 | • Additional clarifications in the introduction (chapter 1)<br>• Addition of a summary of answers to the public consultation (chapter 1.1)<br>• Correction of spelling errors and addition of clarifying text, according to answers from commenters, but only when the additions or corrections not change the original intended meaning<br>• Addition of answers from commenters of the public consultation, summary of these |

| | | | |
|---|---|---|---|
| | | | answers and evaluation where relevant in appendix H |
| 1.0.C | Ove Nesvik | 20140331 | Correction of spelling errors |
| 1.0.B | Ove Nesvik | 20140331 | Correction of spelling errors |
| 1.0.A | Ove Nesvik | 20140331 | First official version |

# 3 Prerequisites

## 3.1 Production and consumption in the same installation

The HNR project proposes that the Metering Point Administrator shall register an installation with both production and consumption as two Metering Points, i.e. having two Metering Point IDs. This applies independent of the size of the consumption or production site.

The business rules for settlement is a responsibility of NBS in Finland, Norway and Sweden, and of Energinet.dk in Denmark. For Finland, Norway and Sweden:

- If the Customer wants netted settlement from a combined MP, there can only be one Balance Supplier for the two MPs
- If the Customer wants two suppliers, the settlement for production and consumption must be separated

## 3.2 Date Time Formats:

The HNR project proposes that UTC time will be used in the documents to be exchanged, to avoid different time zones in the Nordic market. For instance, if a Norwegian supplier wants to send a Request Change of Supplier to a Finnish DSO at midnight during summer:

- The switch time in the document will be 21:00 (the day before)
- The local time in Norway will be 23:00 (the day before)
- The local time in Finland will be 00:00 (on the switch day)

Calendar days are assumed when appropriate (not working days).

All time intervals (periods) are expressed using an inclusive start date/time and an exclusive end date/time. E.g.:

> Week 14 2014 is expressed as 20140331 – 20140407, where Monday March 31st is inclusive and Monday April 7th is exclusive (not part of week 14).

## 3.3 Datahubs

The Datahub in Denmark will include combined billing from autumn 2015.

There will be a first version of a Datahub in Norway, expected to go live in October 2016. The first version will be without combined billing.

There are no decisions regarding a datahub in Finland or Sweden

The focus of this BRS is the processes needed to exchange information related to Metering Points between the “grid side” and the “supply side” in the Nordic electricity market. For Finland and Sweden, this means the document exchanges between the DSOs and the Suppliers, while it for

Denmark and Norway means the document exchanges between the datahubs and the Balance Suppliers (electricity suppliers). The document exchanges between the DSOs and the datahubs (in Denmark and Norway) is not relevant for the harmonisation of the Nordic Retail market, hence outside the scope of this BRS.

## 3.4 Identification of the Customer

A Customer ID is required by legislation in Denmark, Norway and Sweden for the Change of Supplier and Customer Move process. The Customer ID is necessary for verification purposes, when a Balance Supplier (electricity supplier) or a DSO shall verify that a Change of Supplier or Move has been carried out for the correct MP.

**HNR: Proposal:** The following identification is proposed for Customers:

- Organisations (in prioritised order):
  - VAT- or organisation number
  - It must be further discussed what ID to use if an organisation doesn't have an VAT- or organisation number
- Persons (in prioritised order):
  - Social security number
  - Date of Birth
  - MPA unique customer ID

## 3.5 Identification schemes

Electronic Data Interchange in the European energy industry needs common identification schemes to be effective. Market participants in a deregulated European energy market have a huge need for an automated and standardised information exchange. In order to do this, a reliable and unique identification scheme for such entities as parties, domains, installations and products are necessary. Among others the following items are important for an identification scheme:

- Identification numbers should not have any other meaning than the unique identification. All semantics (characteristics) should be stored as attributes to the object being identified.
- Metering Point and Metering Grid Area Identification numbers should not need renumbering when companies merge or split.
- Identification numbers may have a check digit to avoid typing errors.

ebIX® and ENTSO-E have agreed to support two preferred identification schemes, the Energy Identification Code (EIC) and the GS1 coding scheme. These identification schemes have a format that makes them suitable for general electronic data interchange. It should be noted that some of the European TSOs not are supporting other identification schemes than EIC, although the ENTSO-E standard support both, and in addition national coding schemes. However, all the Nordic TSOs can handle both the two recommended coding schemes, in addition to others.

### 3.5.1 Possible identification schemes

Both EIC and GS1 have sub-types of the coding schemes:

| Nature of object | Examples of objects | GS1 | EIC |
|---|---|---|---|
| Party | Parties participating in the energy domain, such as grid companies, energy supply companies and metering companies. | GLN | EIC-X |
| Metering Grid Area | Logical areas, such as Metering Grid Areas and Market Balance Areas. | GSRN | EIC-Y |
| Metering Point and Accounting Point | Logical entities where energy products are measured or computed. | GSRN | EIC-Z |
| Resource objects | Different resource objects, such as production units, consumption plants, etc. | GSRN | EIC-W |
| Tieline | The physical lines that connect together two Market Balance Areas need to be identified to closely follow interconnection capabilities. | GSRN | EIC-T |

### 3.5.2 Usage in the Nordic countries today

The table below reflect the usage of identification schemes for parties and domains in the Nordic countries:

| Country | Party | Metering Grid Area (MGA) | Metering Point | Resource objects | Market Balance Areas (MBA) |
|---|---|---|---|---|---|
| **Denmark** | GS1 (GLN) and EIC | Three digit national code | GS1 (GSRN) | GS1 (GSRN) | EIC-Y |
| **Finland** | National code | National code | National code | | EIC-Y |
| **Norway** | GS1 (GLN) | There is no common Norwegian ID for the MGAs today.<br><br>A new identification scheme will be implemented for MGAs for usage with NBS. | GS1 (GSRN) for all consumption Metering Points | National 9 character code maintained by Statnett (four of the 9 characters are a fixed prefix "NOKG") | EIC-Y |
| **Sweden** | National code (Ediel-id) | National 3 character code maintained by Svenska kraftnät | GS1 (GSRN) is used for almost all Metering Points where a supply switch can occur. | National 3 character code maintained by Svenska kraftnät | EIC-Y |

In the EDIFACT documents exchanged in the Nordic countries today the coding scheme used is only partly specified in the documents. In all ebIX® and ENTSO-E XML documents an identification of the coding scheme must be specified in the exchanged document, i.e. for each id.

**HNR proposal:** For Metering Points GS1/GSRN is preferred, among others because:

- GS1/GSRN has already been implemented in Denmark, Norway and Sweden and changing identification scheme for millions of Metering Points is costly
- Metering Point IDs will not be exchanged outside a harmonised Nordic end user market, i.e. no need related to European transparency

For Metering Grid Area the EIC is wished-for, since EIC already are used for Market Balance Areas for all Nordic countries.

For Party ID both GS1 and EIC are preferred codes by ebIX® and ENTSO-E. In addition both identification schemes are used in the Nordic market today. When a decision is available for what identification scheme to be used for parties for REMIT reporting, this proposal should be reconsidered.

| Nature of object | Preferred identification scheme |
|---|---|
| Party | GS1/GLN and/or EIC-X |
| Metering Grid Area | EIC-Y |
| Metering Point | GS1/GSRN |
| Resource objects | EIC-W |
| Tieline | EIC-T |

## 3.6 Transaction ID (Identification of documents)

Today, only in Sweden the same Transaction ID is returned in the responding document as is sent in the requesting document. In Denmark, Finland and Norway, and as an ebIX® standard, a unique Transaction IDs is added to all documents and the Transaction ID from the requesting document is added as a "Reference to original transaction ID" in the responding document.

**HNR: Proposal:** Sweden should use unique Transaction IDs in all documents and add a "Reference to original transaction ID" in the responding document

## 3.7 Document content

The following principles have been used for elements in the documents:

- In the requests, the MP ID (and MGA for FI and SE) and the ID of the changed object are sent
    - e.g. in the request change of supplier the BS and BRP (except for FI) are sent
- For confirmations the ID of the changed object is returned in the confirmation itself or in the related Notify characteristics document
    - e.g. for a confirm customer move in, the BS is sent in the confirmation and the Customer ID and BRP (except for FI) are sent in the Notify MP characteristics
- In the rejections only the MP ID (and MGA for FI and SE) are returned, since no object have been changed
- The characteristics of the changed object are sent in Notify MP characteristics (+ Customer name and ID) for changes where the MPA is responsible and in Notify Customer Information for changes where the BS is responsible

# 4 Business Partner View

## 4.1 Harmonised Nordic Retail Market Roles

The table below shows the roles used in this business requirement specification. The roles and definitions have been taken from the ebIX®, EFET and ENTSO-E Harmonised Electricity Role Model. Nordic clarifications have been added where needed.

| Role | Definition |
|---|---|
|  | A party that has a contract proving financial security and identifying balance responsibility with the Imbalance Settlement Responsible of the Market Balance Area entitling the party to operate in the market. This is the only role allowing a party to nominate energy on a wholesale level.<br><br>**Additional information:**<br>The meaning of the word "balance" in this context signifies that that the quantity contracted to provide or to consume must be equal to the quantity really provided or consumed. |
|  | A party that markets the difference between actual metered energy consumption and the energy bought with firm energy contracts by the Party Connected to the Grid. In addition the Balance Supplier markets any difference with the firm energy contract (of the Party Connected to the Grid) and the metered production.<br><br>**Additional information:**<br>There is only one Balance Supplier for each Accounting Point (called Metering Point in the rest of this document)<br><br>**Nordic clarification:**<br>• The Balance Supplier is the party that have an Energy Supply Contract with the Customer<br>• The Balance Supplier is the main contact for the Customer in a Harmonised Nordic Retail Market<br>• The business term for "Balance Supplier" is normally "Electricity Supplier" or just "Supplier" |
|  | A party that contracts for the right to consume or produce electricity at an Accounting Point.<br><br>**Nordic clarification:**<br>• In this BRS it is assumed that the Consumer may be a small scale producer<br>• In the ebIX®, EFET and ENTSO-E Harmonised Electricity Role Model the *Customer* is called *Party Connected To Grid* |

| Role | Definition |
|---|---|
|  | A party responsible for providing access to the grid through an Accounting Point and its use for energy consumption or production to the Party Connected to the Grid. |
|  | A party that operates one or more grids. |
|  | A party responsible for keeping a database of meters. |
|  | A party responsible for the establishment and qualification of metered data from the Metered Data Responsible. This data is aggregated according to a defined set of market rules. |
|  | A party responsible for meter reading and quality control of the reading. |
|  | A party responsible for the establishment and validation of metered data based on the collected data received from the Metered Data Collector. The party is responsible for the history of metered data for a Metering Point. |
|  | A party responsible for registering the parties linked to the Metering Points in a Metering Grid Area. He is also responsible for maintaining the Metering Point technical specifications. He is responsible for creating and terminating Metering Points.<br><br>**Nordic clarification:**<br>• This role is played by the datahub, if available |

**Figure 1** Harmonised Nordic Retail Market Roles

## 4.2 Harmonised Nordic Retail Market Domains

The table below shows the domains used in this business requirement specification. The domains and definitions have been taken from the ebIX®, EFET and ENTSO-E Harmonised Electricity Role Model.

| Domain | Definition |
|---|---|
|  | A physical device containing one or more registers |

| | |
|---|---|
|  | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
|  | An entity where energy products are measured or computed |
|  | A physical or logical counter measuring energy products |

**Figure 2** Harmonised Nordic Retail Market Domains

## 4.3 Harmonised Nordic Retail Market Role Model

The figure below shows the relationship (responsibilities) between roles and domains used in this business requirement specification. The roles and domains are the subset of the ebIX®, EFET and ENTSO-E Harmonised Electricity Role Model that is used in the Nordic retail market. Note that there may be additional national associations, such as a relation between the DSO and the Customer (NordREG has no decision regarding a one or two contract model), however these association will not affect the processes described in this BRS.

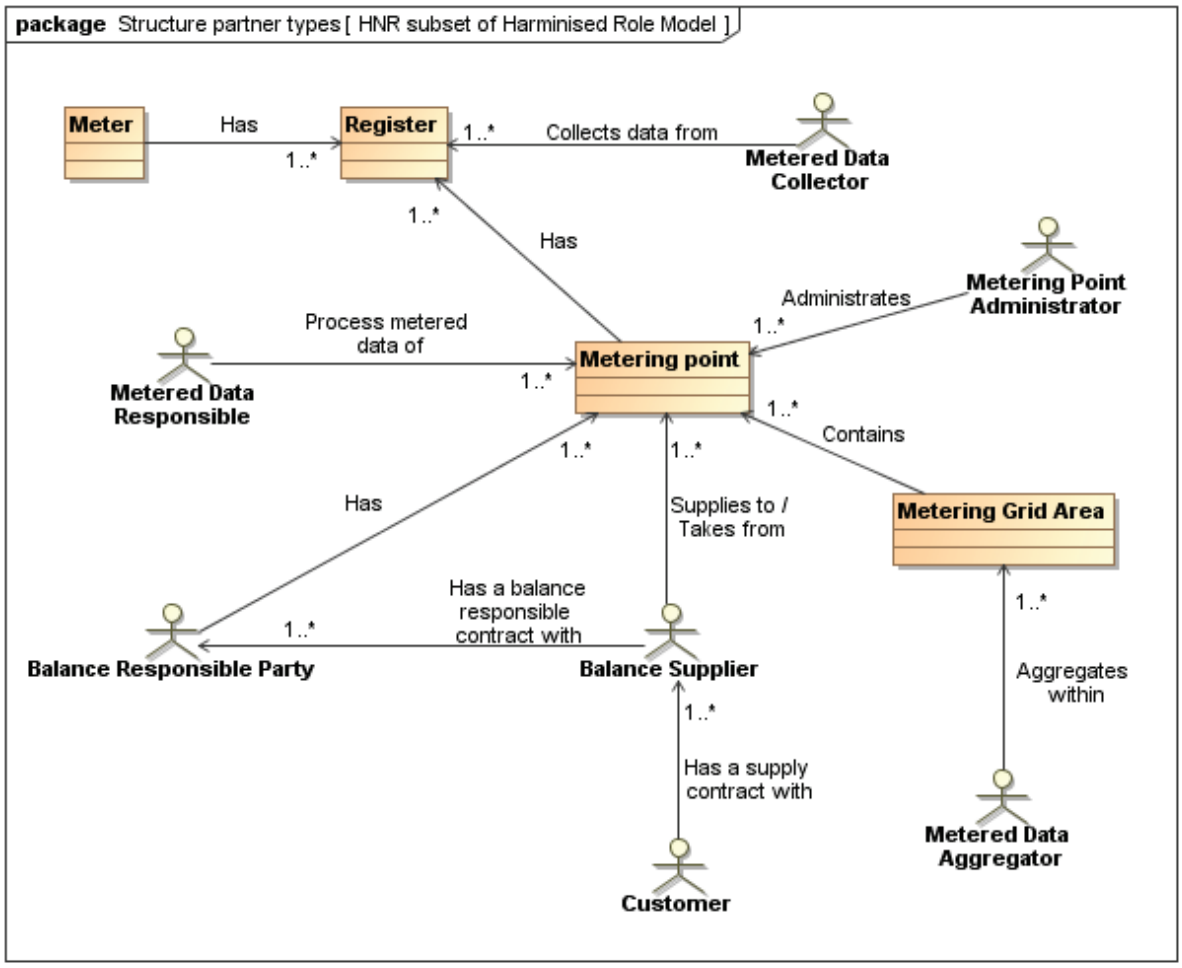



**Figure 3** Harmonised Nordic Retail Market Role Model

# 5 Business Requirements View

## 5.1 Upfront Request for Metering Point Characteristics

### 5.1.1 Upfront Request for Metering Point Characteristics (Business Process UseCase)

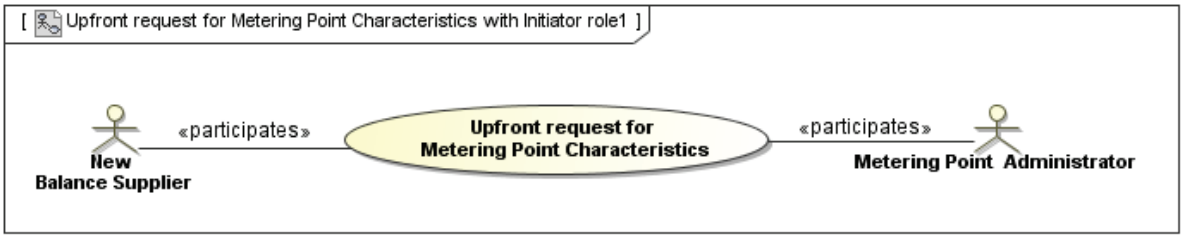



**Figure 4** Upfront Request for Metering Point Characteristics

**UseCase description**

| UseCase description: Upfront Request for Metering Point Characteristics | |
|---|---|
| definition | The *New Balance Supplier* queries the *Metering Point Administrator* for characteristics of a certain Metering Point<br><br>The process is an optional (may be required at a national level) preparation for the Change of Supplier and Move-In processes, to confirm the Metering Point ID is correct and to make the Change of Supplier process more efficient<br><br>In Finland the process is required in the Change of Supplier process also to check the contract terms of the current contract to avoid unwanted breach of contract |
| beginsWhen | When a Customer has contacted the Balance Suppler with the intention of making a new energy supply contract and the *New Balance Supplier* has a need for characteristics of a *Metering Point*, such as the Metering Point ID |
| preCondition | The *Balance Supplier* has a mandate from the Customer<br>The *New Balance Supplier* is authorised in its role |
| endsWhen | When the *New Balance Supplier* has received a response or rejection to the Upfront Request for Metering Point Characteristics |
| postCondition | The *New Balance Supplier* has received the Upfront Metering Point Characteristics or the query failed to produce a result |
| exceptions | Information regarding contract terms is dependent on national rules in the country where the MP is located.<br><br>Finland:<br><br>• If the end date of the old fixed term contract is further in the future than the intended start date of the new contract, the new supplier shall agree with the customer how to proceed.<br><br>• If the intended start date of the new contract is sooner than the notice period of the continuos contract allows, the supplier shall agree a new start date with the customer. |

| | |
|---|---|
| actions | |
| acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>No positive *Acknowledgment of processing* needed |
| Cancellations | In this process an immediate response is expected and cancellation is not relevant |

## 5.2 Change of Supplier (Business Process UseCase)

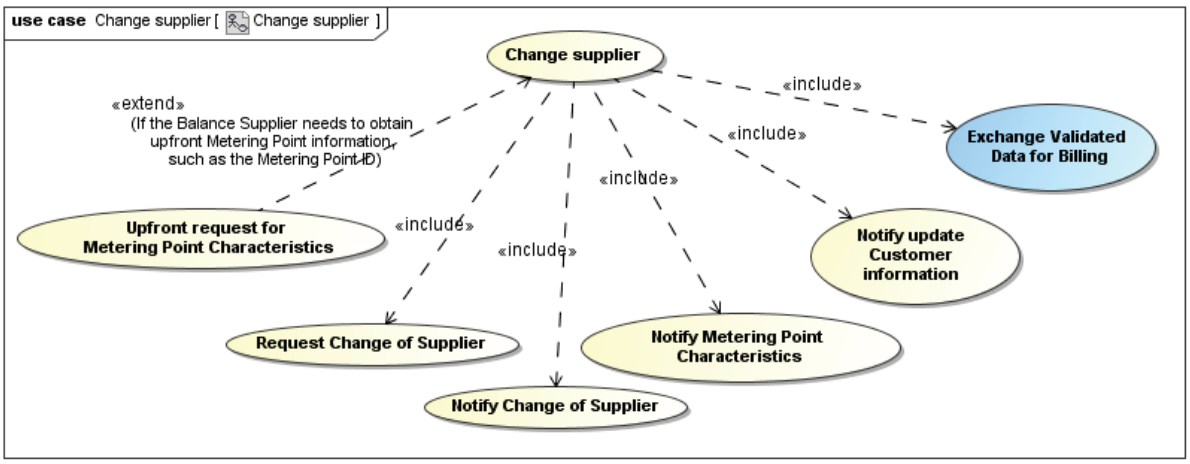



**Figure 5** Change of Supplier

**UseCase description**

| UseCase description: Change supplier | |
|---|---|
| definition | This is the process where a *New Balance Supplier* (in Denmark, Norway and Sweden, together with the *Balance Responsible Party*) will be registered in the *Metering Point register* as the New Supplier for the *Metering Point*. The *Metering Point Administrator* makes all necessary updates for the Change of Supplier, including distribution of master data for alignment of the business partner databases. |
| beginsWhen | A *Customer* agrees a contract with the *New Balance Supplier* and the Change of Supplier process is initiated |
| preCondition | • The change processes should be as automated and efficient as possible within the rules of the legislation<br>• Business agreements have been made between the different parties and the participating parties must be able to communicate electronically with each other<br>• The *Customer* has a relationship with the Metering Point (if not it is a Move-in process, see 5.4)<br>• The change of supplier process can be used for change of suppliers connected to a Production or a consumption Metering Point<br>• The customer can change his consumption supplier regardless of the production supplier and vice versa |
| endsWhen | When the request for Change of Supplier is confirmed or rejected, and if confirmed then all relevant parties are informed about the Change of Supplier and master data of the *Metering Point* involved as well as validated data for billing energy have been distributed to relevant parties |

| | |
|---|---|
| postCondition | The *Balance Supplier* of the *Customer* has been changed and all involved parties have exchanged and synchronised their master data, including determination and exchange of the meter read related to the Change of Supplier |
| exceptions | The Change of Supplier may be cancelled caused by events, such as, Customer move, Customer regretting the Change of Supplier, Balance Supplier bankrupt, Change of Supplier for wrong Metering Point, see chapter 9, Cancellation process.<br><br>See also chapter 5.2.3,<br>Varieties of Change of Supplier processesVarieties of Change of Supplier processes |
| actions | Sub-processes:<br>• Upfront Request for Metering Point Characteristics (Business Process UseCase), see 5.1.1<br>• Request Change of Supplier (Business Process UseCase), see 5.2.1<br>• Notify Change of Supplier (Business Process UseCase), see 5.2.2<br>• Notify Metering Point Characteristics (Business Process UseCase), see 5.6<br>• Notify update Customer information (Business Process UseCase), see 5.8<br>• Notify Validated Data for Billing Energy (Business Process UseCase), see 5.13 |
| acknowledgements | Not relevant at this level, see Sub-processes (actions above) |
| Cancellations | Not relevant at this level, see Sub-processes (actions above) |

### 5.2.1 Request Change of Supplier (Business Process UseCase)

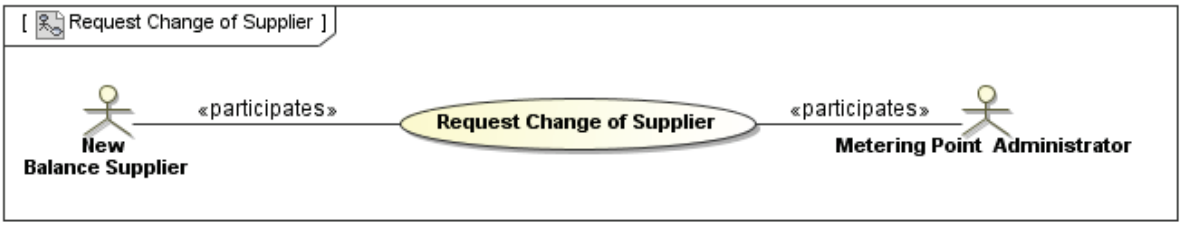



**Figure 6** Request Change of Supplier

**UseCase description**

| UseCase description: Request Change of Supplier | |
|---|---|
| definition | In this process, the *New Balance Supplier* will request Change of Supplier at a *Metering Point* and the *Metering Point Administrator* confirms or rejects it. During the business process, the change is confirmed and the Metering Point register will be updated, or the change is rejected.<br><br>The Metering Point Administrator cannot change the start date in the confirmation |
| beginsWhen | When the *New Balance Supplier* decides to send a request for Change of Supplier to the *Metering Point Administrator*, in order to achieve the intended start of supply date for the new supply contract |
| preCondition | • The *New Balance Supplier* has all needed information to be able to request Change of Supplier.<br>• A supply contract is in place<br>• A start of supply date has been agreed with the *Customer* |
| endsWhen | The request for Change of Supplier is confirmed or rejected |
| postCondition | The Change of Supplier process has been confirmed or rejected by the *Metering Point Administrator* to the *Balance Supplier* |
| exceptions | In Denmark the response (confirmation or rejection) shall be sent no later than after one hour<br><br>In Finland, the request for switch of supplier can be rejected due to a valid fixed term contract. The information about the end date of a contract is updated to the MPA with “Notify Update Customer Information” process. |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

### 5.2.2 Notify Change of Supplier (Business Process UseCase)

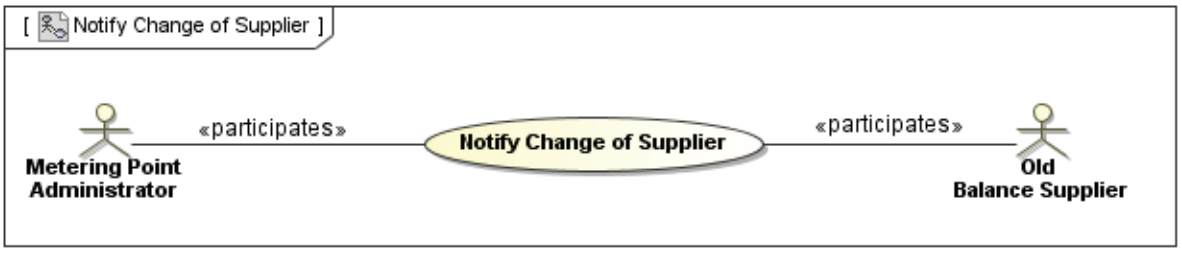



**Figure 7** Notify Change of Supplier

**UseCase description**

| UseCase description: Notify Change of Supplier | |
|---|---|
| definition | In this process, the *Metering Point Administrator* will notify *the Old Balance Supplier* of the Change of Supplier in the Metering Point and the related change date |
| beginsWhen | When the Change of Supplier has been confirmed, from the *Metering Point Administrator,* to the *New Balance Supplier*, see 5.2.1 |
| preCondition | • The Request Change of Supplier process has been confirmed by the Metering Point Administrator<br>• The Metering Point register has been updated with the New Balance Supplier |
| endsWhen | The *Old Balance Supplier* has received the notification |
| postCondition | The Change of Supplier is notified to *the Old Balance Supplier* |
| exceptions | None |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asynchronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames<br>The Notify Change of Supplier document must be cancelled in parallel with confirmation of cancellation of a Request Change of Supplier |

### 5.2.3 Varieties of Change of Supplier processes

#### *5.2.3.1 Bulk Change of Supplier*

*Bulk Change of Supplier* is the process of changing all, or a block of, *Customers* belonging to one *Balance Supplier. Bulk Change of Supplier* may be related to a merger of suppliers or Change of Supplier of all *Metering Points* related to one large *Customer*, such as petrol stations, banks etc.

The HNR project proposes that *Bulk Change of Supplier is* done using (repeatedly) normal Change of Supplier documents.

In Denmark, an "easier way" of preforming a *Bulk Change of Supplier* is planned, probably through filling in a web-page.

#### *5.2.3.2 Unrequested Change of Supplier*

Terms used:

| | |
|---|---|
| ***Supplier of last resort*** | is a *Balance Supplier* appointed by the authorities (e.g. the regulator) to supply energy under certain conditions to *Customers* rejected by other *Balance Suppliers* |
| ***Default Supplier*** | is a *Balance Supplier* that supplies *Metering Points* within a *Metering Grid Area* (chosen by the *Metering Point Administrator*) when the *Customer* has no *Balance Supplier*. |

The *Unrequested change of supplier* process is used when the *Metering Point Administrator* gets a *Customer* without a *Balance Supplier*. This may for instance occur if a *Balance Supplier* goes bankrupt. NordREG or the national regulators should further elaborate this.

Current status in the Nordic countries

- In Denmark the current supplier will act as both Supplier of last resort and Default Supplier, hence the process is not relevant.
- In Finland, a supplier of last resort is obliged to offer a supply contract for certain customers (fuse size max 3x63A and annual consumption less than 100 000 kWh) with public price and contract conditions; usually this is the supplier with most customers in the MGA. The Customer has to choose a supplier, if not the MP is disconnected; hence the process is not relevant.
- In Norway the DSO is the Supplier of last resort, hence the process is not relevant.
- In Sweden the process is relevant for Unrequested Change of Supplier to the Default supplier. The process is used for breach of contract, bankruptcy and Move-in without a having chosen a supplier.

In this process, the *Metering Point Administrator* sends a *Confirm Change of Supplier* document to the *Balance Supplier*, without having received a *Request Change of Supplier* beforehand. The *Confirm Change of Supplier* document is using a special *Reason Code* (Energy Business Process Code):

| | |
|---|---|
| **E06** | Unrequested Change of suppler (to default supplier or supplier of last resort) |

## 5.3 End of Supply (Business Process UseCase)

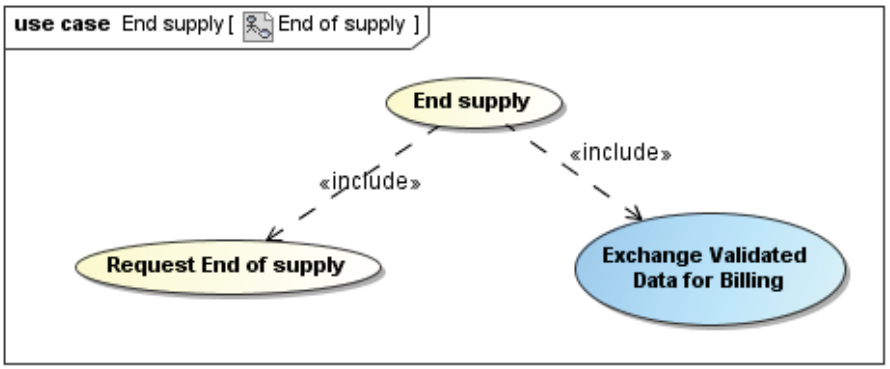



**Figure 8** End of Supply

**UseCase description**

| UseCase description: End of Supply | |
|---|---|
| definition | This is a process where the *Balance Supplier* requests End of Supply to be registered by a given date at the *Metering Point* in the *Metering Point register*<br><br>The *Metering Point Administrator* makes all necessary updates for the End of Supply, including distribution of master data for alignment of the business partner databases.<br><br>The reason may be end of a time limited supply contract, bad payers etc. |
| beginsWhen | When the *Balance Supplier* sends a Request End of Supply to the *Metering Point Administrator*. |
| preCondition | The *Balance Supplier* has notified the *Customer* that the contract between them will be ended and the End of Supply process will be initiated<br><br>The end process should be within the rules of the legislation |
| endsWhen | When the Request End of Supply has been confirmed or rejected |
| postCondition | • All involved parties have exchanged and synchronised their master data with the Metering Point register, or (in case of rejection) nothing is changed in the Metering Point register<br><br>• If there is no new Balance Supplier connected to the Metering Point<br><br>o The *Metering Point* will be disconnected in Finland<br>o The *Customer* will be moved to the Default Supplier in Sweden<br>o The *Customer* will be moved to the Supplier of last resort in Norway…<br>o The *Metering Point* will be disconnected in Denmark |

| | |
|---|---|
| exceptions | The End of Supply process may stop if a Request Change of Supplier, or Move-in- or Move-out process is started, for a date before the confirmed End of Supply date |
| actions | Sub-processes:<br>• Request End of Supply, see 5.3.1<br>• Notify Validated Data for Billing Energy (Business Process UseCase), see 5.13 |
| acknowledgements | Not relevant at this level, see Sub-processes (actions above) |
| Cancellations | Not relevant at this level, see Sub-processes (actions above) |

### 5.3.1 Request End of Supply

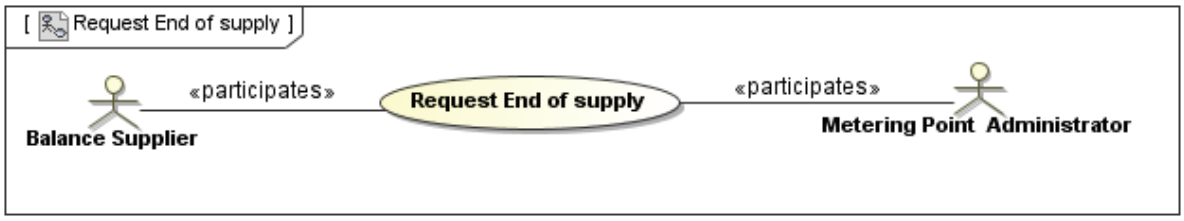



**Figure 9** Request End of Supply

**UseCase description**

| UseCase description: Request End of Supply | |
|---|---|
| definition | In this process, the *Balance Supplier* will request an End of Supply, either on his own or the Customer's behalf, and the *Metering Point Administrator* confirms or rejects it.<br><br>During the business process an End of Supply is confirmed and the Metering Point register is updated, or the End of Supply is rejected.<br><br>The Metering Point Administrator cannot change the end date in the confirmation |
| beginsWhen | When the *Balance Supplier* sends a Request End of Supply |
| preCondition | • Metering Point ID is known<br>• Existing supply contract is in place<br>• An End of Supply date has been decided by the *Balance Supplier* and/or the Customer |
| endsWhen | When the Request End of Supply is confirmed or rejected |
| postCondition | The Request End of Supply, from the *Balance Supplier*, has been confirmed or rejected by the *Metering Point Administrator* |
| exceptions | |
| actions | |
| acknowledgements | No positive *Acknowledgment of processing* needed |
| Cancellations | See chapter 6, Time frames |

## 5.4 Customer Move-in (Business Process UseCase)

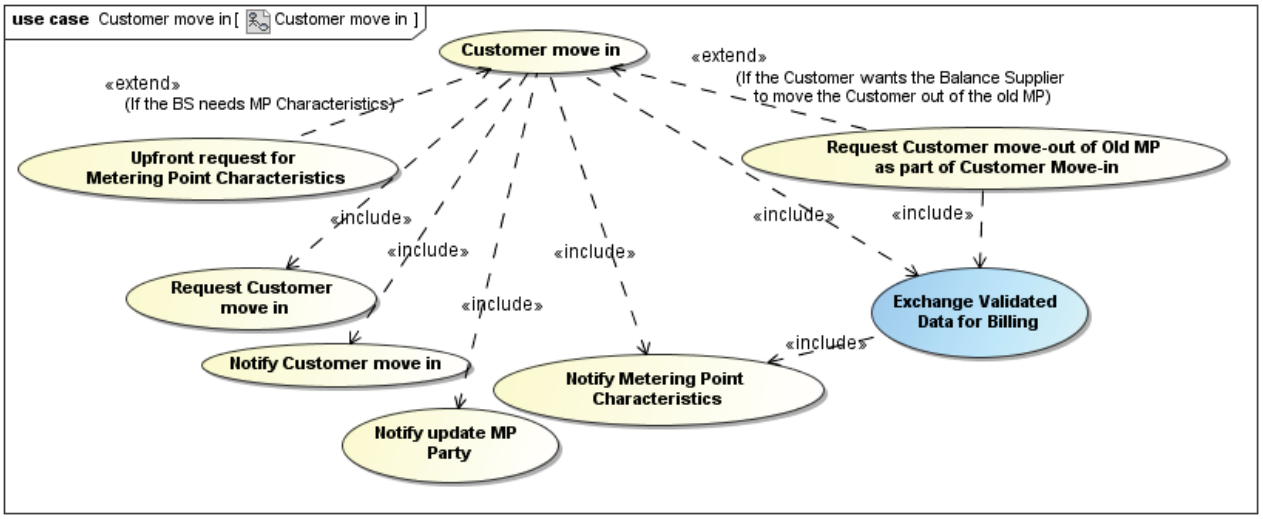



**Figure 10** Customer Move-in

**UseCase description**

| UseCase description: Customer Move-in | |
|---|---|
| definition | In this process all necessary sub-processes will be fulfilled to move a (new) customer into a Metering Point, i.e. being responsible for the energy consumption at the Metering Point. The process includes update of the *Balance Supplier* (in Denmark, Norway and Sweden, together with the *Balance Responsible Party*) in the *Metering Point* register. As a consequence of the Move-in, the former Customer will be moved out (if not already done in a separate Move-out process), and the *Old Balance Supplier* will be notified. |
| beginsWhen | When the *New Balance Supplier* sends a request for "Customer Move-in" to the *Metering Point Administrator* |
| preCondition | The new Customer has no existing relation to the *Metering Point*.<br><br>The *New Balance Supplier* has all necessary information to start the Move-in process |
| endsWhen | When the Move-in has been confirmed or rejected. If confirmed the *Metering Point Administrator* has notified the Old Balance Supplier, both in the MP the Customer is moving into and the MP the Customer is moving out from, if needed, and distributed needed Metering Point Characteristics to the *New Balance Supplier* |

| | |
|---|---|
| postCondition | The *Customer* and its *Balance Supplier* (in Denmark, Norway and Sweden, together with the *Balance Responsible Party*) have been "Moved In" at the Metering Point and all involved parties have exchanged and synchronised their master data<br><br>If applicable, the Customer has been "Moved Out" from the Old Metering Point and all involved parties have exchanged and synchronised their master data |
| exceptions | 1) There is a need for the process *Make grid contract*, which is seen as an internal process within the DSO. The process will not be further elaborated in this model. It is however assumed that the process among others include:<br>• The *Metering Point Administrator* informs the *Grid Access Provider* of the new *Customer*, who does necessary actions to get a new grid access contract<br>• The *Grid Access Provider* informs the *Grid Operator*, who is responsible for establishing the physical connection to the grid<br>2) In Finland there are MPs that requires transfer of Grid Connection Contract for the new Customer at the MP, see Appendix D, UseCase 14<br>3) For other exceptions, see Appendix D |
| actions | Sub-processes:<br>• Upfront Request for Metering Point Characteristics (Business Process UseCase), see 5.1.1<br>• Request Customer Move-in (Business Process UseCase), see 5.4.1<br>• Notify Customer Move-in (Business Process UseCase), see 5.4.2<br>• Notify update Customer information (Business Process UseCase), see 5.8<br>• Notify Metering Point Characteristics (Business Process UseCase), see 5.6<br>• Notify Validated Data for Billing Energy (Business Process UseCase), see 5.13<br>• Request Customer Move-out of Old MP as part of Customer Move-in, see 5.4.3 |
| acknowledgements | Not relevant at this level, see Sub-processes (actions above) |
| Cancellations | Not relevant at this level, see Sub-processes (actions above) |

### 5.4.1 Request Customer Move-in (Business Process UseCase)

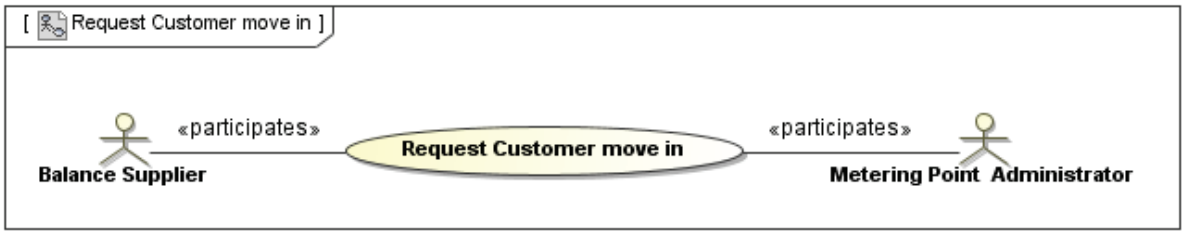



**Figure 11** Request Customer Move-in

**UseCase description**

| UseCase description: Request Customer Move-in | |
|---|---|
| definition | In this process a *Balance Supplier* will send a request for a Move-in for a (new) Customer at a *Metering Point* and the *Metering Point Administrator* confirms or rejects it. |
| beginsWhen | When the *Balance Supplier* has met all preconditions and sends in the Move-in request |
| preCondition | The *Balance Supplier* has an agreement with the new Customer for the Metering Point |
| endsWhen | When the Move-in request has been confirmed or rejected |
| postCondition | The Move-in process has been confirmed or rejected by the *Metering Point Administrator* to the *New Balance Supplier* |
| exceptions | |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

### 5.4.2 Notify Customer Move-in (Business Process UseCase)


**Figure 12** Notify Customer Move-in

**UseCase description**

| UseCase description: Notify Customer Move-in | |
|---|---|
| definition | In this process the *Metering Point Administrator* will notify the *Old Balance Supplier* |
| beginsWhen | When the Customer Move-in has been confirmed by the *Metering Point Administrator* to the *New Balance Supplier* |
| preCondition | The Customer Move-in request has been confirmed by the *Metering Point Administrator* |
| endsWhen | When the *Old Balance Supplier* has received the notification |
| postCondition | The *Metering Point Administrator* has informed about the Customer Move-in to the *Old Balance Supplier* |
| exceptions | None |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

### 5.4.3 Request Customer Move-out of Old MP as part of Customer Move-in

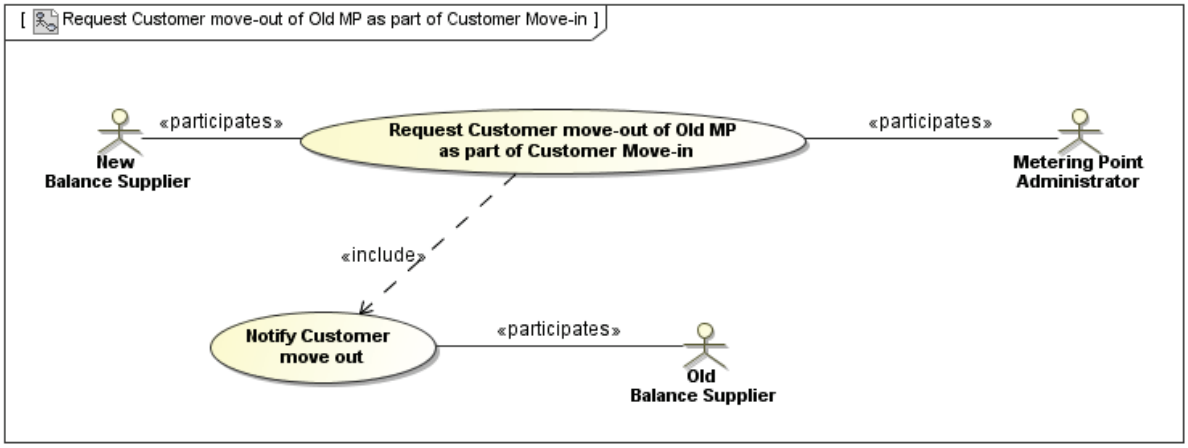



**Figure 13** Request Customer Move-out of Old MP as part of Customer Move-in

**UseCase description**

| UseCase description: Request Customer Move-out of Old MP as part of Customer Move-in | |
|---|---|
| definition | The *Request Customer Move-out of Old MP as part of Customer Move-in* process is used when the *Customer* moving in to a *Metering Point* asks the *New Balance Supplier* to end all relations to the *Metering Point* where the *Customer* moves out.<br><br>During the business process:<br>• the Move-out is confirmed by the Metering Point Administrator of the Old Metering Point to the *New Balance Supplier*<br>• the Old Balance Supplier in the *Old Metering Point* (the MP that the *Customer* is moving out of) is informed of the end of supply<br>**Note:** In this process, the *New Balance Supplier* is ending the supply in a MP where the *New Balance Supplier* not necessarily has a relation<br>• the Metering Point register will be updated, or the Move-out is rejected.<br><br>**Note:** This process is mandated by the draft moving report from NordREG [2] and is currently not possible in other countries than Finland. |
| beginsWhen | When the Customer asks the *New Balance Supplier* to end all relations to the *Metering Point* where the *Customer* moves out |
| preCondition | • The *New Balance Supplier* has all needed information to be able to request Customer Move-out<br>• An end of supply date has been agreed with the Customer<br>• An upfront pre-check process for verification of MP must be available<br>• The Customer must be the same in both MPs, i.e. an unique ID for the Customer is needed in the request |

| | |
|---|---|
| | • A power of attorney (a paper, recorded phone call, e-signature or similar) from the Customer must be available before the process starts. It is the supplier's responsibility to prove that the transaction has the customer's consent.<br>• There must be available processes for error handling |
| endsWhen | The request for Move-out is confirmed or rejected and the *Old Balance Supplier* has been notified of the Customer Move-out |
| postCondition | The Move-out process has been confirmed or rejected by the *Metering Point Administrator* to the *New Balance Supplier* and notified to the *Old Balance Supplier* |
| exceptions | Currently not allowed in Denmark |
| actions | Sub-processes:<br>• Notify Customer Move-out (Business Process UseCase), see 0 |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

### 5.4.4 Notify Customer Move-out (Business Process UseCase)

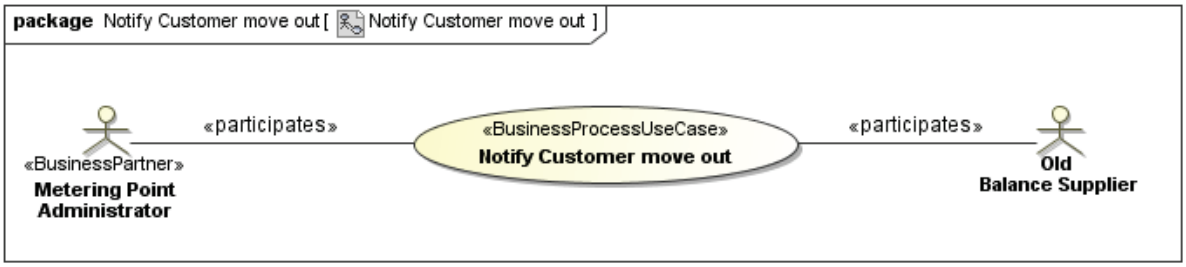



**Figure 14** Notify Customer Move-out

**UseCase description**

| UseCase description: Notify Customer Move-out | |
|---|---|
| definition | In this process, the *Metering Point Administrator* will notify *the Old Balance Supplier* of the Customer Move-out (and the related Move-out date) in the *Metering Point* the Customer is moving out from. |
| beginsWhen | When the Customer Move-out has been confirmed from the *Metering Point Administrator* to the *New Balance Supplier* in the *New Metering Point* |
| preCondition | • The Customer Move-out process has been confirmed by the *Metering Point Administrator* to the *New Balance Supplier* in the *New Metering Point* |
| endsWhen | The *Old Balance Supplier* in the *Metering Point* the Customer is moving out of has received the notification |
| postCondition | The Customer Move-out has been notified to the *Old Balance Supplier* in the *Metering Point* the Customer is moving out from |
| exceptions | None |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br><br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.5 Customer Move-out (Business Process UseCase)

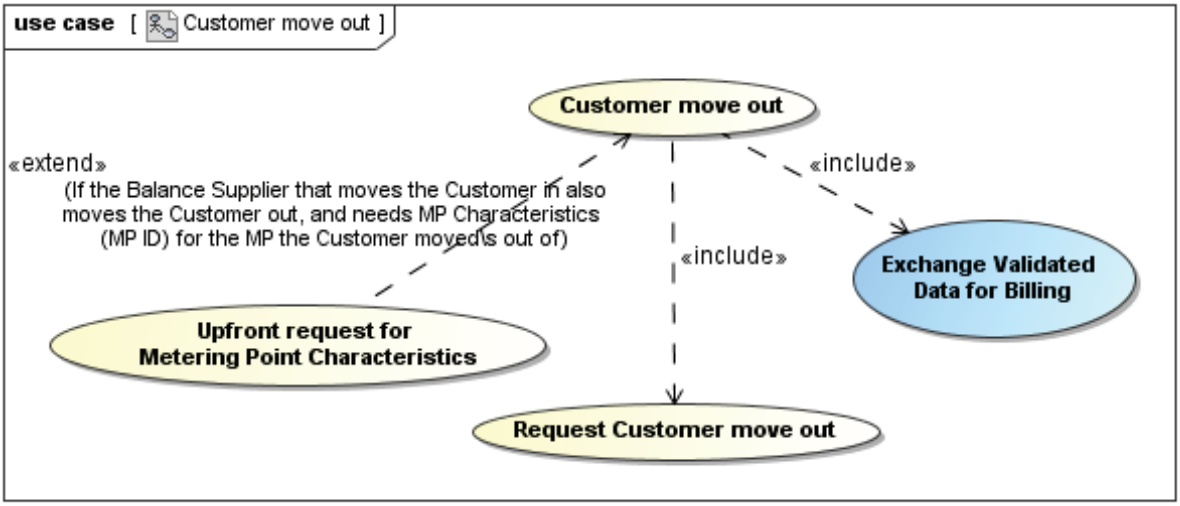



**Figure 15** Customer Move-out

**UseCase description**

| UseCase description: Customer Move-out | |
|---|---|
| definition | In this process all necessary sub-processes will be fulfilled to move a *Customer* out from a Metering Point, i.e. ending responsible for the energy consumption at the Metering Point. The process includes removing the *Old Balance Supplier*, and *Old Balance Responsible Party* from the *Metering Point* register. |
| beginsWhen | When the *Old Balance Supplier* sends a request for Customer Move-out to the *Metering Point Administrator*. |
| preCondition | The *Old Customer* and his *Balance Supplier* are registered for this Metering Point in the Metering Point database. |
| endsWhen | When the *Old Customer* and its *Balance Supplier* has been informed that they are removed from the Metering Point and the meter read has been determined. |
| postCondition | The *Old Customer* and its *Balance Supplier* (in Denmark, Norway and Sweden, together with the *Balance Responsible Party*) have been removed from the Metering Point, the Old Balance Supplier has been notified and the meter read has been determined. |
| exceptions | If a Customer Move-in process has started for an earlier date than the requested end date, then the Move-in process will take over and the Customer Move-out process is stopped. |
| actions | Sub-processes:<br>• Upfront Request for Metering Point Characteristics, see 5.1<br>• Request Customer Move-out, see 5.5.1<br>• Notify Validated Data for Billing Energy (Business Process UseCase), see 5.13 |
| acknowledgements | Not relevant at this level, see Sub-processes (actions above) |
| Cancellations | Not relevant at this level, see Sub-processes (actions above) |

### 5.5.1 Request Customer Move-out

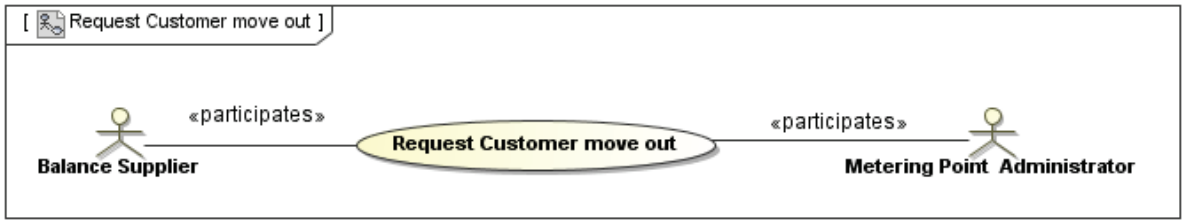



**Figure 16** Request Customer Move-out

**UseCase description**

| UseCase description: Request Customer Move-out | |
|---|---|
| definition | In this process the *Balance Supplier* will send a request for a Customer Move-out for the *Metering Point* of the *Customer* and the *Metering Point Administrator* confirms or rejects it. |
| beginsWhen | When the *Balance Supplier* has met all preconditions and sends the Customer Move-out request |
| preCondition | The *Customer* and his *Balance Supplier* are registered for this Metering Point in the Metering Point database. |
| endsWhen | When the request for Move-out has been confirmed or rejected |
| postCondition | The Move-out process has been confirmed or rejected by the *Metering Point Administrator* to the *Balance Supplier*. |
| exceptions | None |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.6 Notify Metering Point Characteristics (Business Process UseCase)

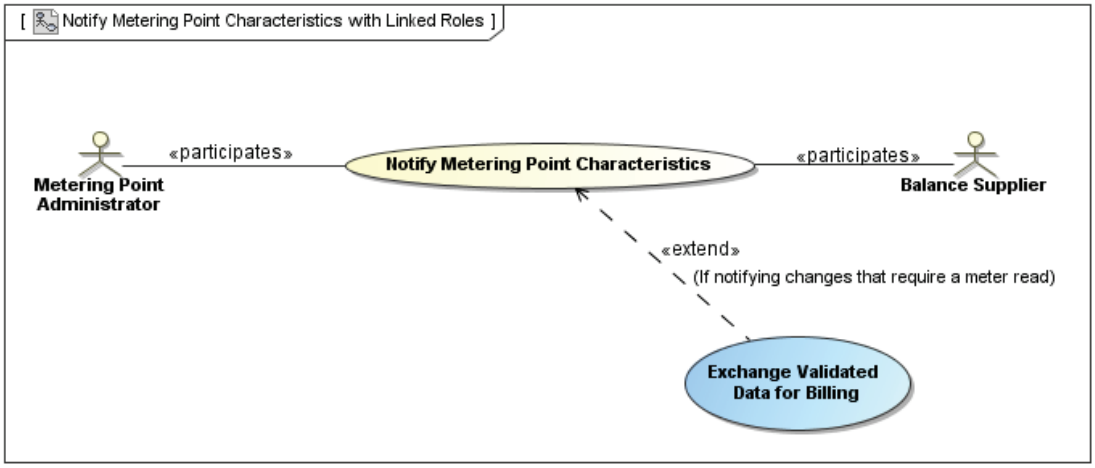



**Figure 17** Notify Metering Point Characteristics

**UseCase description**

| UseCase description: Notify Metering Point Characteristics | |
|---|---|
| definition | In this process the *Metering Point Administrator* distributes Metering Point Characteristics to the *Balance Supplier* after update of one or more of these characteristics. |
| beginsWhen | When there have been changes to the Metering Point Characteristics, or as master data sent in connection to a Change of Supplier or Move-in process.<br>If connected to a Change of Supplier or Move-in process, the Notify Metering Point Characteristics document shall be sent in parallel with the confirmation of Change of Supplier or Move-in |
| preCondition | One or more Metering Point Characteristics have been changed. |
| endsWhen | When the *Balance Supplier* has received the notification |
| postCondition | The Metering Point Characteristics have been notified by the Metering Point Administrator to the *Balance Supplier* |
| exceptions | |
| actions | Sub-processes:<br>• Notify Validated Data for Billing Energy (Business Process UseCase), see 5.13 |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.7 Request Metering Point Characteristics (Business Process UseCase)

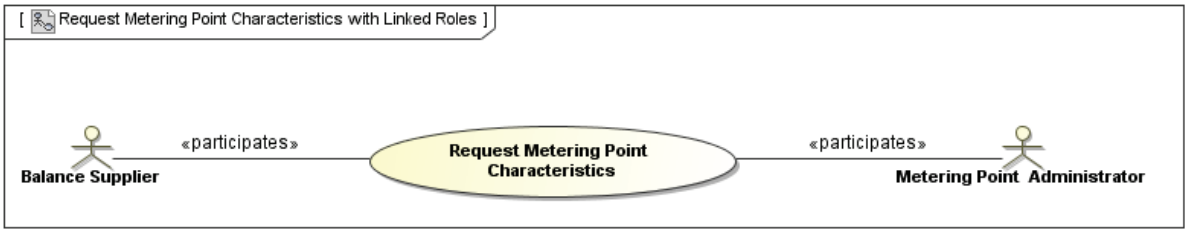



**Figure 18** Request Metering Point Characteristics

**UseCase description**

| UseCase description: Request Metering Point Characteristics | |
|---|---|
| definition | This is the process where a *Balance Supplier* can align its *Metering Point Characteristics* with the *Metering Point Administrator*. |
| beginsWhen | When the *Balance Supplier* needs to align its master data |
| preCondition | The *Balance Supplier* is currently registered in the *Metering Point Administrators* database |
| endsWhen | When the *Balance Supplier* has received the master data from the *Metering Point Administrator* or the request was rejected |
| postCondition | Metering Point Characteristics are received by the *Balance Supplier* or the request is rejected, e.g. if the *Balance Supplier* is not allowed access to the data |
| exceptions | The request for MP Characteristics is default on a MP level, but may be on a Metering grid Area (MGA) level, see 7.8. |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>In this process an immediate response is expected and a positive acknowledgement of processing is NOT needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.8 Notify update Customer information (Business Process UseCase)

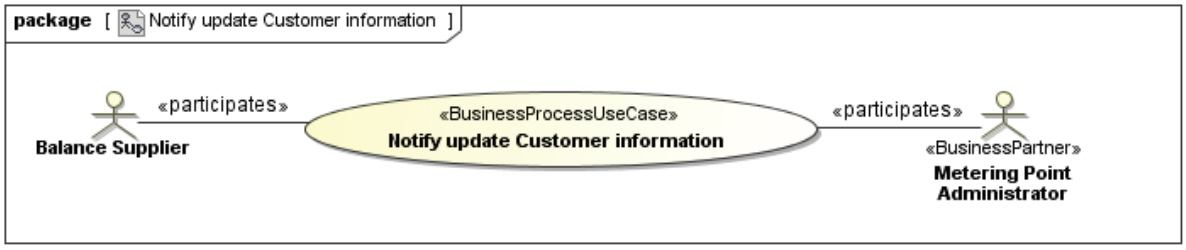



Figure 19 Notify update Customer information

**UseCase description**

| UseCase description: Notify update Customer information | |
|---|---|
| definition | In this process, the *Balance Supplier* notifies the *Metering Point Administrator* of a change in customer information, such as update of Customer name, Customer status and address for the Customer in the *Metering Point*.<br><br>If there is a change of legal Customer, the Move-in process shall be used.<br><br>In this process, the *Balance Supplier* also notifies the *Metering Point Administrator* about the commercial terms of the contract between the *Customer* and the *Balance Supplier*, such as the end date of a fixed term contract and a possible cancellation fee or an exceptional notice period of a contract. |
| beginsWhen | When there have been changes to the Customer information |
| preCondition | One or more characteristics of a party connected to a *Metering Point* have been changed. |
| endsWhen | When the *Metering Point Administrator* has received the notification |
| postCondition | The Customer information connected to a *Metering Point* have been notified by the *Balance Supplier* to the *Metering Point Administrator* |
| exceptions | In Denmark a change of legal Customer can be handled by the *Notify update Customer information* process, see 7.7. This simplified process is used in special cases, such as related to divorce, death or bankruptcy, and where the supply contract stays the same. |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br><br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |

| | |
|---|---|
| Cancellations | See chapter 6, Time frames |

## 5.9 Request Customer information (Business Process UseCase)

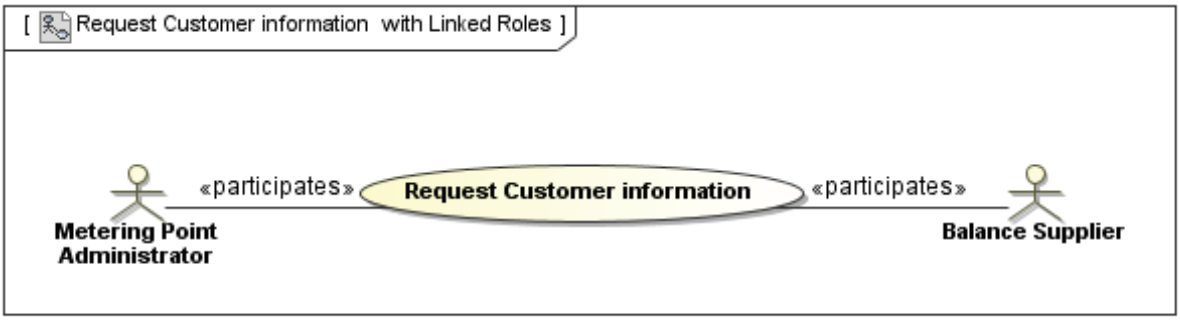



**Figure 20** Request **Customer information**

**UseCase description**

| UseCase description: Request Customer information | |
|---|---|
| definition | This is the process where a *Metering Point Administrator* can align its *Customer information* with the *Balance Supplier*. |
| beginsWhen | When the *Metering Point Administrator* needs to align its master data, such as the update of address information or to get the final invoicing address after a Move-out. |
| preCondition | The *Balance Supplier* is linked/known to the *Metering Point* |
| endsWhen | When the *Metering Point Administrator* has received the master data from the *Balance Supplier* or the request was rejected |
| postCondition | *Customer information* is received by the *Metering Point Administrator* or the request is rejected |
| exceptions | The process is not used in countries with a datahub. I that case the *Metering Point Administrator* will request *Customer information* from the datahub. |
| Actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br><br>In this process an immediate response is expected and a positive acknowledgement of processing is NOT needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.10 Request Change of Balance Responsible Party (Business Process UseCase)

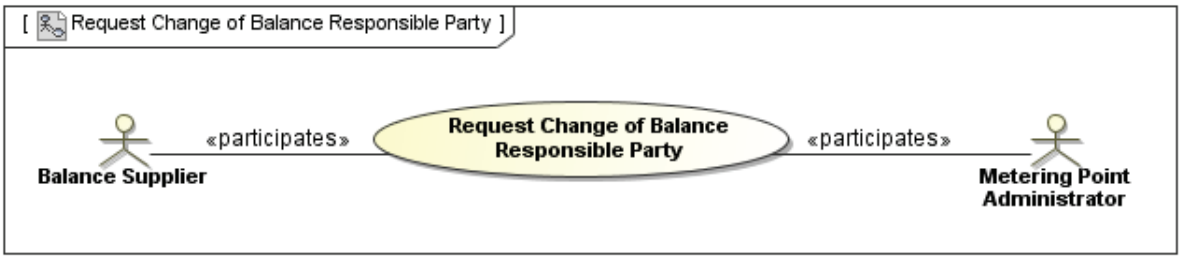



**Figure 21** Request Change of Balance Responsible Party

**UseCase description**

| UseCase description: Request Change of Balance Responsible Party | |
|---|---|
| definition | In this process the *Balance Supplier* requests a Change of *Balance Responsible Party* for a *Metering Point*, or all production or consumption *Metering Points* within a *Metering Grid Area*. The *Metering Point Administrator* makes all needed updates related to the change and confirms or rejects it. |
| beginsWhen | When the *Balance Supplier* decides to send a request for change of *Balance Responsible Party* to the *Metering Point Administrator* |
| preCondition | The *Balance Supplier* is linked to the *Metering Point*<br>The *New Balance Responsible Party* is licenced |
| endsWhen | The request for change of *Balance Responsible Party* is confirmed or rejected |
| postCondition | The request for change of *Balance Responsible Party* has been confirmed or rejected by the *Metering Point Administrator* to the *Balance Supplier* |
| exceptions | In Finland, Norway and Sweden (countries using NBS) the *Balance Responsible Party* must be the same for all production *Metering Points* or all consumption *Metering Points* in a *Metering Grid Area*, for each Balance Supplier. In Denmark there can be different BRPs for the production *Metering Points* in a *Metering Grid Area* |
| actions | The *Balance Supplier* sends a request for Change of *Balance Responsible Party* to a *Metering Point Administrator*, who confirms or rejects it |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.11 Notify Change of Meter (Business Process UseCase)

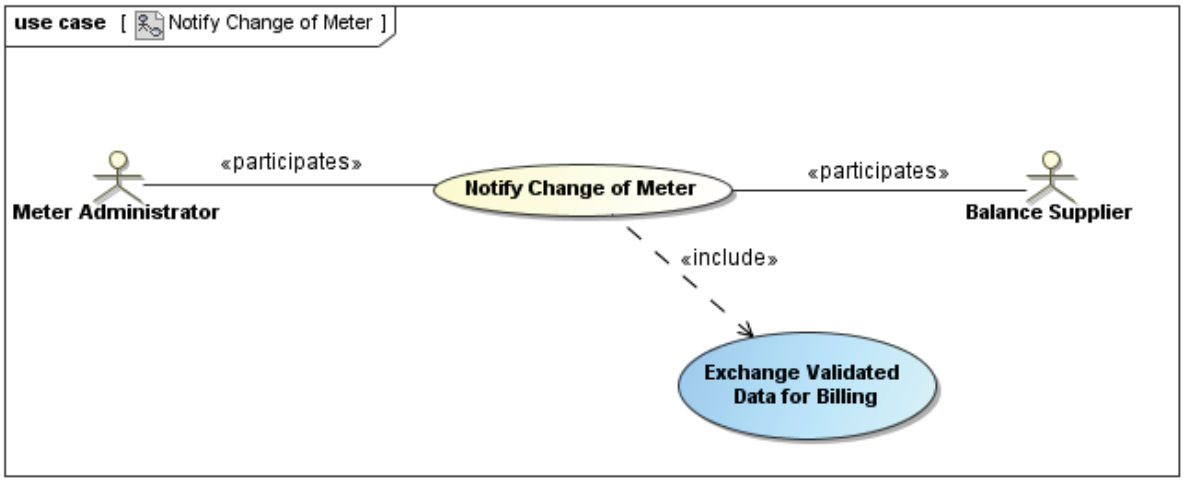



Figure 22 Notify Change of Meter

**UseCase description**

| UseCase description: Notify Change of Meter | |
|---|---|
| definition | This is the process where a *Meter Administrator* notifies the *Balance Supplier* of the change of *Meter* |
| beginsWhen | When the *Meter Administrator* decides to change *Meter* |
| preCondition | The *Balance Supplier* supplies the *Metering Point* |
| endsWhen | When the notification of change of *Meter* is received by the *Balance Supplier* |
| postCondition | The *Balance Supplier* has updated master data |
| exceptions | None |
| actions | Sub-processes:<br>• Notify Validated Data for Billing Energy (Business Process UseCase), see 5.13 |
| acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.12 Request Validated Data for Billing Energy (Business Process UseCase)

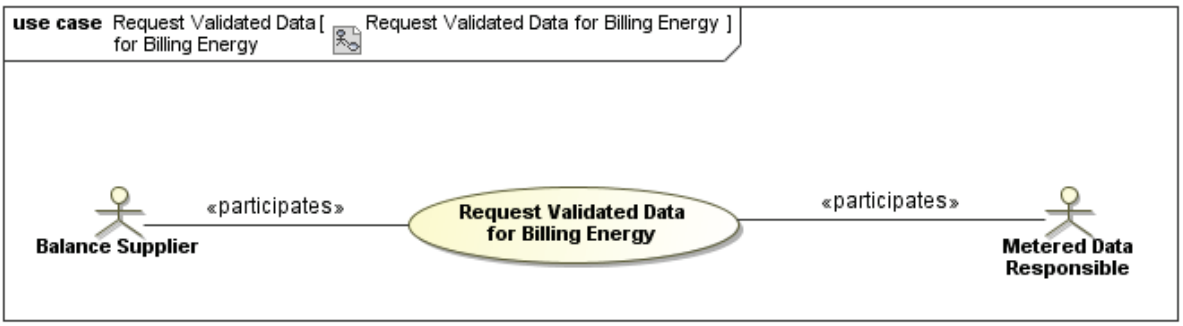



Figure 23 Request Validated Data for Billing Energy

**UseCase description**

| UseCase description: Request Validated Data for Billing Energy | |
|---|---|
| Definition | The *Balance Supplier* requests Validated Data from the *Metered Data Responsible*. |
| beginsWhen | The *Balance Supplier* decides to. |
| preCondition | There is an existing relation between the *Balance Supplier* and the *Metered Data Responsible* |
| endsWhen | The reception of the validated data has been acknowledged by the *Balance Supplier* |
| postCondition | Validated Data are available for the *Balance Supplier* |
| exceptions | None |
| Actions | The *Balance Supplier* requests Validated Data from the *Metered Data Responsible*. The request may contain proposed validated metered data. |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.13 Notify Validated Data for Billing Energy (Business Process UseCase)

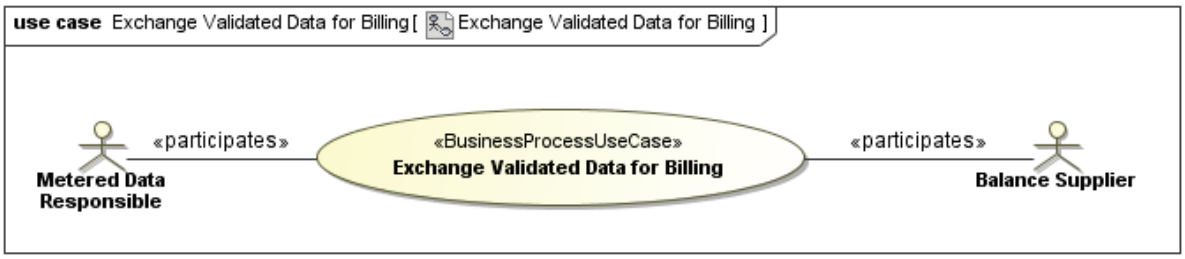



**Figure 24** Notify Validated Data for Billing Energy

**UseCase description**

| UseCase description: Notify Validated Data for Billing Energy | |
|---|---|
| definition | The *Metered Data Responsible* sends validated data to the *Balance Supplier*. This includes both Time series and volumes from profiled metered MPs. |
| beginsWhen | When it is time to send periodic meter readings or when another process, such as Change of Supplier, triggers a meter reading. |
| preCondition | The *Metered Data Responsible* has available validated data and the business partners responsible for the execution of the processes have access to relevant master data |
| endsWhen | The reception of the validated data has been acknowledged by the *Balance Supplier* |
| postCondition | Validated Data are available for the *Balance Supplier* |
| exceptions | Based on national rules, the validated data may also be exchanged directly to the *Customer* |
| actions | |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

## 5.14 Request Update of Metered Data (Business Process UseCase)

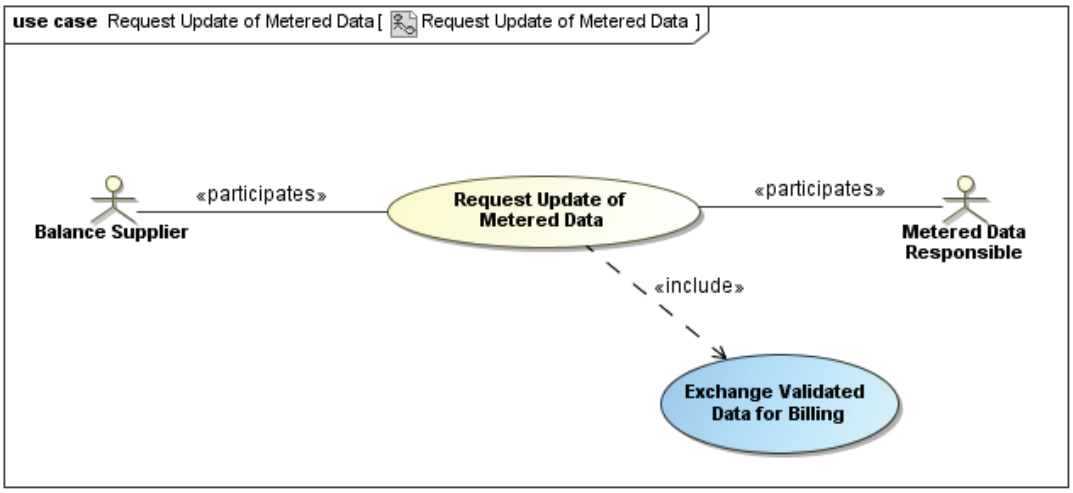



**Figure 25** Request Update of Metered Data

**UseCase description**

| UseCase description: Request Update of Metered Data | |
|---|---|
| definition | The *Balance Supplier* requests an update of metered data to the *Metered Data Responsible*.<br>***Remark**:* The typical use of this process is when the *Balance Supplier* sends a meter stand on behalf of the *Customer*, in relation to a Change of Supplier, Move-In or Move-out process and periodical meter readings.<br>The DSO, in the role of Metered Data Responsible, is still responsible for the quality of the meter reading |
| beginsWhen | The *Balance Supplier* decides to. |
| preCondition | There is an existing relation between the *Balance Supplier* and the *Metered Data Responsible* |
| endsWhen | The reception of the validated data has been acknowledged by the *Balance Supplier* |
| postCondition | Validated Data are available for the *Balance Supplier* |
| exceptions | Not used in Finland and Sweden |
| actions | The *Balance Supplier* request update of Metered Data to the *Metered Data Responsible*. |
| Acknowledgements | See chapter 8.2.1, Acknowledgement principles<br>Positive acknowledgement of processing is needed for asyncronous communication, such as SMTP |
| Cancellations | See chapter 6, Time frames |

# 6 Time frames

General comments:

- The term "immediate" should be interpreted as an automatic process that responds within short time. However, the response time may differ due to different technology, i.e. if the means of communication is a synchronous WS, the response should be within seconds and if the means of communication is an asynchronous store and forward technology, such as SMTP, the response may take up to an hour.
- Timeframes are calculated from the receiving timestamp. It is important that all actors are able to track time stamps for sending and receiving documents, in case of error situations. **Note:** Finland would like to use the sending time stamp instead of receiving time stamp.
- The notification of end of supply to the old *Balance Supplier* for switches and move-in in the future should be further discussed.
- When "Yes" is used in the "cancellation column", the cancellation should be sent latest the day before the validity date
- When "Yes" is used in the "positive acknowledgement column", the acknowledgement is only sent if the means of communication is asynchronous, such as SMTP, where there is no built-in acknowledgement of receipt
- A Notify Metering Point Characteristics document related to a confirmation of change of supplier or a confirmation of Customer move-in should be sent immediately after the confirmation document
- A Notify update Customer information document related to a confirmation of change of supplier or a confirmation of Customer move-in should be sent immediately after the Balance Supplier has received the confirmation

| Process/Document | Time frame for sending | | | Cancellation | Positive ack-nowledge-ment |
|---|---|---|---|---|---|
| | NordREG | Moving UseCases from the industry | HNR proposal | | |
| **Upfront Request for Metering Point Characteristics** | | | | | |
| Upfront Request for Metering Point Characteristics | | | | Not relevant | No |
| Response Upfront Metering Point Characteristics | | | Immediate | Not relevant | No |
| Reject Upfront Metering Point Characteristics | | | Immediate | Not relevant | No |
| **Change of Supplier[1]** | | | | | |
| Request Change of Supplier | Defined nationally | | | Yes | No |
| Confirm Change of Supplier | Latest one day after request received | | Immediate | Yes | No |

[1] The total time frame: max 14 days

| Process/Document | Time frame for sending | | | Cancellation | Positive ack-nowledge-ment |
|---|---|---|---|---|---|
| | NordREG | Moving UseCases from the industry | HNR proposal | | |
| Reject Change of Supplier | Latest one day after request received | | Immediate | No | No |
| Notify Change of Supplier to Old Balance Supplier | | | Immediate[2] | Yes | Yes |
| **End of supply** | | | | | |
| Request End of Supply | | | | Yes | No |
| Confirm End of Supply | | | Immediate | Yes | No |
| Reject End of Supply | | | Immediate | No | No |
| **Customer Move-in** | | | | | |
| Request Customer Move-in | Latest three days before Move-in date [3][4] | Latest one day before validity date[5] | | Yes | No |
| Confirm Customer Move-in | Latest one day after request received | | Immediate | Yes | No |
| Reject Customer Move-in | Latest one day after request received | | Immediate | No | No |
| Notify Move-in to Old Balance Supplier | Latest one day after request received | | Immediate | Immediately after confir-mation of cancellation of request | Yes |
| Request Customer Move-out as part of Customer Move-in | | | Immediate | Yes | No |
| Confirm Customer Move-out as part of Customer Move-in | | | Immediate | Yes | No |
| Reject Customer Move-out as part of Customer Move-in | | | Immediate | No | No |

[2] Norway suggest that the notification to old balance supplier is sent no sooner than one week (i.e. 3 working days) before switching date

[3] NordREG: The possibility for retroactive moves will be defined on nationally

[4] How long before a Customer Move-in date the Request Customer Move-in document can be sent must be defined nationally

[5] Use Cases: As recommendation all moves should be for future dates. If all actors agree, it is possible to make retroactive move but not further than balance settlement time. In error cases such as, wrong metering point, the retroactive change can be further in time.

| Process/Document | Time frame for sending | | | Cancellation | Positive ack-nowledge-ment |
|---|---|---|---|---|---|
| | NordREG | Moving UseCases from the industry | HNR proposal | | |
| Notify Customer Move-out | | | Immediate | Immediately after confir-mation of cancellation of request | Yes |
| **Customer Move-out** | | | | | |
| Request Customer Move-out | Latest one day before valid date | | | Yes | No |
| Confirm Customer Move-out | Latest one day after request received | | Immediate | Yes | No |
| Reject Customer Move-out | Latest one day after request received | | Immediate | No | No |
| **Notify Metering Point Characteristics** | | | | | |
| Notify Metering Point Characteristics | | | Immediately after change in MP Characteristics has happened | No | Yes |
| **Request Metering Point Characteristics** | | | | | |
| Request Metering Point Characteristics | | | | No | No |
| Response Metering Point Characteristics | | | Immediate | No | No |
| Reject Request Metering Point Characteristics | | | Immediate | No | No |
| **Notify update Customer information** | | | | | |
| Notify update Customer information | | | As soon as possible after the change in Customer Information | No | Yes |
| **Request Customer information** | | | | | |
| Request Customer information | | | | No | No |
| Response Customer information | | | Immediate | No | No |
| Reject Request Customer information | | | Immediate | No | No |
| **Change of Balance Responsible Party** | | | | | |
| Request Change of Balance Responsible Party | | | | No | No |
| Confirm Change of Balance Responsible Party | | | Immediate | No | No |

| Process/Document | Time frame for sending | | | Cancellation | Positive ack-nowledge-ment |
|---|---|---|---|---|---|
| | NordREG | Moving UseCases from the industry | HNR proposal | | |
| Reject Change of Balance Responsible Party | | | Immediate | No | No |
| **Notify Change of Meter** | | | | | |
| Notify Change of Meter | | | As soon as possible after the change of meter | No | Yes |
| **Request Validated Data for Billing Energy** | | | | | |
| Request Validated Data for Billing Energy | | | | No | No |
| Response Validated Data for Billing Energy | | | Immediate | No | No |
| Reject Request for Validated Data for Billing Energy | | | Immediate | No | No |
| **Notify Validated Data for Billing Energy** | | | | | |
| Validated Data for Billing Energy | [6] | | | No | Yes |
| **Request Update of Metered Data** | | | | | |
| Request Update of Metered Data | | | | No | No |
| Response Validated Data for Billing Energy | | | Immediate | No | No |
| Reject Request for Update of Metered Data | | | Immediate | No | No |

[6] For AMR, meter reading shall be read "at the hour of the switch or move". For profiled metered MPs, a meter reading shall be read within +/- 5 days. The switch- or move meter reading shall be estimated if not on the exact day. The meter reading must be distributed to the Balance Supplier within 9 days after the switch.

For non-AMR Metering Points, the time frame for sending a switch stand can follow national rules.

# 7 Business Entity View

## 7.1 Short introduction

In these business requirements, the *Harmonised Nordic retail market: Business processes, message format, content and interface project* has identified the data set needed to fulfil the core processes in the Nordic retail market.

Common sub-processes, which are a part of the core processes, can be found in:

- Acknowledgements are described in chapter 8
- The Cancellation process is described in chapter 9

## 7.2 Upfront Request for Metering Point Characteristics

### 7.2.1 Upfront Request for Metering Point Characteristics (Sequence Diagram)

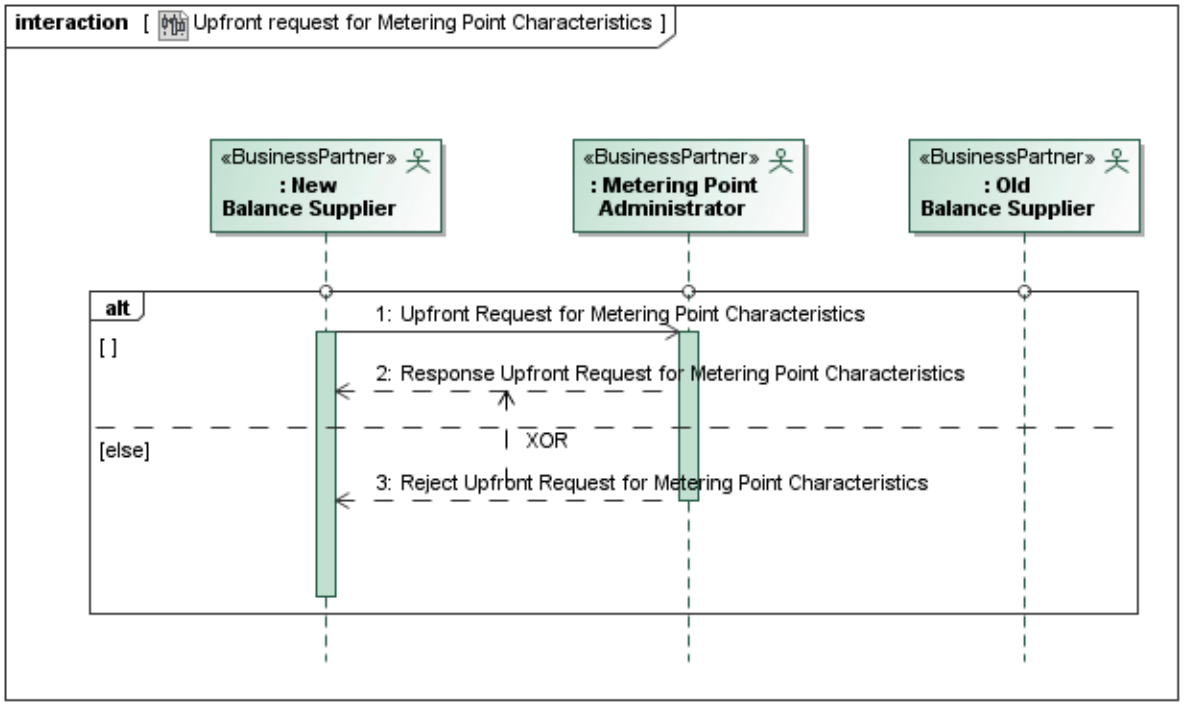



**Figure 26** Sequence diagram: Upfront Request for Metering Point Characteristics

### 7.2.2 Upfront Request for Metering Point Characteristics (Class Diagram)

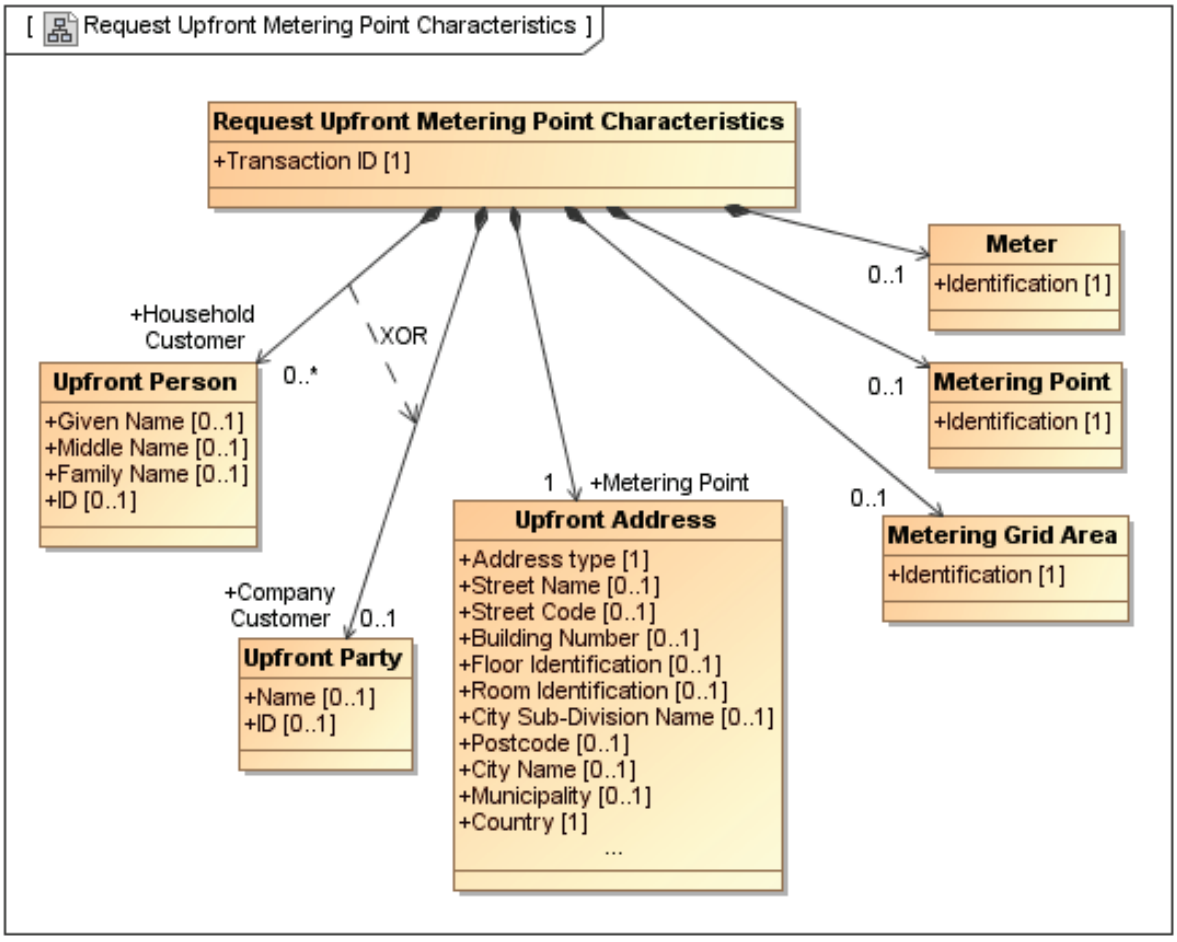



Figure 27 Upfront Request for Metering Point Characteristics

***Comment to the diagram:***

- In general three arguments (elements) should be specified in addition to Country, with the following exceptions:
  - It is enough with an unique Customer ID (VAT number or Social Security number)
  - A Building Number is always related to a Street Name and the combination of Street Name and Building Number is seen as one argument
- For verification of MP ID: Always specify at least MP ID, Person/Company ID and Country
- The reason for transaction (technical element not shown in this BRS) will tell if the document is related to a Customer move or a change of supplier

| Element definitions, Upfront Request for Metering Point Characteristics | |
|---|---|
| **«Business entity»** Upfront Request for Metering Point Characteristics | The information set to be sent the *Balance Supplier*, to the *Metering Point Administrator* when requesting Upfront Metering Point Characteristics |
| Transaction ID | The unique identification of this set of information, given by the *Balance Supplier* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| **«Business entity»** Meter | A physical device containing one or more registers |
| Identification | The unique identification of the *Meter* at the *Metering Point* in question |
| Company Customer Party | The Name and ID of the *Company Customer* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the *Person Customer* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |
| Metering Point Address | The address of a *Metering Point* |
| Address type | The type of address, i.e. *MP address* |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Street Code | A code identifying a street |

| | |
|---|---|
| Building Number | The number, expressed as text, of the building or house on this street at this address[7] |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address. |
| Postcode | The code specifying the postcode of this address |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |

**Element usage in the Nordic countries**

| **«Business entity»** Upfront Request for Metering Point Characteristics | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR proposal** | **Comments** |
|---|---|---|---|---|---|---|---|---|
| Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | D | See “Comments” above |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | ✓ | ✓ | D | See “Comments” above |
| **«Business entity»** Meter | | | | | | | | |
| Identification | | | | | ✓ | | D | Only used in Norway |
| Company Customer Party | | | | | | | D | Either *Company Customer Party* or *Household Customer Person*<br><br>There can only be one *Company Customer* |
| Name | | | | | ✓ | ✓ | D | See “Comments to the diagram” above |
| ID | | | | | ✓ | ✓ | D | See “Comments to the diagram” above |

[7] The Building Number may include a “Building Number Extension”, such as one or more character making the address unique.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Household Customer Person | | | | | | | | Either *Company Customer Party* or *Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers* |
| Given Name | | | | | ✓ | ✓ | D | See "Comments to the diagram" above |
| Middle Name | | | | | ✓ | | D | See "Comments to the diagram" above |
| Family Name | | | | | ✓ | ✓ | D | See "Comments to the diagram" above |
| ID | | | | | ✓ | | D | See "Comments to the diagram" above |
| Metering Point Address | | | | | | | | |
| Address type | | ✓ | ✓ | | | ✓ | R | |
| Street Name | | ✓ | ✓ | ✓ | ✓ | ✓ | D | See "Comments to the diagram" above |
| Street Code | | | ✓ | | | | D | Only used in DK<br>See "Comments to the diagram" above |
| Building Number | | ✓ | ✓ | ✓ | ✓ | ✓ | D | See "Comments to the diagram" above |
| Floor Identification | | ✓ | ✓ | | | | D | See "Comments to the diagram" above |
| Room Identification | | ✓ | ✓ | ✓ | ✓ | ✓ | D | See "Comments to the diagram" above |
| City Sub-Division Name | | ✓ | ✓ | | | | D | Only used in DK<br>See "Comments to the diagram" above |
| Postcode | | ✓ | ✓ | ✓ | ✓ | ✓ | D | See "Comments to the diagram" above |
| City Name | | ✓ | ✓ | | ✓ | ✓ | D | See "Comments to the diagram" above |
| Municipality | | | ✓ | | | | D | Only used in DK and SE<br>See "Comments to the diagram" above |
| Country | | ✓ | ✓ | | ✓ | ✓ | R | |
| Meter ID | | | | | ✓ | | D | See "Comments to the diagram" above |

### 7.2.3 Response Upfront Metering Point Characteristics (Class Diagram)

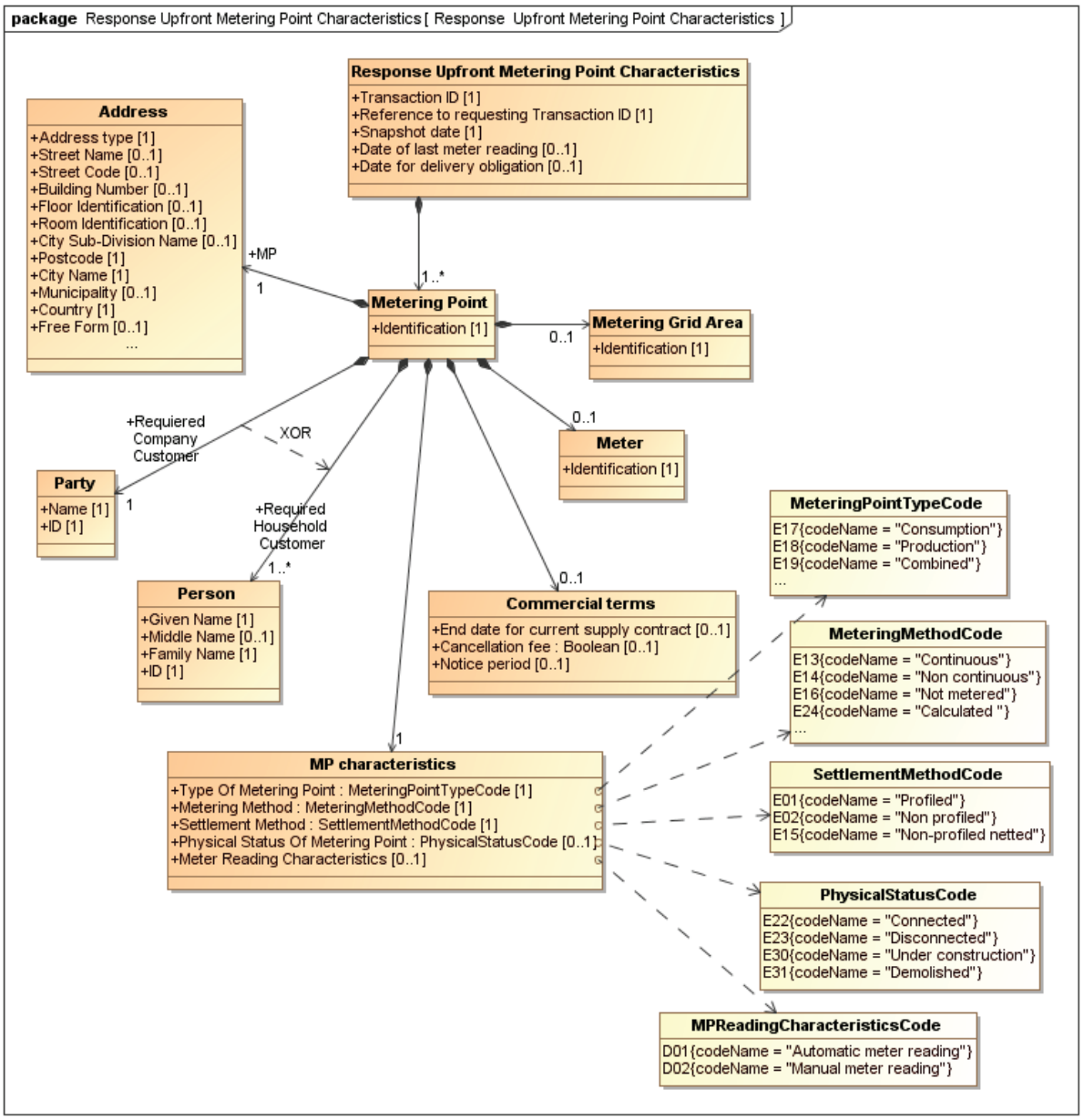



Figure 28 Response Upfront Metering Point Characteristics

***Comment to the diagram:***

- If not otherwise allowed by national rules: Person/Company ID shall only be returned in the response when submitted in the request
- If usage of the codes “Not metered” and “Calculated” must be further elaborated

| Element definitions | |
|---|---|
| **«Business entity»** Response Upfront Metering Point Characteristics | The information set sent by the *Metering Point Administrator* to the *Balance Supplier* when Responding Upfront Metering Point Characteristics |
| Transaction ID | The unique identification of this set of information, given by the *Balance Supplier* |
| Reference to requesting Transaction ID | The Transaction ID from the request, which this is the response for, given by the sender of the original document |
| Snapshot date | The date and time when the set of information was extracted from the Metering Point register |
| Date of last meter reading | The date when the latest meter reading took place |
| Date for delivery obligation | The date when the Supplier of Last Resort took over the *Metering point* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed. |
| Identification | The unique identification of the *Metering Point* the Notify Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* the Notify Metering Point Characteristics is intended for |
| **«Business entity»** Meter | A physical device containing one or more registers |
| Identification | The unique identification of the *Meter* at the *Metering Point* in question |
| Number of Digits | The number of digits in the *Meter*, without decimals |
| Metering Point Address | The address of the Metering Point. |
| Address type | The type of address, i.e. *MP address* |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Street Code | A code identifying a street |
| Building Number | The number, expressed as text, of the building or house on this street at this address[8] |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address. |
| Postcode | The code specifying the postcode of this address |

[8] The Building Number may include a "Building Number Extension", such as one or more character making the address unique.

| | |
|---|---|
| City Name | The name, expressed as text, of the city, town or village of this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Free Form | A free form representation of this address, expressed as text. |
| Metering Point characteristics | The relevant characteristics of this *Metering Point* |
| Type Of Metering Point | A code specifying the direction of the active energy flow in this Metering Point, such as consumption, production or combined |
| Metering Method | A code specifying how the energy volumes are established for this Metering Point, such as continuous- non-continuous- or not-metered |
| Settlement Method | A code specifying how the energy volumes are treated for settlement for this Metering Point, such as profiled or non-profiled[9] |
| Physical Status Of Metering Point | A code specifying if the installation of the Metering Point is physically connected to the grid |
| Meter Reading Characteristics | A code specifying how a Metered Data Collector collects data from the Meter for this Metering Point, such as Automatic or Manually |
| Commercial terms | Information related to the contract between the *Balance Supplier* and the *Customer* |
| End date for current supply contract | The end date for the current supply contract |
| Cancellation fee | A Boolean element (true/false) indicating if a cancellation fee applies if a supply contract is broken.<br><br>The content of this attribute must be defined more precisely. |
| Notice period | The notice period for ending the supply contract (number of days or months) |
| Company Customer Party | The Name and ID of the *Company Customer* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the *Person Customer* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |
| Address | See attributes under *MP Address* above |

[9] A profiled Metering Point is always a part of the reconciliation process as opposed to non-profiled.

| | |
|---|---|
| Address type | The type of address, i.e.:<br>• Customer address<br>• Invoicee address<br>• Maintenance information<br>• Voting address (only Denmark) |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Street Code | A code identifying a street |
| Building Number | The number, expressed as text, of the building or house on this street at this address[10] |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address. |
| Postcode | The code specifying the postcode of this address |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Post Office Box | The unique identifier, expressed as text, of a container commonly referred to as a box, in a post office or other postal service location, assigned to a person or organization, where postal items may be kept for this address. |
| Care Of | 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'. |
| Attention Of | The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for the attention of' or 'FAO' or 'ATTN' for this address. |
| Free Form | A free form representation of this address, expressed as text. |

[10] The Building Number may include a “Building Number Extension”, such as one or more character making the address unique.

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Response Upfront Metering Point Characteristics | **NordREG ebIX®** | | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | | | | | | R | |
| Reference to requesting Transaction ID | | | | | ✓ | | R | |
| Snapshot date | | | | | | | R | |
| Date of last meter reading | | | | | ✓ | | D | Only used in Norway (needed until AMR is fully implemented) |
| Date for delivery obligation | | | | | ✓ | | D | Only used in Norway (needed if retroactive moves allowed) |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | | ✓ | ✓ | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | ✓ | ✓ | | | R | |
| **«Business entity»** Meter | | | | | | | | |
| Identification | | | | | ✓ | | D | Only used in Norway |
| Number of digits | | | | | ✓ | | D | Only used in Norway (needed for manually read meters) |
| Metering Point Address | | | | | | | R | |
| Address type | | | | | | | R | Metering Point Address |
| Street Name | | | ✓ | ✓ | | | D | If exist |
| Street Code | | | | | | | D | Only used in DK |
| Building Number | | | ✓ | ✓ | | | D | If exist |
| Floor Identification | | | | | | | D | If exist |
| Room Identification | | | ✓ | ✓ | | | D | If exist |
| City Sub-Division Name | | | | | | | D | Only used in DK |
| Postcode | | | ✓ | ✓ | | | R | |
| City Name | | | | | | | D | If exist |
| Municipality | | | | | | | D | Only used in DK and SE |
| Country | | | | | | | R | |
| Free Form | | | | | | | D | If exist |
| Metering Point characteristics | | | | | | | | |
| Type Of Metering Point | | | | | | | R | |
| Metering Method | | | | | | | D | Required in Sweden |
| Settlement Method | | | | | | | D | Required in Denmark |
| Physical Status Of Metering Point | | | | | | | D | Required in Finland<br>Undecided in Denmark, Norway and Sweden |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Meter Reading Characteristics | | | | | | | D | Required in Norway |
| Commercial terms | | | | | | | | |
| End date for current supply contract | | | | | | | D | • Required in Finland if a valid fixed term contract<br>• Not decided in Sweden<br>• Denmark and Norway: Not wanted |
| Cancellation fee (true/false) | | | | | | | D | • Required in Finland<br>• Not decided in Sweden<br>• Denmark and Norway: Not wanted |
| Notice period (number of days or months) | | | | | | | D | • Proposed in Sweden and Finland for contracts with a specific notice period<br>• Denmark and Norway: Not wanted |
| Company Customer Party | | | | | | | D | Either *Company Customer Party* or *Household Customer Person*<br><br>There can only be one *Company Customer* |
| Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | D | If not otherwise allowed by national rules: Person/Company ID shall only be returned in the response when submitted in the request |
| Household Customer Person | | | | | | | | Either *Company Customer Party* or *Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers* |
| Given Name | | | | | | ✓ | R | |
| Middle Name | | | | | | | D | If exist |
| Family Name | | | | | | ✓ | R | |
| ID | | | | | | | D | If not otherwise allowed by national rules: Person/Company ID shall only be returned in the response when submitted in the request |

### 7.2.4 Reject Upfront Metering Point Characteristics (Class Diagram)

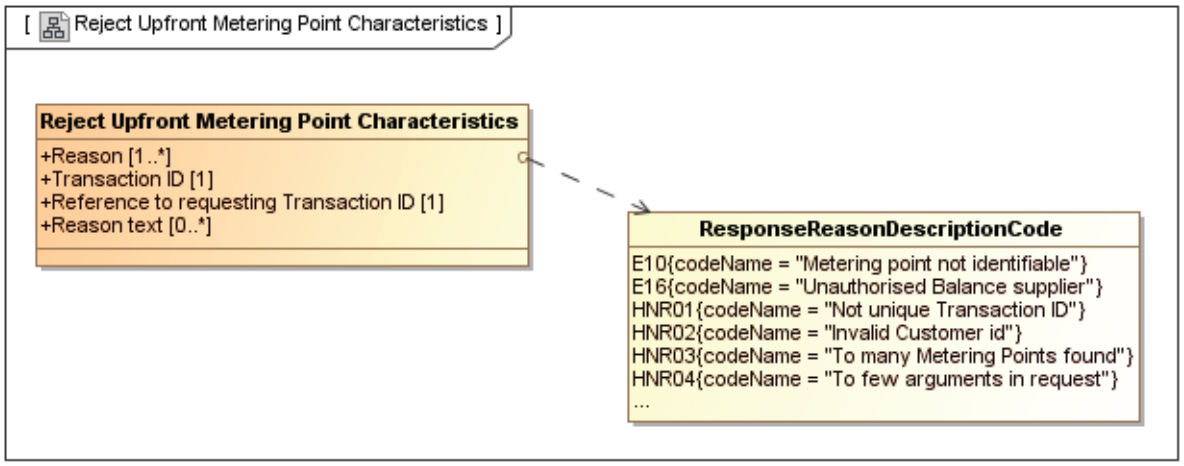



Figure 29 Reject Upfront Metering Point Characteristics

| Element definitions | |
|---|---|
| **«Business entity»** Reject Upfront Metering Point Characteristics | The information set sent from the *Metering Point Administrator* to the *Balance Supplier* when rejecting a Request for Upfront Metering Point Characteristics. |
| Reason | One or more codes specifying the reason for the rejection of the Requested Upfront Metering Point Characteristics. |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request, which this is the response for, given by the sender of the original document |
| Reason text | A textual description of the reason for the rejection |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Reject Upfront Metering Point Characteristics | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | |
| Reason | | ✓ | ✓ | | | | R | |
| Transaction ID | | ✓ | ✓ | | | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | | | R | |
| Reason text | | | | | | ✓ | O | |

## 7.3 Change of Supplier

### 7.3.1 Change of Supplier (Sequence Diagram)

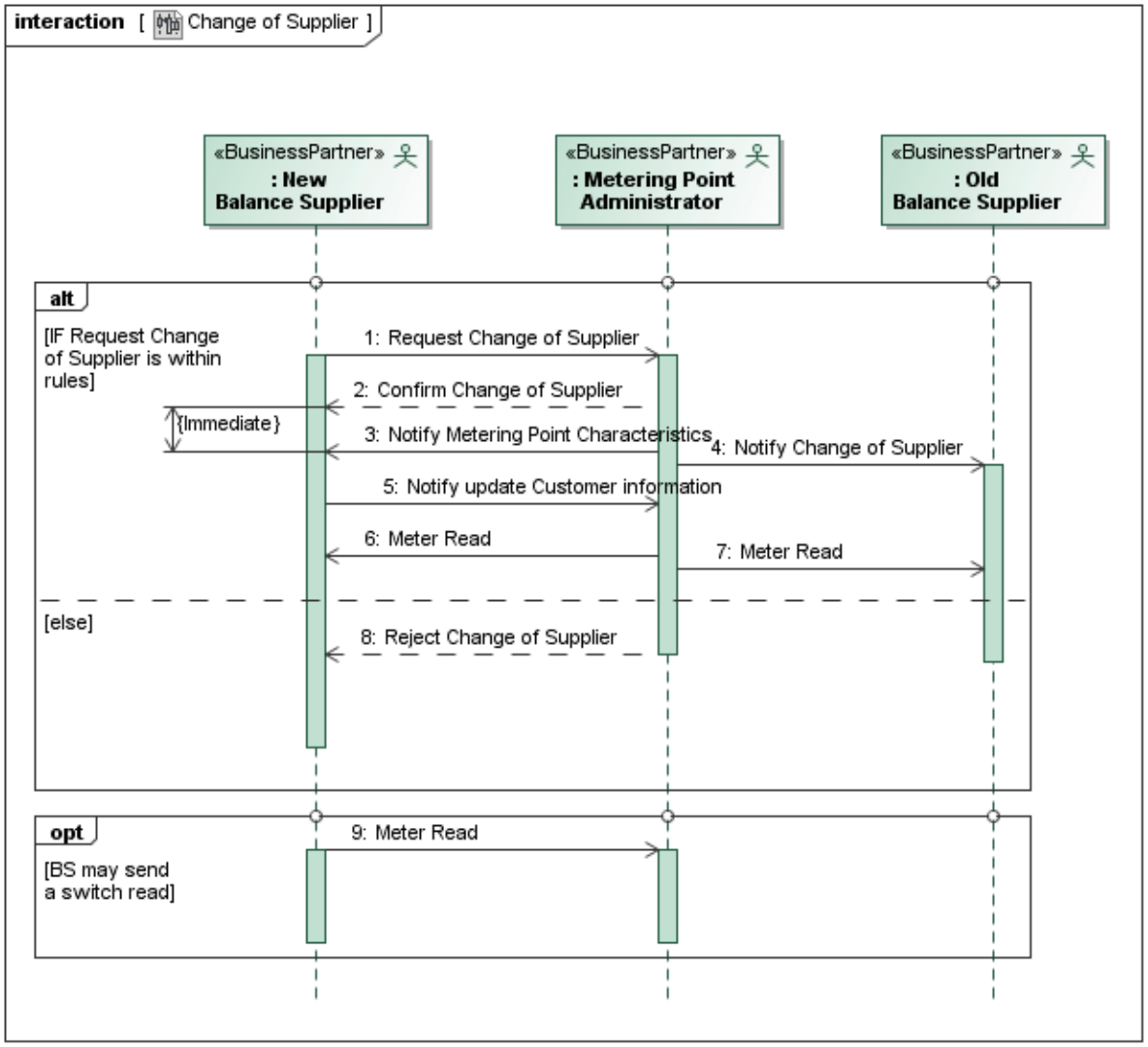



**Figure 30** Sequence diagram: Change of Supplier

### 7.3.2 Request Change of Supplier (Class Diagram)

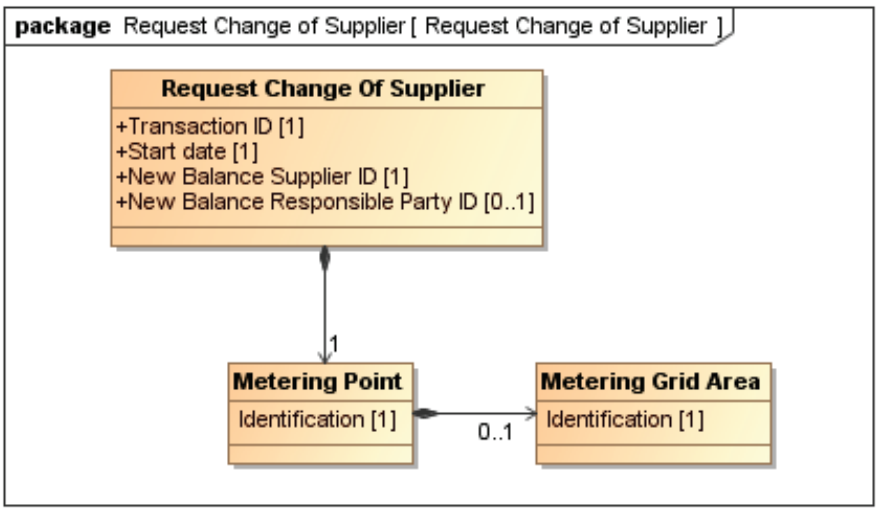



**Figure 31** Request Change of Supplier

| **Element definitions** | |
|---|---|
| **«Business entity»** Request Change of Supplier | The information set to be sent by a *Balance Supplier* to the *Metering Point Administrator* when requesting a Change of Supplier. |
| Transaction ID | The unique identification of this set of information given by the requesting *New Balance Supplier* |
| Start date | The requested date for the *New Balance Supplier* to take over the supply for this *Metering Point* |
| New Balance Supplier ID | The unique identification of the requested *New Balance Supplier* |
| New Balance Responsible Party ID | The unique identification of the requested *New Balance Responsible Party*, as stated by the *New Balance Supplier* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* the Notify Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* the Notify Metering Point Characteristics is intended for |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Request Change of Supplier | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Start date | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| New Balance Supplier ID | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| New Balance Responsible Party ID | ✓ | ✓ | ✓ | | | ✓ | D | • Required in DK, NO and SE<br>• Not used in FI |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.3.3 Confirm Change of Supplier (Class Diagram)

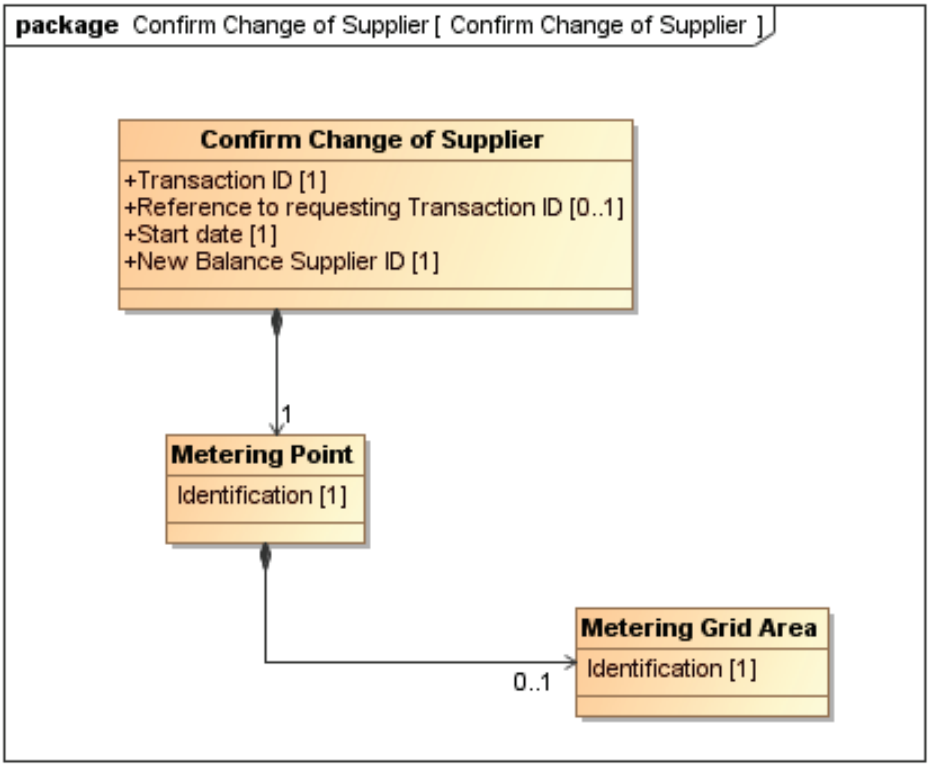



Figure 32 Confirm Change of Supplier

| Element definition | |
|---|---|
| **«Business entity»** Confirm Change of Supplier | The information set to be sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to confirm this Change of Supplier |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| Start date | The confirmed date for the *New Balance Supplier* to take over the supply for this *Metering Point* |
| New Balance Supplier ID | The unique identification of the requesting *New Balance Supplier* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Confirm Change of Supplier | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | D | Not required when sent as a confirmation to a Unrequested change of supplier, otherwise required |
| Start date | ✓ | ✓ | | ✓ | ✓ | ✓ | R | |
| New Balance Supplier ID | | ✓ | | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.3.4 Reject Change of Supplier (Class Diagram)

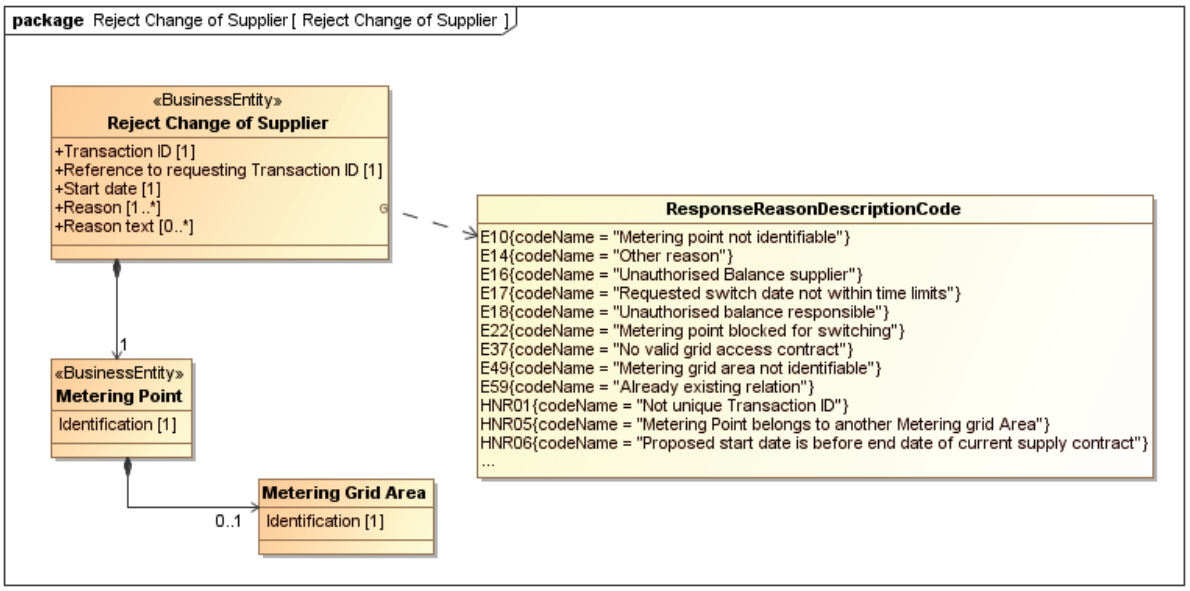



Figure 33 Reject Change of Supplier

| Element definitions | |
|---|---|
| **«Business entity»** Reject Change of Supplier | The information set sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to reject this Change of Supplier |
| Reason | One or more codes specifying the reason for the rejection of the requested Change of Supplier |
| Reason text | A textual description of the reason for the rejection |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| Start date | The requested date for the Change of Supplier that is rejected |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries |
|---|

| «Business entity» Reject Change of Supplier | NordREG | ebIX® | DK | FI | NO | SE | HNR Proposal | Comments |
|---|---|---|---|---|---|---|---|---|
| Reason (coded) | ✓ | ✓ | ✓ | | ✓ | ✓ | R | |
| Reason text | | | | | | ✓ | D | Requiered for reason code "**E14** Other reason" |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Start date | | ✓ | | | | | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | | ✓ | D | FI, SE: Finnish and Swedish speciality (required if specified in the request) until all unique MP IDs are implemented |

### 7.3.5 Notify Change of Supplier to Old Balance Supplier (Class Diagram)

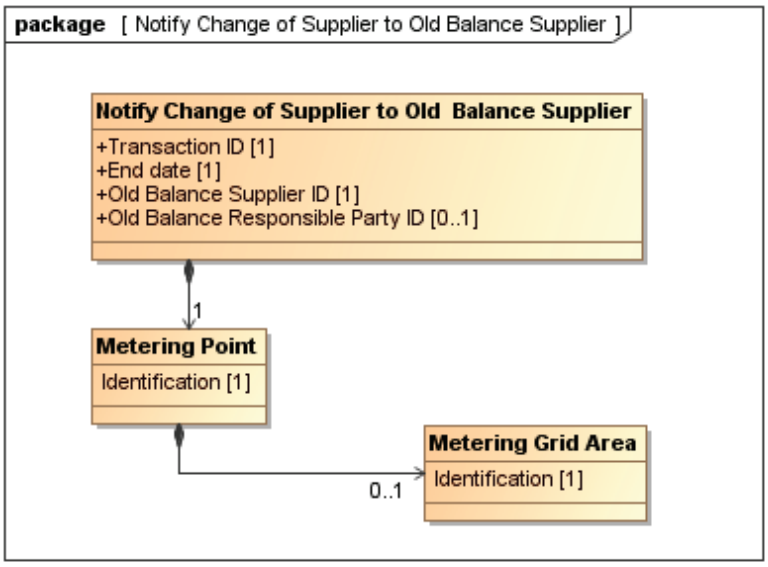



Figure 34 Notify Change of Supplier to Old Balance Supplier

| Element definitions | |
|---|---|
| **«Business entity»** Notify Change of Supplier to Old Balance Supplier | The information set sent by the *Metering Point Administrator* to the *Old Balance Supplier* to notify this Change of Supplier |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| End date | The date from when *the Old Balance Supplier* no longer has the supply for this *Metering Point* |
| Old Balance Supplier ID | The unique identification of the *Old Balance Supplier* that is supplying the *Metering Point* until the date for which this change of Supplier take place |
| Old Balance Responsible Party ID | The unique identification of the *Old Balance Responsible Party* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the Metering Point in question |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Notify Change of Supplier to Old Balance Supplier | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | | ✓ | R | |
| End date | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Old Balance Responsible Party ID | | ✓ | | | | ✓ | D | • Required in DK, NO and SE<br>• Not used in FI |
| Old Balance Supplier ID | | ✓ | | ✓ | | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.3.6 Notify Metering Point Characteristics (Class Diagram)

The Notify Metering Point Characteristics class diagram is elaborated in chapter 7.7

### 7.3.7 Notify update Customer information (Class Diagram)

The Notify update Customer information class diagram is elaborated in chapter 7.9

### 7.3.8 Meter Read (Notify Validated Data for Billing Energy) (Class Diagram)

The Switch Meter Read (Notify Validated Data for Billing Energy) is sent from the *Metered Data Responsible* to the *New* and the *Old Balance* Supplier. The content of this document is elaborated in chapter 7.14.

### 7.3.9 Meter Read (Request Update of Metered Data) (Class Diagram)

The Meter Read (Request Update of Metered Data) may be sent from the *Balance* Supplier to the *Metered Data Responsible*. The content of this document is elaborated in chapter 7.15.

## 7.4 End of supply

### 7.4.1 End of Supply (Sequence Diagram)

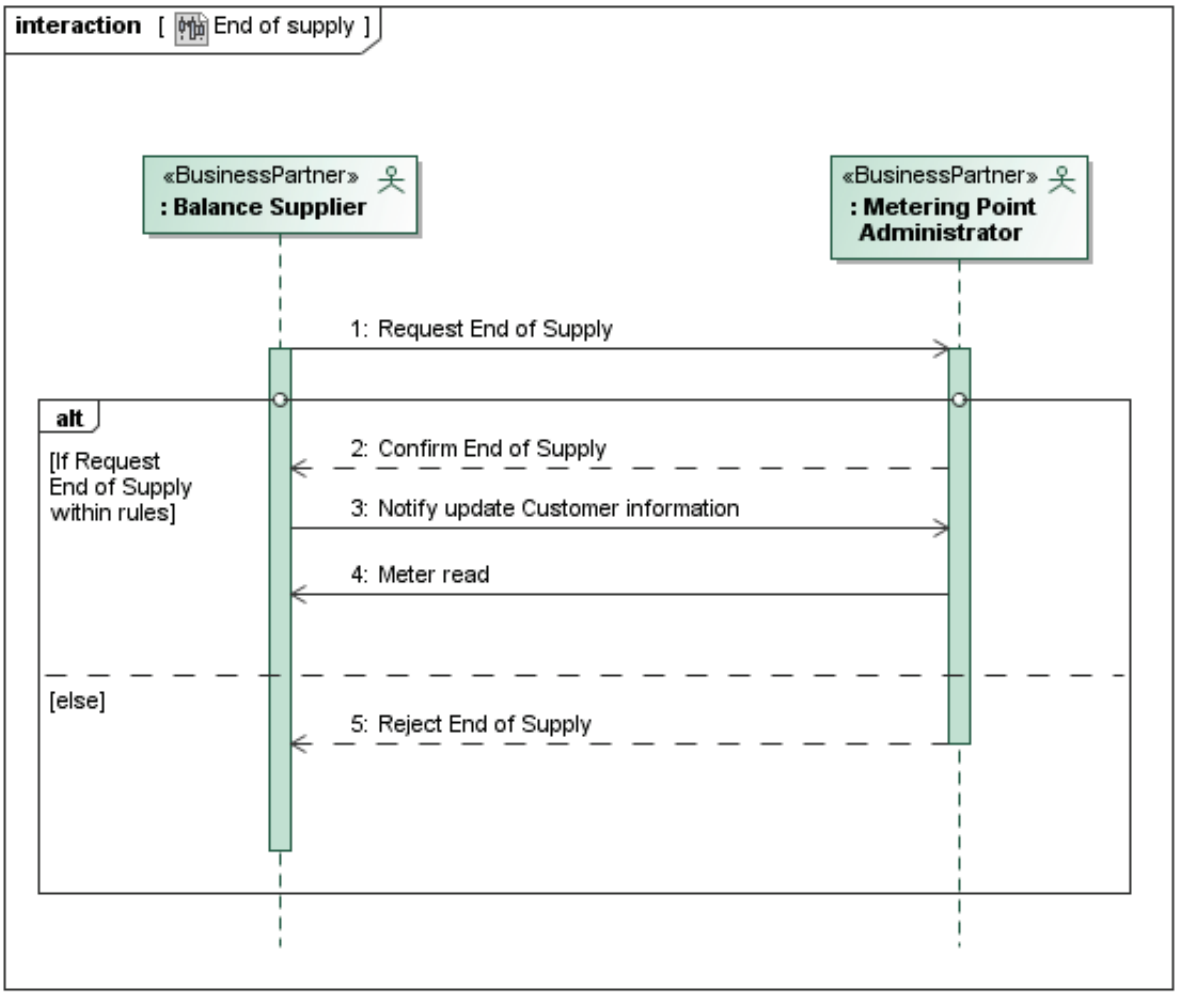



**Figure 35** Sequence diagram: End of Supply

### 7.4.2 Request End of Supply (Class Diagram)

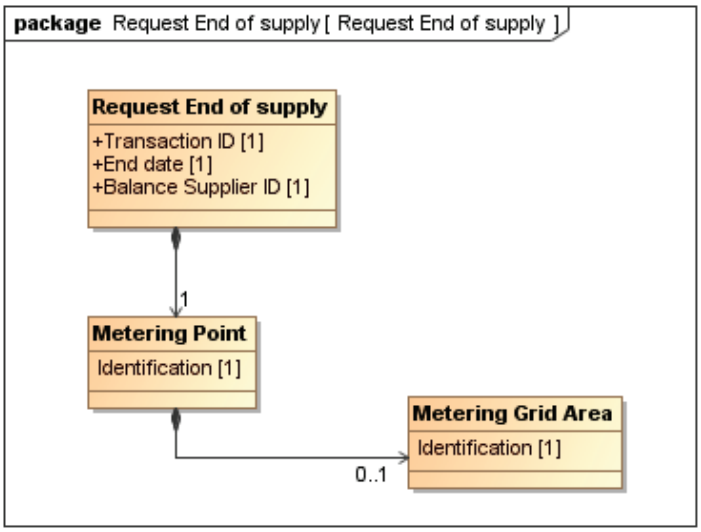



**Figure 36** Request End of Supply

| **Element definitions** | |
|---|---|
| **«Business entity»** Request End of Supply | The information set sent by a *Balance Supplier* to the *Metering Point Administrator* when requesting End of Supply |
| Transaction ID | The unique identification of this set of information given by the requesting *Balance Supplier* |
| End date | The date from when the *Balance Supplier* requests to end supply for this *Metering Point* |
| Balance Supplier ID | The unique identification of the requesting *Balance Supplier* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»**<br>Request End of Supply | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| End date | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Balance Supplier ID | | ✓ | | ✓ | ✓ | ✓ | R | |
| **«Business entity»**<br>Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»**<br>Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.4.3 Confirm End of Supply (Class Diagram)

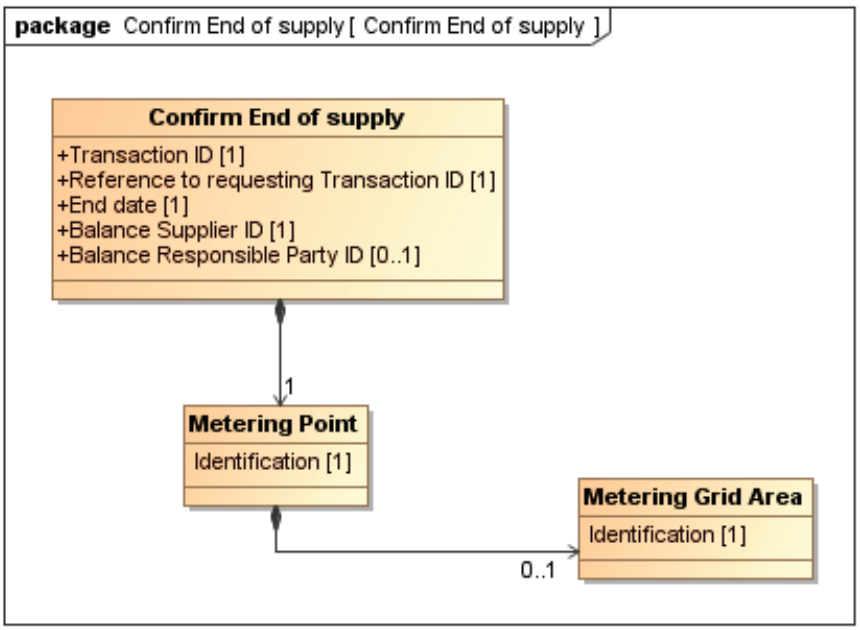



Figure 37 Confirm End of Supply

| Element definitions | |
|---|---|
| **«Business entity»** Confirm End of Supply | The information set sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to confirm End of Supply |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| End date | The date from when the *Balance Supplier* no longer is supplying this *Metering Point* |
| Balance Supplier ID | The unique identification of the *Balance Supplier* ending its supply that no longer will be supplying the *Metering Point* |
| Balance Responsible Party ID | The unique identification of the *Balance Responsible Party* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Confirm End of Supply | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| End date | | ✓ | | | ✓ | ✓ | R | |
| Balance Supplier ID | | ✓ | | ✓ | ✓ | ✓ | R | |
| Balance Responsible Party ID | | ✓ | | | | ✓ | D | • Required in DK, NO and SE<br>• Not used in FI |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.4.4 Reject End of Supply (Class Diagram)

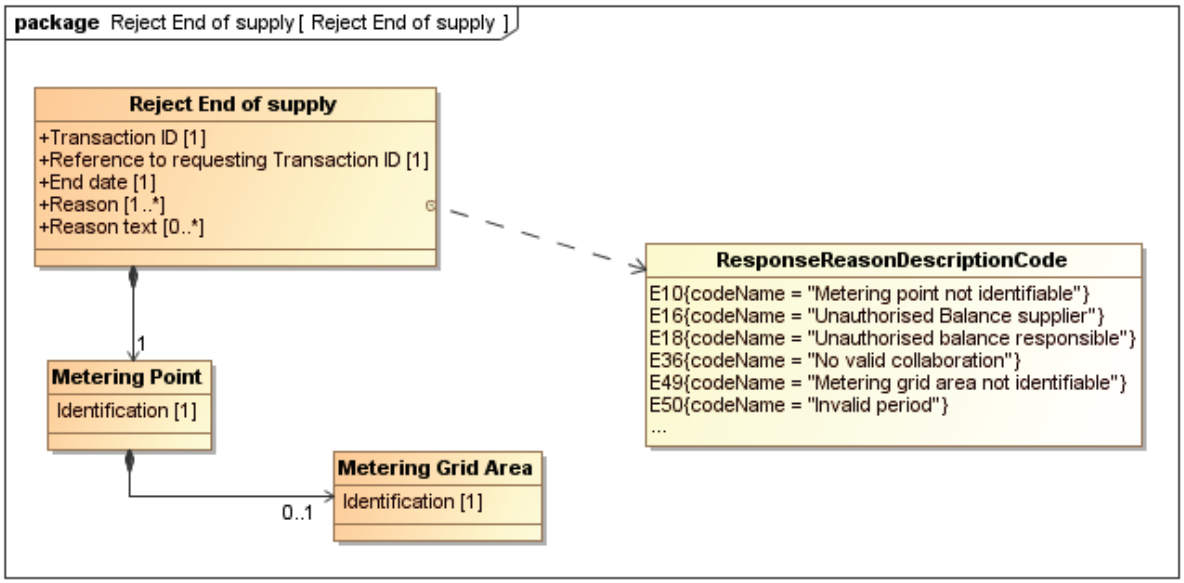



Figure 38 Reject End of Supply

| Element definitions | |
|---|---|
| **«Business entity»** Reject End of Supply | The information set sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to reject this End of Supply |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| End date | The requested date for this End of Supply that is rejected |
| Reason | One or more codes specifying the reason for the rejection of the requested End of Supply |
| Reason text | A textual description of the reason for the rejection |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Reject End of Supply** | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| End date | | ✓ | | | | | R | |
| Reason (coded) | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Reason text | | | | ✓ | ✓ | ✓ | O | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.4.5 Meter Read (Notify Validated Data for Billing Energy) (Class Diagram)

The Meter Read (Notify Validated Data for Billing Energy) class diagram is elaborated in chapter 7.14.

## 7.5 Customer Move-in

### 7.5.1 Customer Move-in (Sequence Diagram)

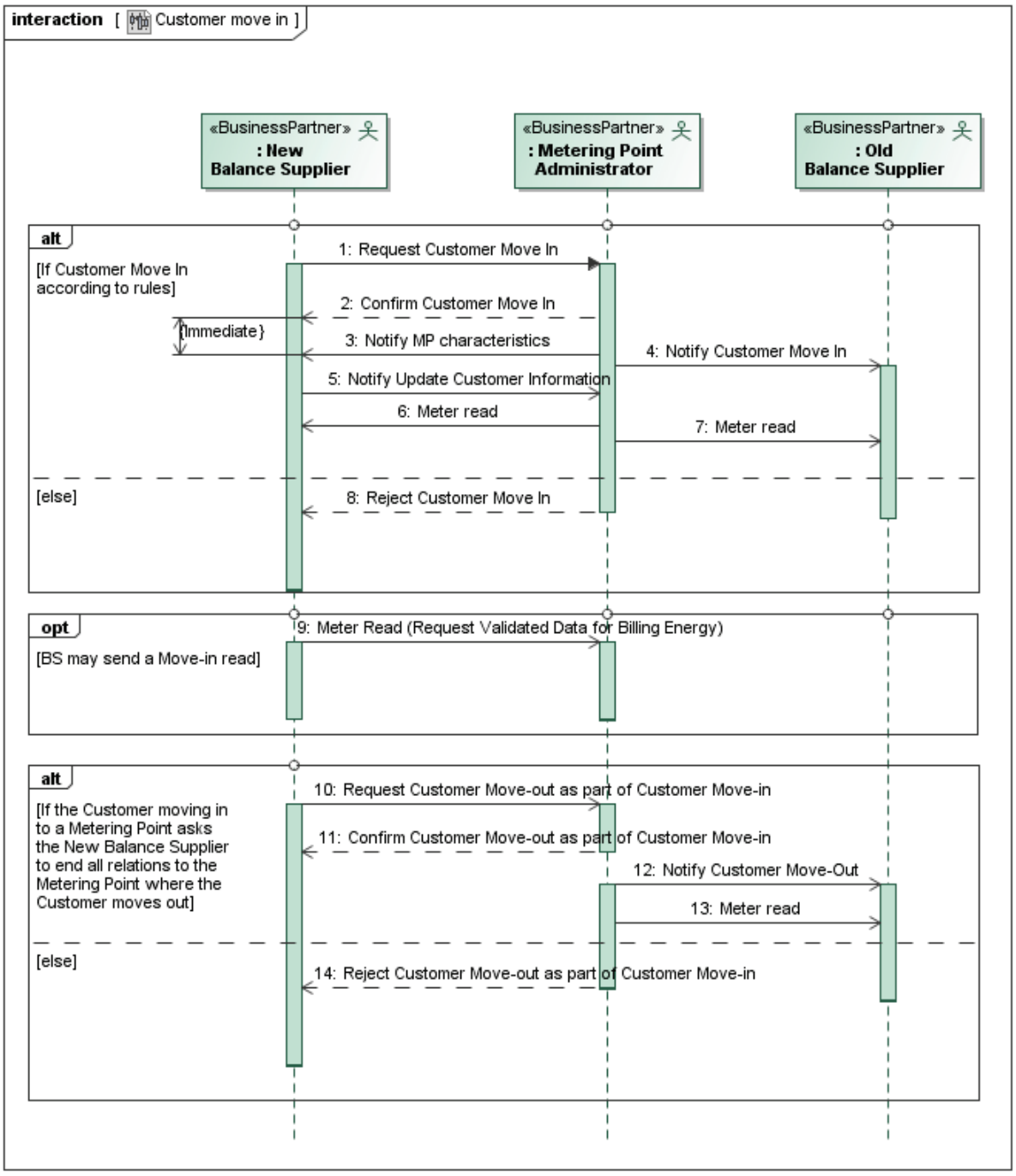



**Figure 39 Sequence diagram:** Customer Move-in

### 7.5.2 Request Customer Move-in (Class Diagram)

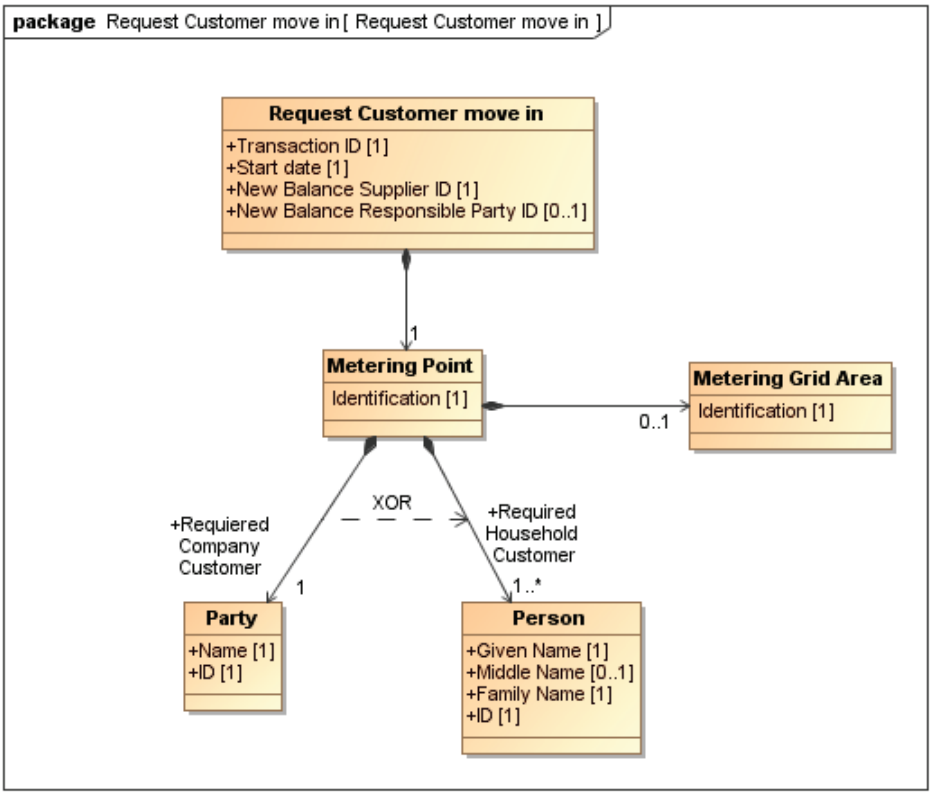



**Figure 40** Request Customer Move-in

| Element definitions | |
|---|---|
| **«Business entity»** Request Customer Move-in | The information set sent by *a Balance Supplier* to the *Metering Point Administrator* when requesting a Customer Move-in |
| Transaction ID | The unique identification of this set of information given by the requesting *Balance Supplier* |
| Start date | The requested date for the *New Balance Supplier* to take over the supply for this *Metering Point* |
| New Balance Supplier ID | The unique identification of the requested *New Balance Supplier* |
| New Balance Responsible Party ID | The unique identification of the requested *New Balance Responsible Party*, as stated by the *New Balance Supplier* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* the *Customer* moves in to |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* the Notify Metering Point Characteristics is intended for |
| Company Customer Party | The Name and ID of the *Company Customer* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the *Person Customer* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Request Customer Move-in** | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Start date | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| New Balance Supplier ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| New Balance Responsible Party ID | | ✓ | ✓ | | | ✓ | D | Not used in Finland<br>Required in SE, NO, DK |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |
| Company Customer Party | | | | | | | D | Either *Company Customer Party* or *Household Customer Person*<br><br>There can only be one *Company Customer* |
| Name | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Household Customer Person | | | | | | | D | Either *Company Customer Party* or *Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers* |
| Given Name | | | | | | | R | |
| Middle Name | | | | | | | D | |
| Family Name | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |

### 7.5.3 Confirm Customer Move-in (Class Diagram)

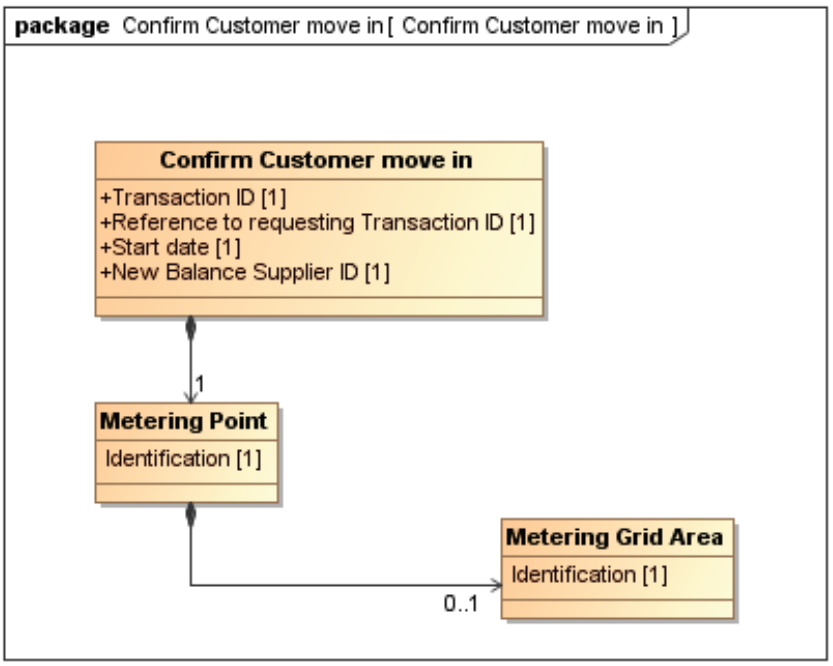



Figure 41 Confirm Customer Move-in

| Element definitions | |
|---|---|
| **«Business entity»** Confirm Customer Move-in | The information set, sent by the Metering Point Administrator to the requesting Balance Supplier, to confirm this Customer Move-in. |
| Transaction ID | The unique identification of this set of information given by the Metering Point Administrator. |
| Reference to requesting Transaction ID | The Transaction ID from the request, given by the requesting Balance Supplier. |
| Start date | The confirmed date for this for the New Balance Supplier to take over the supply for this Metering Point. |
| New Balance Supplier ID | The unique identification of the requesting New Balance Supplier. |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point this Move-in is confirmed for. |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* the Notify Metering Point Characteristics is intended for |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Confirm Customer Move-in** | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Start date | | ✓ | | ✓ | ✓ | ✓ | R | |
| New Balance Supplier ID | | ✓ | | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.5.4 Reject Customer Move-in (Class Diagram)

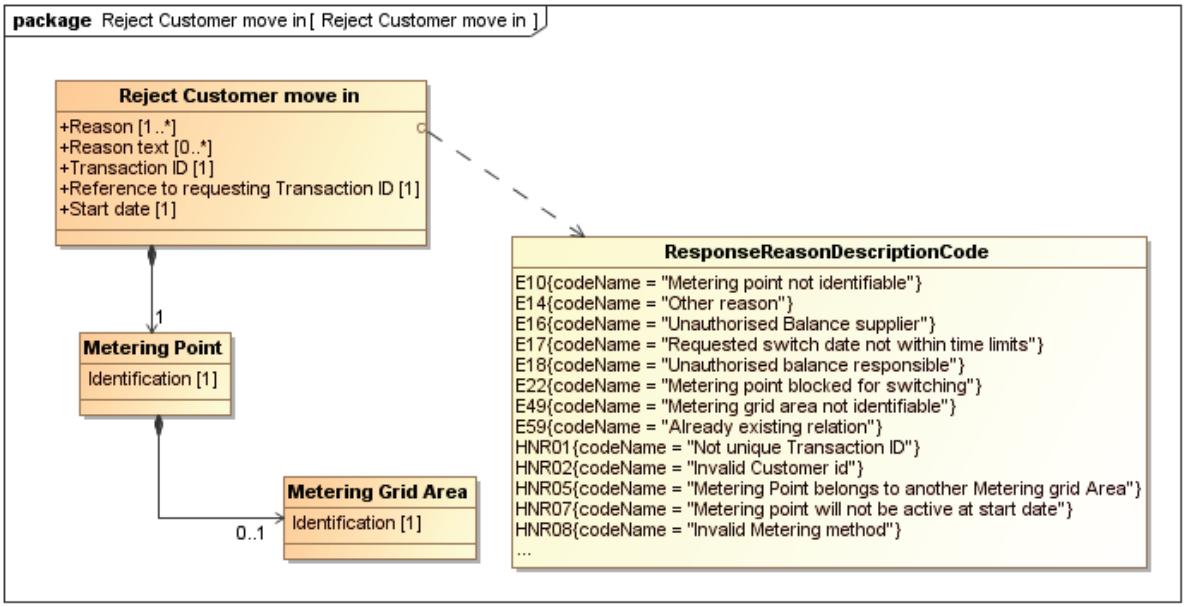



Figure 42 Reject Customer Move-in

| Element definitions | |
|---|---|
| **«Business entity»**<br>Reject Customer Move-in | The information set sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to reject this Customer Move-in. |
| Reason | A code specifying the reason for the rejection of the requested Move-in |
| Reason text | A textual description of the reason for the rejection |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| Start date | The requested date for the Move-in that is rejected. |
| **«Business entity»**<br>Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* this Move-in is rejected for |
| **«Business entity»**<br>Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* were the MP is situated |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Reject Customer Move-in** | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments**<br>**FI:** Not used in Finland. Negative APERAK is used if there is something wrong in the notification. |
| Reason (coded) | | ✓ | ✓ | | ✓ | ✓ | R | |
| Reason text | | | | | ✓ | ✓ | D | Requiered for reason code "**E14** Other reason" |
| Transaction ID | | ✓ | ✓ | | ✓ | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Start date | | ✓ | | | | | | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.5.5 Notify Move-in to Old Balance Supplier (Class Diagram)

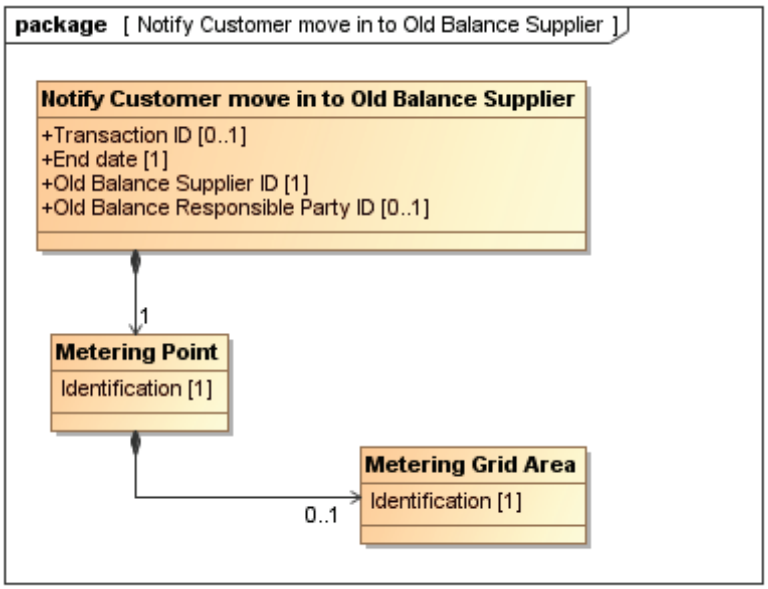



Figure 43 Notify Move-in to Old Balance Supplier

| Element definitions | |
|---|---|
| **«Business entity»** Notify Move-in to Old Balance Supplier | The information set sent by the Metering Point Administrator to the Old Balance Supplier to notify this Move-in. |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| End date | The date from when *the Old Balance Supplier* no longer has the supply for this *Metering Point* |
| Old Balance Supplier ID | The unique identification of the *Old Balance Supplier* that is supplying the *Metering Point* until the date for which this change take place |
| Old Balance Responsible Party ID | The unique identification of the *Old Balance Responsible Party* that no longer has the balance responsibility for this Metering Point |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the Metering Point in question |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Notify Move-in to Old Balance Supplier | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | | ✓ | R | |
| End date | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Old Balance Supplier ID | | ✓ | | ✓ | | ✓ | R | |
| Old Balance Responsible Party ID | | ✓ | | | | ✓ | D | • Required in DK, NO and SE<br>• Not used in FI |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.5.6 Request Customer Move-out as part of Customer Move-in (Class Diagram)

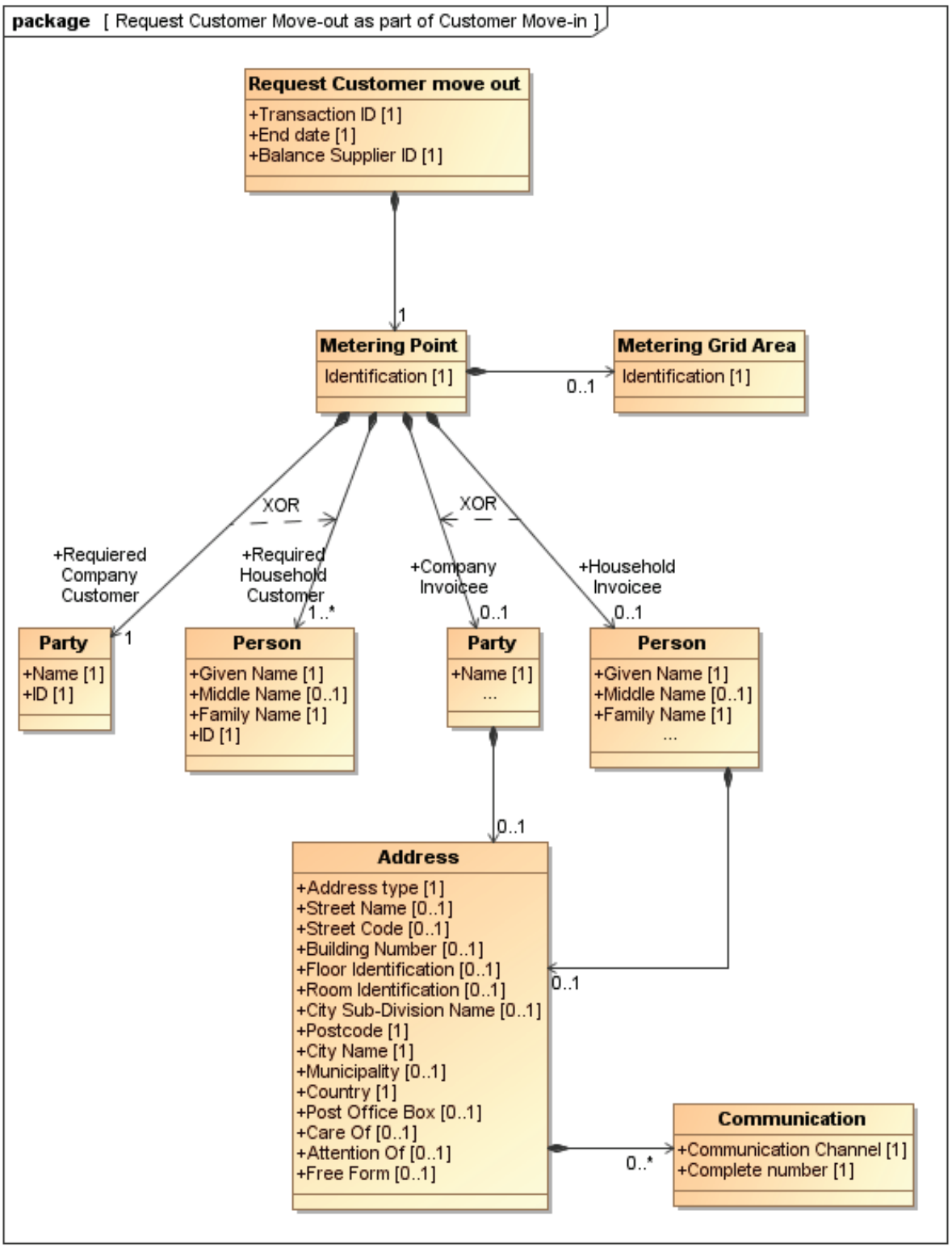



**Figure 44** Request Customer Move-out as part of Customer Move-in

| Element definitions | |
|---|---|
| **«Business entity»** Request Customer Move-out as part of Customer Move-in | The information set to be sent by the *New Balance Supplier* of a Customer, moving in to a *New Metering Point*, to the *Metering Point Administrator* responsible for the *Metering Point* the *Customer* is moving out of |
| Transaction ID | The unique identification of this set of information given by the requesting *Balance Supplier* |
| End date | The date from when the *Balance Supplier* requests to end supply for this *Metering Point* |
| Requesting Balance Supplier ID | The unique identification of the requesting *Balance Supplier* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Company Customer Party | The Name and ID of the *Company Customer* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the *Person Customer* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |
| Company Invoicee | The Name and ID of the Company Invoicee that has the contract for supply of energy for this Metering Point |
| Name | A name, expressed as text, for this party |
| Household Invoicee | The Name and ID of the Person Invoicee that has the contract for supply of energy for this Metering Point |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |

| | |
|---|---|
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| Invoice Address | Address information for invoice related to the Metering Point where supply ends |
| Address type | The type of address, i.e. Invoicee address |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Street Code | A code identifying a street |
| Building Number | The number, expressed as text, of the building or house on this street at this address11 |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address. |
| Postcode | The code specifying the postcode of this address |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Post Office Box | The unique identifier, expressed as text, of a container commonly referred to as a box, in a post office or other postal service location, assigned to a person or organization, where postal items may be kept for this address. |
| Care Of | 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'. |
| Attention Of | The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for the attention of' or 'FAO' or 'ATTN' for this address. |
| Free Form | A free form representation of this address, expressed as text. |
| Communication | |
| Communication Channel | The code specifying the channel or manner in which a communication can be made, such as telephone or email. |
| Complete number | A text string of characters that make up the complete number for this communication. |

[11] The Building Number may include a “Building Number Extension”, such as one or more character making the address unique.

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Request Customer Move-out as part of Customer Move-in | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | | | ✓ | | | R | |
| End date | | | | ✓ | | | R | |
| Requesting Balance Supplier ID | | | | ✓ | | | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | | | ✓ | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | | | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |
| Company Customer Party | | | | | | | D | Either *Company Customer Party* or *Household Customer Person*<br><br>There can only be one *Company Customer* |
| Name | | | | | | | R | |
| ID | | | | | | | R | |
| Household Customer Person | | | | | | | | Either *Company Customer Party* or *Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers* |
| Given Name | | | | | | | R | |
| Middle Name | | | | | | | D | |
| Family Name | | | | | | | R | |
| ID | | | | | | | R | |
| Company Invoicee | | | | | | | D | Either *Company Invoicee* or *Household Invoicee* |
| Name | | | | | | ✓ | R | |
| Household Invoicee | | | | | | | D | Either *Company Invoicee* or *Household Invoicee*<br><br>If different from customer. |
| Given Name | | | | | | ✓ | R | |
| Middle Name | | | | | | | D | |
| Family Name | | | | | | ✓ | R | |
| Address | | | | | | | | |
| Address type | | | | | | | R | |
| Street Name | | | | | | | D | If exist |
| Street Code | | | | | | | D | Only used in DK |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Building Number | | | | | | | D | If exist |
| Floor Identification | | | | | | | D | If exist |
| Room Identification | | | | | | | D | If exist |
| City Sub-Division Name | | | | | | | D | Only used in DK |
| Postcode | | | | | | | R | |
| City Name | | | | | | | D | If exist |
| Municipality | | | | | | | D | Only used in DK and SE |
| Country | | | | | | | R | |
| Post Office Box | | | | | | | D | If exist |
| Care Of | | | | | | | D | If exist |
| Attention Of | | | | | | | D | If exist |
| Free Form | | | | | | | D | If exist |
| Communication | | | | | | | | May be repeated |
| Communication Channel | | | | | | | D | If exist |
| Complete number | | | | | | | D | If exist |

### 7.5.7 Confirm Customer Move-out as part of Customer Move-in (Class Diagram)

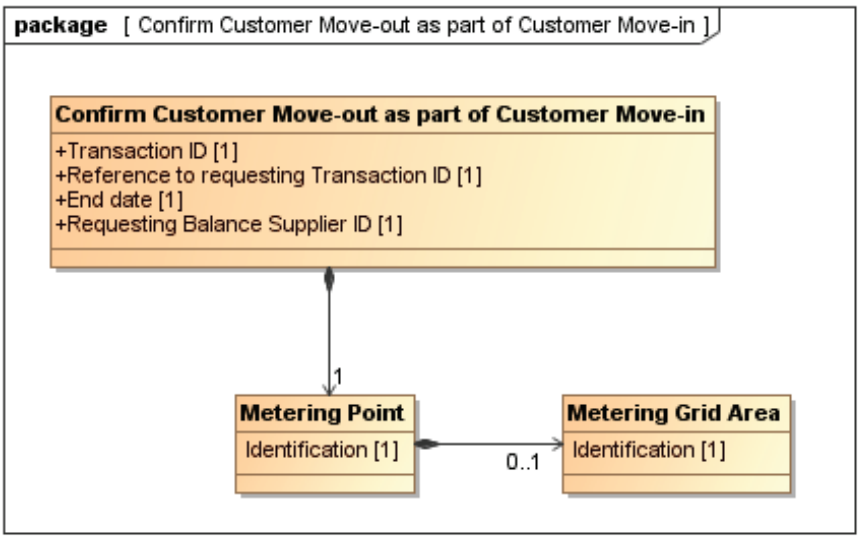



**Figure 45** Confirm Customer Move-out as part of Customer Move-in

| Element definition | |
|---|---|
| **«Business entity»** Confirm Customer Move-out as part of Customer Move-in | The information set to be sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to confirm this Customer Move-out as part of Customer Move-in |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the *Requesting Balance Supplier* |
| End date | The confirmed date for the Customer Move-out as part of Customer Move-in |
| Requesting Balance Supplier ID | The unique identification of the *Requesting Balance Supplier* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries |
|---|

| **«Business entity»** Confirm Customer Move-out as part of Customer Move-in | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
|---|---|---|---|---|---|---|---|---|
| Transaction ID | | | | | | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| End date | | | | | | | R | |
| Requesting Balance Supplier ID | | | | | | | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | | | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | | | | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.5.8 Reject Customer Move-out as part of Customer Move-in (Class Diagram)

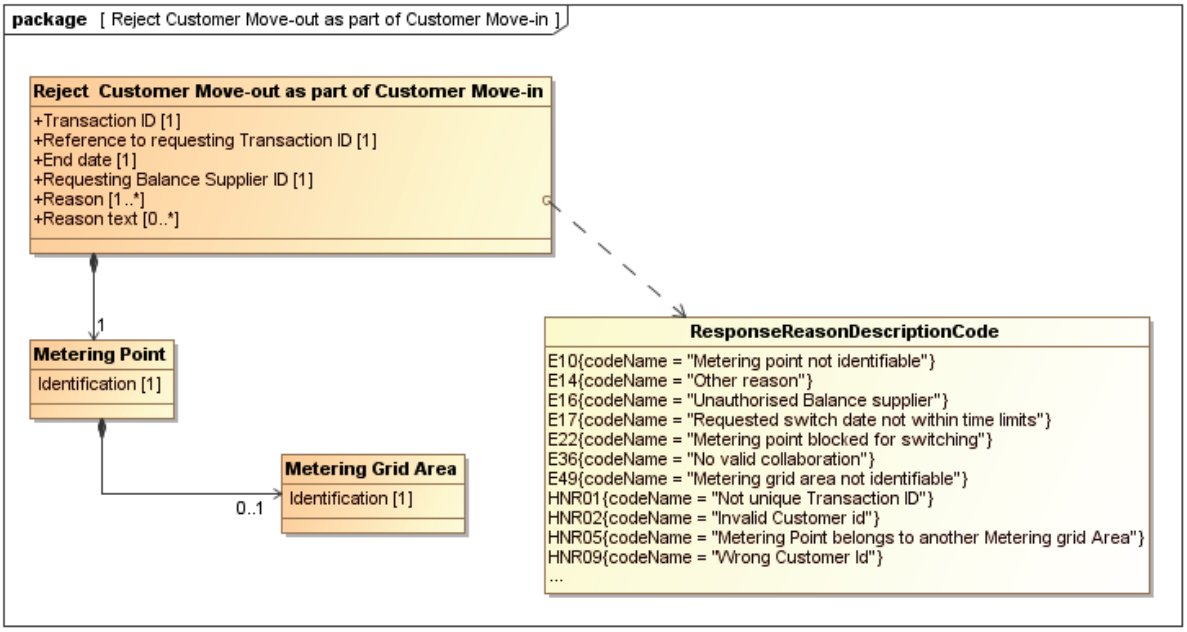



**Figure 46** Reject Customer Move-out as part of Customer Move-in

| Element definitions | |
|---|---|
| **«Business entity»** Reject Customer Move-out as part of Customer Move-in | The information set sent by the *Metering Point Administrator* to the *Requesting Balance Supplier* to reject this Customer Move-out as part of Customer Move-in |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the *Requesting Balance Supplier* |
| End date | The requested date for the Customer Move-out as part of Customer Move-in that is rejected |
| Requesting Balance Supplier ID | The unique identification of the *Requesting Balance Supplier* |
| Reason | One or more codes specifying the reason for the rejection of the requested Customer Move-out as part of Customer Move-in |
| Reason text | A textual description of the reason for the rejection |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Reject Customer Move-out as part of Customer Move-in | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | |
| Transaction ID | | | | | | | R | |
| Reference to requesting Transaction ID | | | | | | | R | |
| End date | | | | | | | R | |
| Requesting Balance Supplier ID | | | | | | | R | |
| Reason (coded) | | | | | | | R | |
| Reason text | | | | | | | D | Requiered for reason code "**E14** Other reason" |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | | | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | | | | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.5.9 Notify Customer Move-out (Class Diagram)

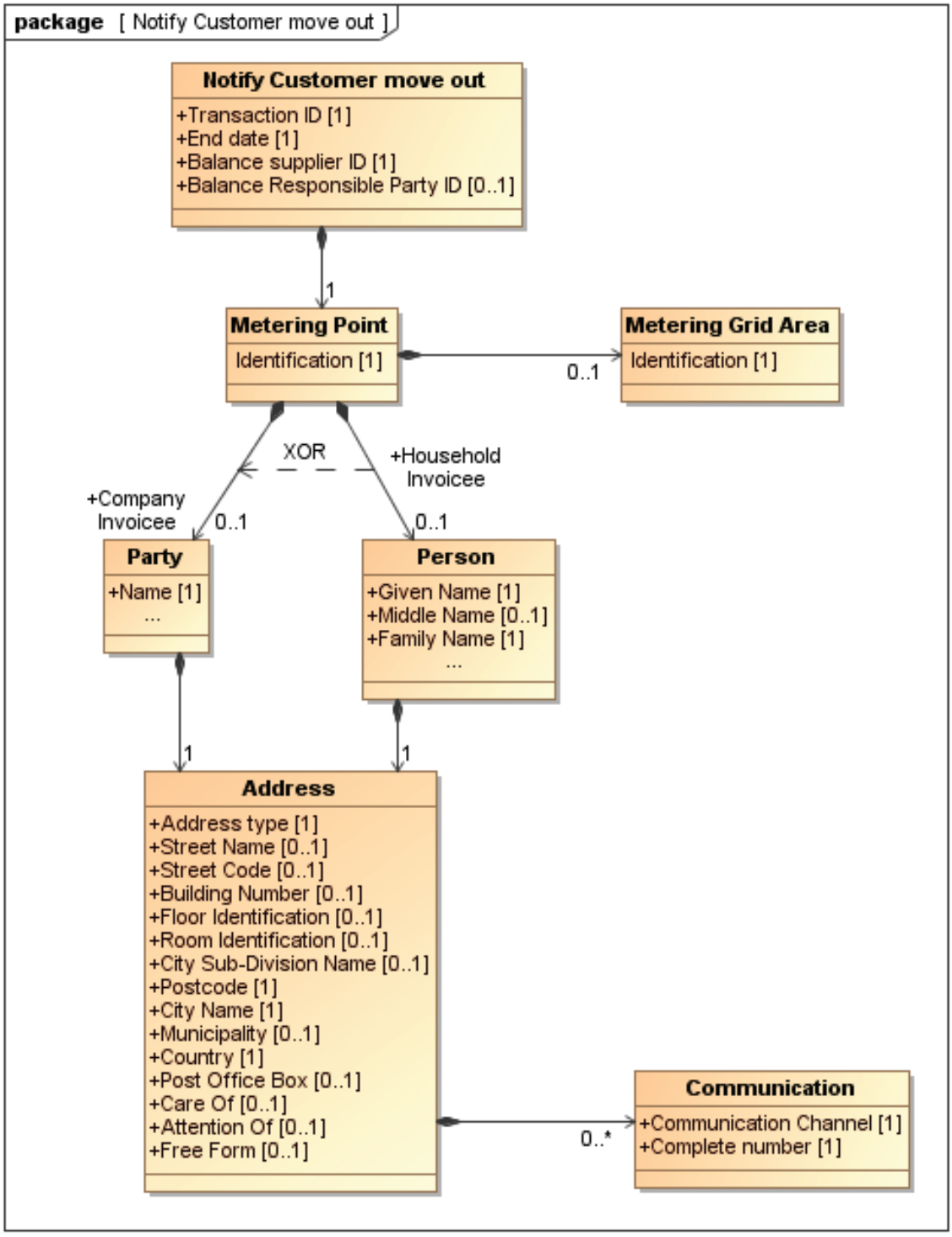



**Figure 47** Notify Customer Move-out

| Element definitions | |
|---|---|
| **«Business entity»** Notify Customer Move-out | The information set sent by the *Metering Point Administrator* to the *Old Balance Supplier* to notify this Customer Move-out. |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| End date | The date from when *the Od Balance Supplier* no longer has the supply for this *Metering Point* |
| Balance Supplier ID | The unique identification of the *Balance Supplier* that is supplying the *Metering Point* until the date for which this Move-out take place |
| Balance Responsible Party ID | The unique identification of the *Old Balance Responsible Party* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the Metering Point in question |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Company Invoicee | The Name and ID of the Company Invoicee that has the contract for supply of energy for this Metering Point |
| Name | A name, expressed as text, for this party |
| Household Invoicee | The Name and ID of the Person Invoicee that has the contract for supply of energy for this Metering Point |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| Invoice Address | Address information for invoice related to the Metering Point where supply ends |
| Address type | The type of address, i.e. Invoicee address |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Street Code | A code identifying a street |
| Building Number | The number, expressed as text, of the building or house on this street at this address12 |

[12] The Building Number may include a "Building Number Extension", such as one or more character making the address unique.

| | |
|---|---|
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address. |
| Postcode | The code specifying the postcode of this address |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Post Office Box | The unique identifier, expressed as text, of a container commonly referred to as a box, in a post office or other postal service location, assigned to a person or organization, where postal items may be kept for this address. |
| Care Of | 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'. |
| Attention Of | The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for the attention of' or 'FAO' or 'ATTN' for this address. |
| Free Form | A free form representation of this address, expressed as text. |
| Communication | |
| Communication Channel | The code specifying the channel or manner in which a communication can be made, such as telephone or email. |
| Complete number | A text string of characters that make up the complete number for this communication. |

## Element usage in the Nordic countries

| «Business entity» Notify Customer Move-out | NordREG | ebIX® | DK | FI | NO | SE | HNR Proposal | Comments |
|---|---|---|---|---|---|---|---|---|
| Transaction ID | | ✓ | ✓ | ✓ | | ✓ | R | |
| End date | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Balance Supplier ID | | ✓ | | ✓ | | ✓ | R | |
| Balance Responsible Party ID | | ✓ | | | | ✓ | D | • Required in DK, NO and SE<br>• Not used in FI |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |
| Company Invoicee | | | | | | | D | Either *Company Invoicee* or *Household Invoicee* is required if changed |
| Name | | | | | | | R | |
| Household Invoicee | | | | | | | D | Either *Company Invoicee* or *Household Invoicee* is required if changed. Only used if different from customer and available. |
| Given Name | | | | | | | R | |
| Middle Name | | | | | | | D | |
| Family Name | | | | | | | R | |
| Address | | | | | | | | |
| Address type | | | | | | | R | |
| Street Name | | | | | | | D | If exist |
| Street Code | | | | | | | D | Only used in DK |
| Building Number | | | | | | | D | If exist |
| Floor Identification | | | | | | | D | If exist |
| Room Identification | | | | | | | D | If exist |
| City Sub-Division Name | | | | | | | D | Only used in DK |
| Postcode | | | | | | | R | |
| City Name | | | | | | | D | If exist |
| Municipality | | | | | | | D | Only used in DK and SE |
| Country | | | | | | | R | |
| Post Office Box | | | | | | | D | If exist |
| Care Of | | | | | | | D | If exist |
| Attention Of | | | | | | | D | If exist |
| Free Form | | | | | | | D | If exist |
| Communication | | | | | | | | May be repeated |
| Communication Channel | | | | | | | D | If exist |
| Complete number | | | | | | | D | If exist |

### 7.5.10 Notify Metering Point Characteristics (Class Diagram)

The Notify Metering Point Characteristics class diagram is elaborated in chapter 7.7

### 7.5.11 Notify update Customer information (Class Diagram)

The Notify update Customer information class diagram is elaborated in chapter 7.9

### 7.5.12 Meter Read (Notify Validated Data for Billing Energy) (Class Diagram)

The Move-in Meter Read (Notify Validated Data for Billing Energy) is sent from the *Metered Data Responsible* to the *New* and the *Old Balance* Supplier. The content of this document is elaborated in chapter 7.13.

### 7.5.13 Meter Read (Request Validated Data for Billing Energy) (Class Diagram)

The Meter Read (Request Validated Data for Billing Energy) may be sent from the *Balance* Supplier to the *Metered Data Responsible*. The content of this document is elaborated in chapter 7.13.1.

## 7.6 Customer Move-out

### 7.6.1 Customer Move-out (Sequence Diagram)

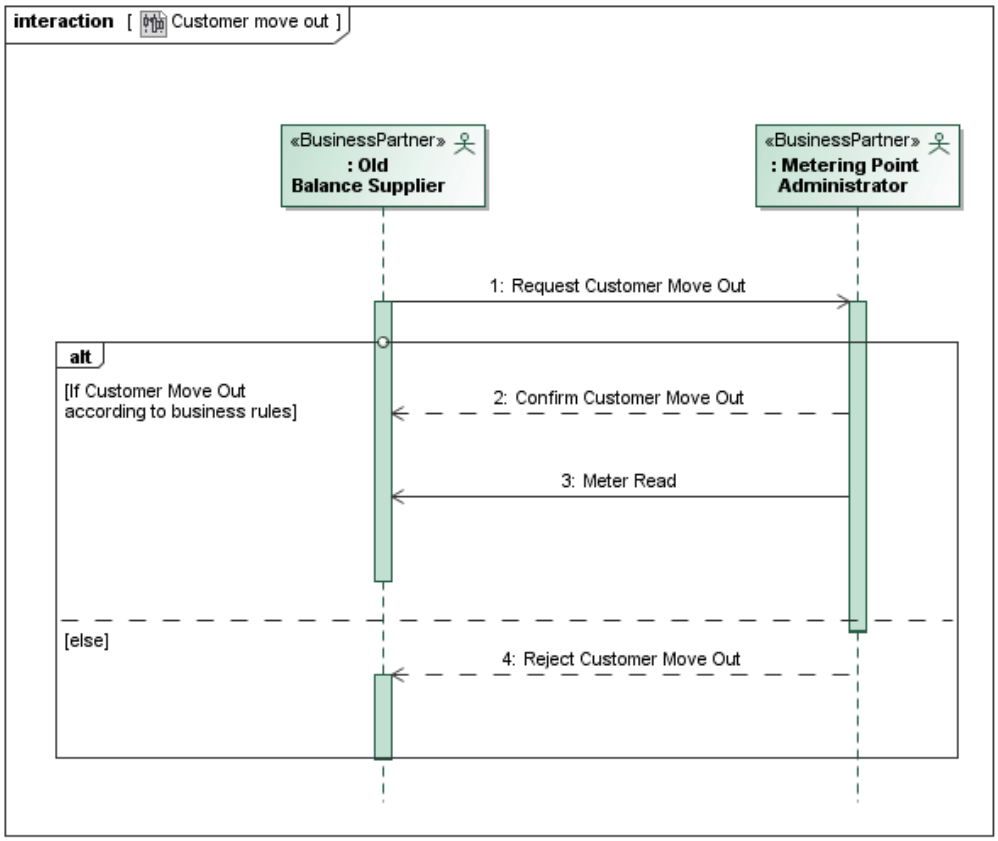



**Figure 48** Sequence diagram: Customer Move-out

### 7.6.2 Request Customer Move-out (Class Diagram)

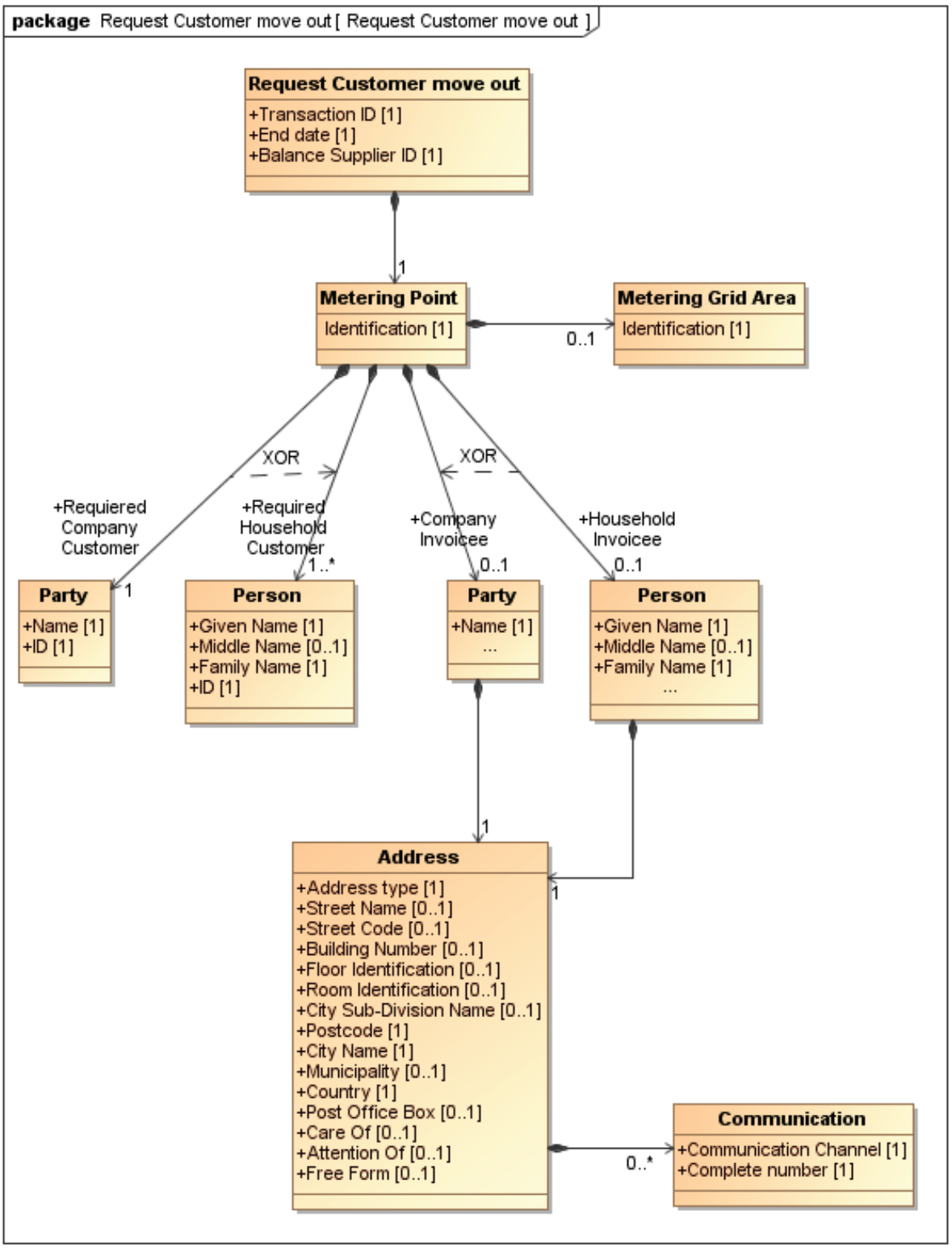



**Figure 49** Request Customer Move-out

| Element definitions | |
|---|---|
| **«Business entity»** Request Customer Move-out | The information set to be sent by a *Balance Supplier* to the *Metering Point Administrator* when requesting a Customer Move-out |
| Transaction ID | The unique identification of this set of information given by the requesting *Balance Supplier* |
| End date | The date from when the *Balance Supplier* requests Move-out from this *Metering Point* |
| Balance Supplier ID | The unique identification of the requesting *Balance Supplier* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Company Customer Party | The Name and ID of the *Company Customer* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the *Person Customer* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |
| Company Invoicee | The Name and ID of the *Company Invoicee* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| Household Invoicee | The Name and ID of the *Person Invoicee* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |

| | |
|---|---|
| Address | Address information for invoice related to the *Metering Point* where supply ends |
| Address type | The type of address, i.e.:<br>• MP address<br>• Customer address<br>• Invoicee address<br>• Maintenance information<br>• Voting address (only Denmark) |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Street Code | A code identifying a street |
| Building Number | The number, expressed as text, of the building or house on this street at this address[13] |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address. |
| Postcode | The code specifying the postcode of this address |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Post Office Box | The unique identifier, expressed as text, of a container commonly referred to as a box, in a post office or other postal service location, assigned to a person or organization, where postal items may be kept for this address. |
| Care Of | 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'. |
| Attention Of | The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for the attention of' or 'FAO' or 'ATTN' for this address. |
| Free Form | A free form representation of this address, expressed as text. |
| Communication | |
| Communication Channel | The code specifying the channel or manner in which a communication can be made, such as telephone or email. |
| Complete number | A text string of characters that make up the complete number for this communication. |

[13] The Building Number may include a “Building Number Extension”, such as one or more character making the address unique.

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Request Customer Move-out | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| End date | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Balance Supplier ID | | ✓ | | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |
| Company Customer Party | | | | | | | D | Either *Company Customer Party or Household Customer Person*<br><br>There can only be one *Company Customer* |
| Name | | | | | | | R | |
| ID | | ✓ | | | ✓ | ✓ | R | |
| Household Customer Person | | | | | | | D | Either *Company Customer Party or Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers* |
| Given Name | | | | | | | R | |
| Middle Name | | | | | | | D | |
| Family Name | | | | | | | R | |
| ID | | ✓ | | | ✓ | ✓ | R | |
| Company Invoicee | | | | | | | D | Either *Company Invoicee or Household Invoicee* is required if changed |
| Name | | | | | | ✓ | R | |
| Household Invoicee | | | | | | | D | Either *Company Invoicee or Household Invoicee* is required if changed<br><br>If different from customer and available |
| Given Name | | | | | | ✓ | R | |
| Middle Name | | | | | | | D | |
| Family Name | | | | | | ✓ | R | |
| Address | | | | ✓ | | | | |
| Address type | | | | | | | R | |
| Street Name | | | | | | | D | If exist |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Street Code | | | | | | | D | Only used in DK |
| Building Number | | | | | | | D | If exist |
| Floor Identification | | | | | | | D | If exist |
| Room Identification | | | | | | | D | If exist |
| City Sub-Division Name | | | | | | | D | Only used in DK |
| Postcode | | | | | | | R | |
| City Name | | | | | | | D | If exist |
| Municipality | | | | | | | D | Only used in DK and SE |
| Country | | | | | | | R | |
| Post Office Box | | | | | | | D | If exist |
| Care Of | | | | | | | D | If exist |
| Attention Of | | | | | | | D | If exist |
| Free Form | | | | | | | D | If exist |
| Communication | | | | | | | | May be repeated |
| Communication Channel | | | | | | | D | If exist |
| Complete number | | | | | | | D | If exist |

### 7.6.3 Confirm Customer Move-out (Class Diagram)

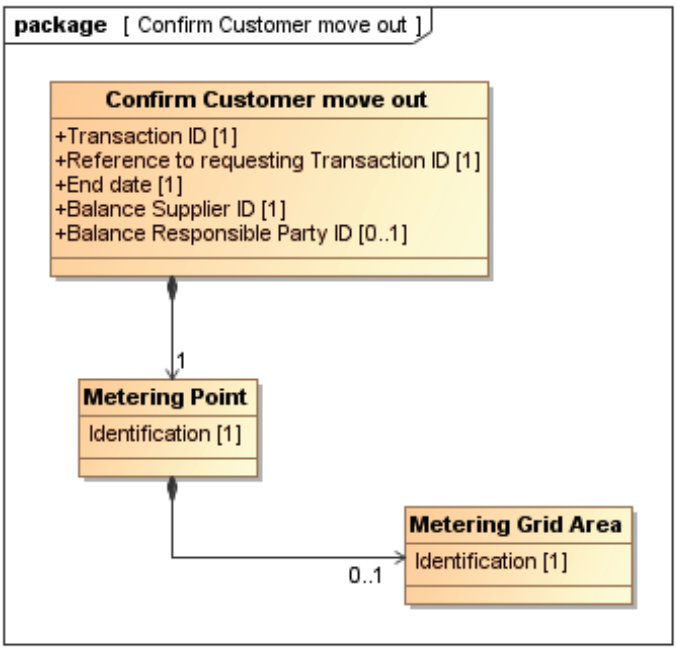



Figure 50 Confirm Customer Move-out

| Element definitions | |
|---|---|
| **«Business entity»** Confirm Customer Move-out | The information set sent by the Metering Point Administrator to the requesting Balance Supplier to confirm this Customer Move-out. |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| End date | The date from when the *Balance Supplier* no longer is supplying this *Metering Point* |
| Balance Supplier ID | The unique identification of the *Balance Supplier* ending its supply that no longer will be supplying the *Metering Point* |
| Balance Responsible Party ID | The unique identification of the *Balance Responsible Party* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Upfront Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Confirm End of Supply | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| End date | | ✓ | | | ✓ | ✓ | R | |
| Balance Supplier ID | | ✓ | | ✓ | ✓ | ✓ | R | |
| Balance Responsible Party ID | | ✓ | | | | ✓ | D | • Required in DK, NO and SE<br>• Not used in FI |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.6.4 Reject Customer Move-out (Class Diagram)

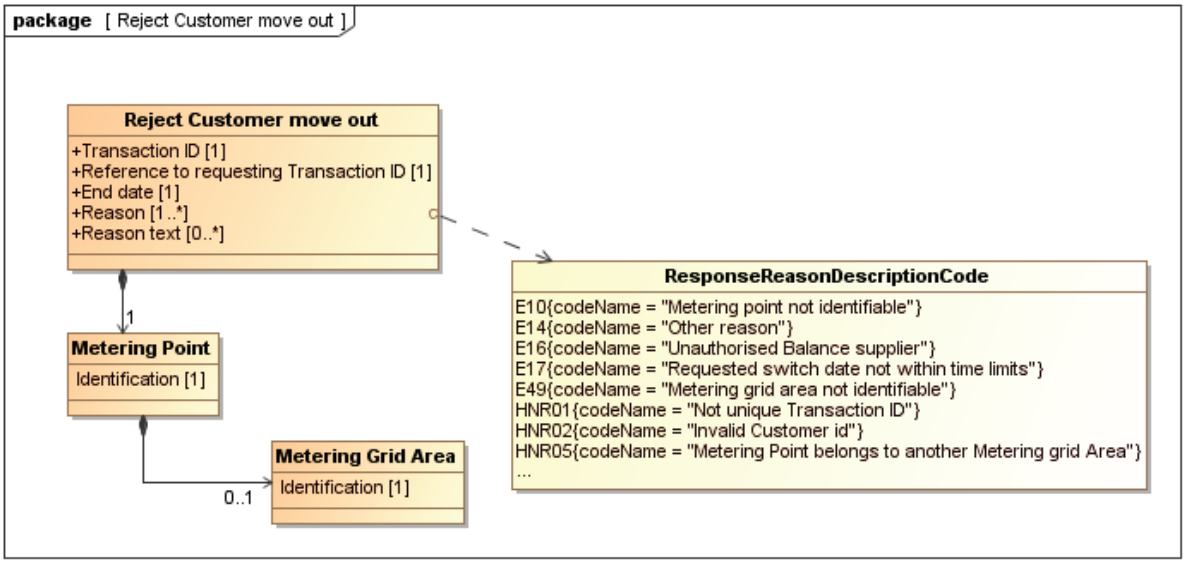



Figure 51 Reject Customer Move-out

| Element definitions | |
|---|---|
| **«Business entity»** Reject Customer Move-out | The information set sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to reject this Customer Move-out |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| End date | The requested date for this Move-out that is rejected |
| Reason | One or more codes specifying the reason for the rejection of the requested Customer Move-out |
| Reason text | A textual description of the reason for the rejection |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* this Move-out is rejected for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Reject Customer Move-out | NordREG | ebIX® | DK | FI | NO | SE | HNR Proposal | Comments |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | | R | SE: Can be added in the HNR |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| End date | | ✓ | | | | | R | SE: Can be added in the HNR |
| Reason (coded) | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Reason text | | | | ✓ | ✓ | ✓ | D | Requiered for reason code "**E14** Other reason" |
| **«Business entity»** Metering Point | | | | | | | | |
| Metering Point ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | ✓ | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.6.5 Meter Read (Notify Validated Data for Billing Energy) (Class Diagram)

The Move-out Meter Read (Notify Validated Data for Billing Energy) is sent from the *Metered Data Responsible* to the *New* and the *Old Balance* Supplier. The content of this document is elaborated in chapter 7.14.

## 7.7 Notify Metering Point Characteristics

### 7.7.1 Notify Metering Point Characteristics (Sequence Diagram)

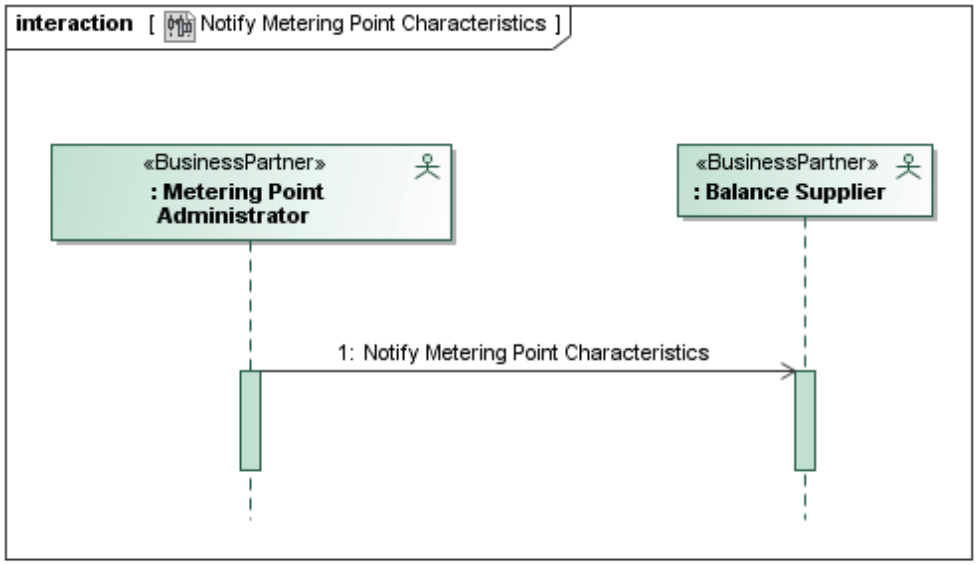



**Figure 52** Sequence diagram: Notify Metering Point Characteristics

### 7.7.2 Notify Metering Point Characteristics (Class Diagram)

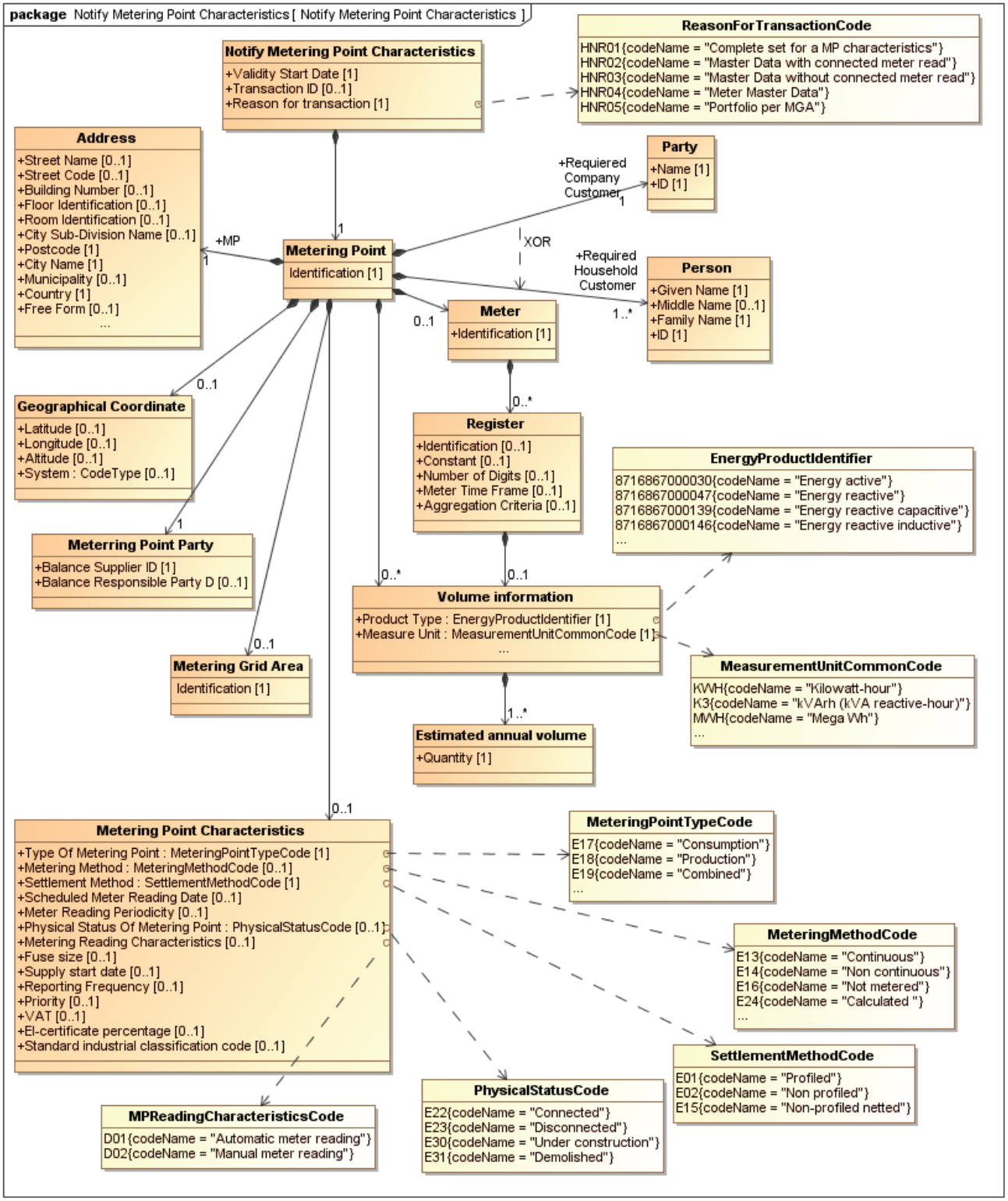



Figure 53 Notify Metering Point Characteristics

| Element definitions | |
|---|---|
| **«Business entity»** Notify Metering Point Characteristics | The information set sent by the *Metering Point Administrator* to the *Balance Supplier* when notifying Metering Point Characteristics |
| Validity start date | The date when the content of this business document becomes or became valid |
| Transaction ID | The unique identification of this set of information, given by the *Metering Point Administrator* |
| Reason for transaction | The reason for sending this document, such as Change of *Metering Point* characteristics requiring a meter reading or Change of *Meter* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* the Notify Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Metering Point Address | The address of the *Metering Point* |
| Address type | The type of address, i.e. *MP address* |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Building Number | The number, expressed as text, of the building or house on this street at this address[14] |
| Postcode | The code specifying the postcode of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Street Code | A code identifying a street |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Free Form | A free form representation of this address, expressed as text |
| Geographical Coordinate | The set of geographical coordinates of this *Metering Point* |

[14] The Building Number may include a "Building Number Extension", such as one or more character making the address unique.

| | |
|---|---|
| Latitude | The measure of the latitude as an angular distance north or south from the Equator meridian to the meridian of this Metering Point for this geographical coordinate. (Reference ISO 6709) |
| Longitude | The measure of the longitude as an angular distance east or west from the Greenwich meridian to the meridian of this Metering Point (Reference ISO 6709) |
| Altitude | The measure of the altitude that reflects the vertical elevation of this Metering Point above a surface for this geographical coordinate (Reference ISO 6709) |
| System | The unique identifier of the reference system used for measuring this geographical coordinate |
| Metering Point Party | The party that has, within the context of this process, a relevant responsibility for this *Metering Point* |
| Balance Supplier ID | The unique identification of the *Balance Supplier* responsible for this *Metering Point* |
| Balance Responsible Party ID | The unique identification of the *Balance Responsible Party* responsible for this *Metering Point* |
| Company Customer Party | The Name and ID of the *Company Customer* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the *Person Customer* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |
| Metering Point characteristics | The relevant characteristics of this *Metering Point* |
| Type Of Metering Point | A code specifying the direction of the active energy flow in this *Metering Point*, such as consumption, production. |
| Metering Method | A code specifying how the energy volumes are established for this *Metering Point*, such as continuous- non-continuous- or not-metered |
| Settlement Method | A code specifying how the energy volumes are treated for settlement for this *Metering Point*, such as profiled or non-profiled |
| Scheduled Meter Reading Date | The indication of when the regular meter read is scheduled |
| Meter Reading Periodicity | The length of time between the meter readings |
| Physical Status Of Metering Point | A code specifying if the installation of the Metering Point is physically connected to the grid |
| Meter Reading Characteristics | A code specifying how a *Metered Data Collector* collects data from the *Meter* for this *Metering Point*, such as Automatic or Manually |
| Fuse Size | The size of the fuses for this *Metering point* |

| | |
|---|---|
| Supply Start Date | The Date when the related *Balance Supplier* became or becomes the *Balance Supplier* of this *Metering point* |
| Reporting Frequency | Reporting Frequency specifies how often the values will be sent, i.e. once a day, once a month |
| Priority | A code giving the disconnection priority for disconnectable *Metering Points*. Information needed in situations of power rationalisation (government required) |
| VAT | Value Added Tax percentage |
| El-certificate percentage | The percentage of the consumption in a *Metering point* that are El-certificate obliged |
| Standard industrial classification code | A code giving the type of business in the *Metering Point*, used for statistical purposes (Næringskode) |
| Volume information | Characteristics of the energy volume for this Metering Point |
| Product Type | A code specifying the energy product for the estimated annual volume |
| Measure Unit | The unit of measure used for the Estimated Annual Volume |
| Estimated annual volume | The energy volume used for profiled nomination and allocation for this Metering Point |
| Quantity | The estimated annual volume for the specified time frame |
| Meter Time Frame Type | A code specifying the tariff time frame for this estimated annual volume |
| Meter | A physical device containing one or more registers |
| Identification | The unique identification of the *Meter* |
| Register | A physical or logical counter measuring energy products |
| Identification | The unique identification of the *Register* |
| Constant | The factor used to multiply a meter stand to get the correct measure unit (e.g. kWh) for a calculated volume |
| Number of digits | Number of digits in a *Register*, without decimals |
| Aggregation criteria | A code specifying how a time series will be aggregated, such as on Balance supplier level combined with national codes, e.g. type of production, “disconnectable consumption” etc. |

## Element usage in the Nordic countries

| «Business entity» Notify Metering Point Characteristics | NordREG | ebIX® | DK | FI | NO | SE | Harmonis | Comments |
|---|---|---|---|---|---|---|---|---|
| Validity start date | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Reason for transaction | | | | | ✓ | ✓ | R | Reasons:<br>**HNR01** Complete set for a MP characteristics, e.g. when there is a new Balance Supplier<br>**HNR02** Master Data with connected meter read<br>**HNR03** Master Data without connected meter read<br>**HNR04** Meter Master Data<br>**HNR05** Portfolio per MGA |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Identification | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Metering Point Address | | | | | | | D | Used in: **HNR01** and **HNR03**<br>SE: Also usedn in **HNR02** |
| Address type | | | | | | | R | |
| City Name | | ✓ | ✓ | | ✓ | ✓ | R | |
| Street Name | | ✓ | ✓ | | ✓ | ✓ | D | Required if exist |
| Building Number | | ✓ | ✓ | | ✓ | | D | Required if exist |
| Postcode | | ✓ | ✓ | | ✓ | ✓ | R | |
| Room Identification | | ✓ | ✓ | | | | O | |
| Floor Identification | | ✓ | ✓ | | | | O | |
| Country | | ✓ | ✓ | | ✓ | | R | |
| Street code | | | ✓ | | | | D | Optional and only used in Denmark |
| City sub-division name | | | | | | | D | Optional and only used in Denmark |
| Municipality code | | | | | | | D | Optional in Denmark<br>Will be used in Sweden for tax reason |
| Free form | | | | | | | O | |
| Geographical Coordinate | | | | | | | | Used in: **HNR01** and **HNR03** |
| Latitude | | ✓ | | | | | O | |
| Longitude | | ✓ | | | | | O | |
| Altitude | | ✓ | | | | | O | |
| System | | ✓ | | | | | O | |
| Metering Point Party | | | | | | | | |
| Balance Supplier ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Balance Responsible Party ID | | ✓ | ✓ | | | ✓ | D | • Required in Denmark, Norway and Sweden<br>• Not used in Finland |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Company Customer Party | | | | | | | D | Either *Company Customer Party* or *Household Customer Person*<br><br>There can only be one *Company Customer*<br><br>Used in: **HNR01** and **HNR05** |
| Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | R | |
| Household Customer Person | | | | | | | D | Either *Company Customer Party or Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers*<br><br>Used in: **HNR01** and **HNR05** |
| Given Name | | | | | | ✓ | R | |
| Middle Name | | | | | | | D | If exist |
| Family Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | R | |
| Metering Point characteristics | | | | | | | | |
| Type Of Metering Point | | ✓ | ✓ | | | ✓ | D | Such as Production or Consumption<br><br>Required in: **HNR01** and **HNR03** |
| Metering Method | | ✓ | ✓ | | | ✓ | D | Required in: **HNR01** and **HNR02** |
| Settlement Method | | ✓ | ✓ | | ✓ | ✓ | D | Profiled/Non-profiled<br><br>Required in: **HNR01** and **HNR02** |
| Scheduled Meter Reading Date | | ✓ | ✓ | | ✓ | | D | FI and SE: Not used<br>DK and NO: Only used for profiled MPs<br><br>Used in: **HNR01** |
| Meter Reading Periodicity | | ✓ | | | ✓ | ✓ | D | SE: Specifies if you will get yearly, monthly or hourly values, compare with Reporting Frequency. Required in **HNR01** and **HNR02**<br>DK: Danish code list telling if yearly, monthly, hourly, 15 minutes, manual<br>NO: Not used (may be replaced by *Reporting Frequency*)<br>FI: Specifies if you will get hourly values or manually read values<br><br>Used in: **HNR01** and **HNR02** |
| Physical Status Of Metering Point | | ✓ | ✓ | | | ✓ | D | NO: Not used<br>SE: Required in **HNR01** and **HNR02**<br><br>Used in: **HNR01** and **HNR02** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Meter Reading Characteristics | | ✓ | ✓ | | ✓ | | D | Automatic or manual reading<br>NO and DK: Required<br><br>Used in: **HNR01** and **HNR03** |
| Reporting Frequency | | | | | | ✓ | D | SE: Specifies how often the values will be sent, i.e. once a day, once a month<br>NO: Number of readings per year<br><br>Required in: **HNR01** and **HNR03** |
| Fuse size | | | | | | | D | FI: Required<br>NO: Not used<br>SE: Not used<br><br>Used in: **HNR01** and **HNR02** |
| Supply start date | | | | | | ✓ | D | Used in: **HNR01** and **HNR05**<br>SE: Otherwise used if sent before Start date |
| Priority (disconnectable MP) | | | | | ✓ | | D | Only used in NO<br><br>Used in: **HNR01** and **HNR02** |
| VAT | | | | | ✓ | | D | Only used in NO (Norwegian regulation)<br><br>Used in: **HNR01** and **HNR02** |
| El-certificate percentage | | | | | ✓ | | D | Only used in NO (Norwegian regulation)<br><br>Used in: **HNR01** and **HNR02** |
| Standard industrial classification code | | | | | ✓ | | D | Only used in NO (Norwegian regulation)<br><br>Used in: **HNR01** and **HNR02** |
| Volume information | | | | | | | | Used in: **HNR01** |
| Product Type | | ✓ | ✓ | ✓ | | | D | NO: Not used<br>FI: Required<br>SE: Not used |
| Measure Unit | | ✓ | ✓ | ✓ | | | D | NO: Not used<br>FI: Required<br>SE: Not used |
| Estimated annual volume | | | | | | | | Used in: **HNR01** |
| Quantity | | ✓ | ✓ | ✓ | ✓ | ✓ | D | FI: Required<br>SE: Required |
| Meter | | | | | | | | Used in: **HNR01**, **HNR02** (only SE and only MPs with meter stands) and **HNR04** |
| Identification | | | | | ✓ | ✓ | D | FI: Optional |
| Register | | | | | | | | Used in: **HNR01**, **HNR02** (only SE and only MPs with meter stands) and **HNR04** |
| Identification | | | | | ✓ | ✓ | D | FI: Required |
| Constant | | | | | ✓ | ✓ | D | SE: When multiplied with the meter stand the value will be in the sent measure unit, e.g. kWh.<br>FI: Optional |
| Number of digits | | | | | ✓ | ✓ | D | FI: Optional |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Meter Time Frame Type | | ✓ | | | | ✓ | D | SE: National codes<br>NO: Not used |
| Aggregation criteria | | | | | | ✓ | D | SE: Specifies how the time series will be aggregated on Balance supplier level, national codes, e.g. type of production, interruptible consumption<br>FI, NO: Not used |

## 7.8 Request Metering Point Characteristics

### 7.8.1 Request Metering Point Characteristics (Sequence Diagram)

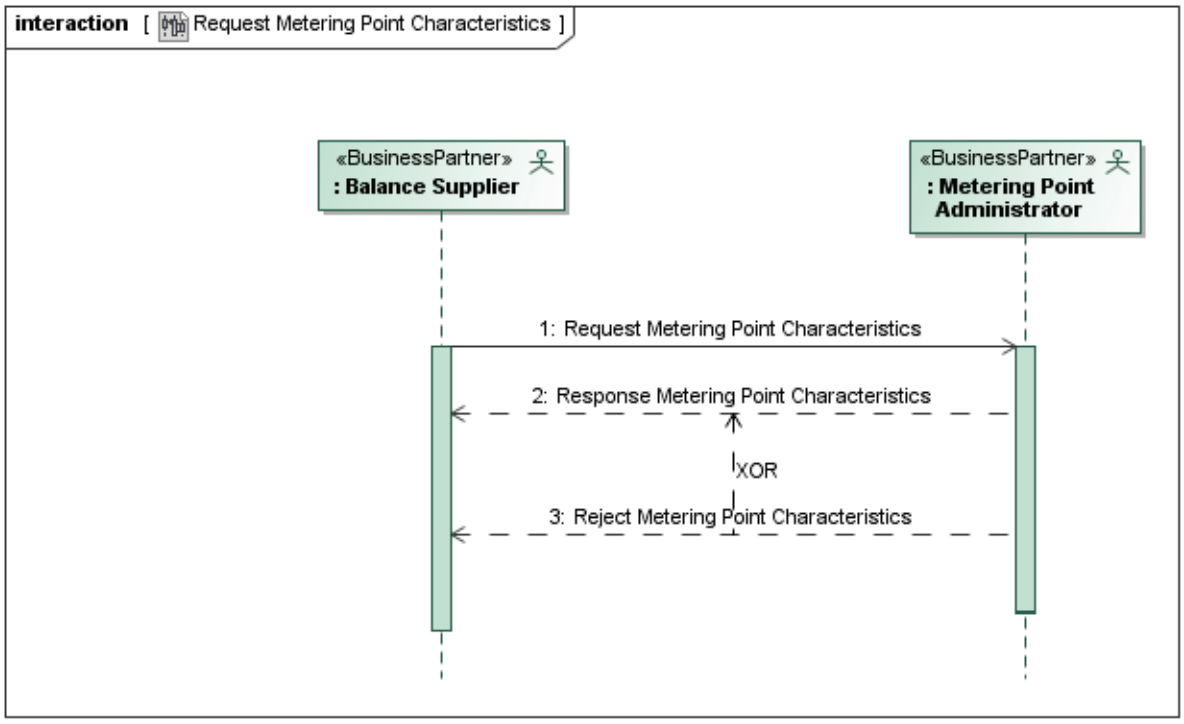



**Figure 54** Sequence diagram: Request Metering Point Characteristics

### 7.8.2 Request Metering Point Characteristics (Class Diagram)

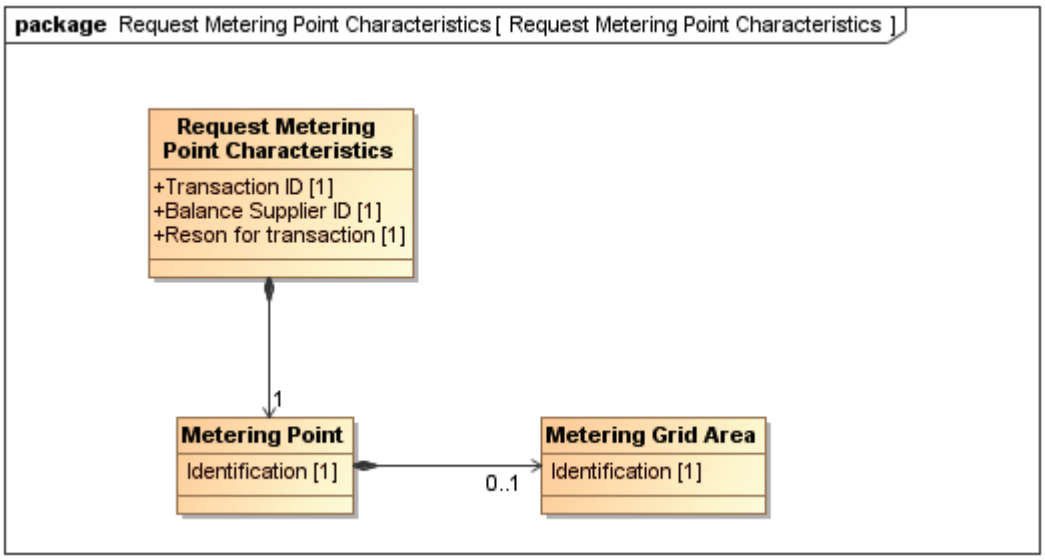



Figure 55 Request Metering Point Characteristics

| Element definitions | |
|---|---|
| **«Business entity»** Request Metering Point Characteristics | The information set to be sent by a *Balance Supplier* to the *Metering Point Administrator* when requesting Metering Point Characteristics |
| Transaction ID | The unique identification of this set of information, given by the *Balance Supplier* |
| Balance Supplier ID | The unique identification of the *Balance Supplier* connected to the *Metering Point* |
| Reason for transaction | The reason for sending this document, such as Requesting Complete set of characteristics of a *Metering Point* or a portfolio list for a *Metering Grid Area* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* the Notify Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Request Metering Point Characteristics | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | | | | R | |
| Balance Supplier ID | | ✓ | | | | | R | |
| Reason for transaction | | | | | | | R | Reasons:<br>**HNR01** Complete set of characteristics of a *Metering Point*<br>**HNR05** Portfolio per MGA |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | ✓ | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | | | | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.8.3 Response Metering Point Characteristics (Class Diagram)

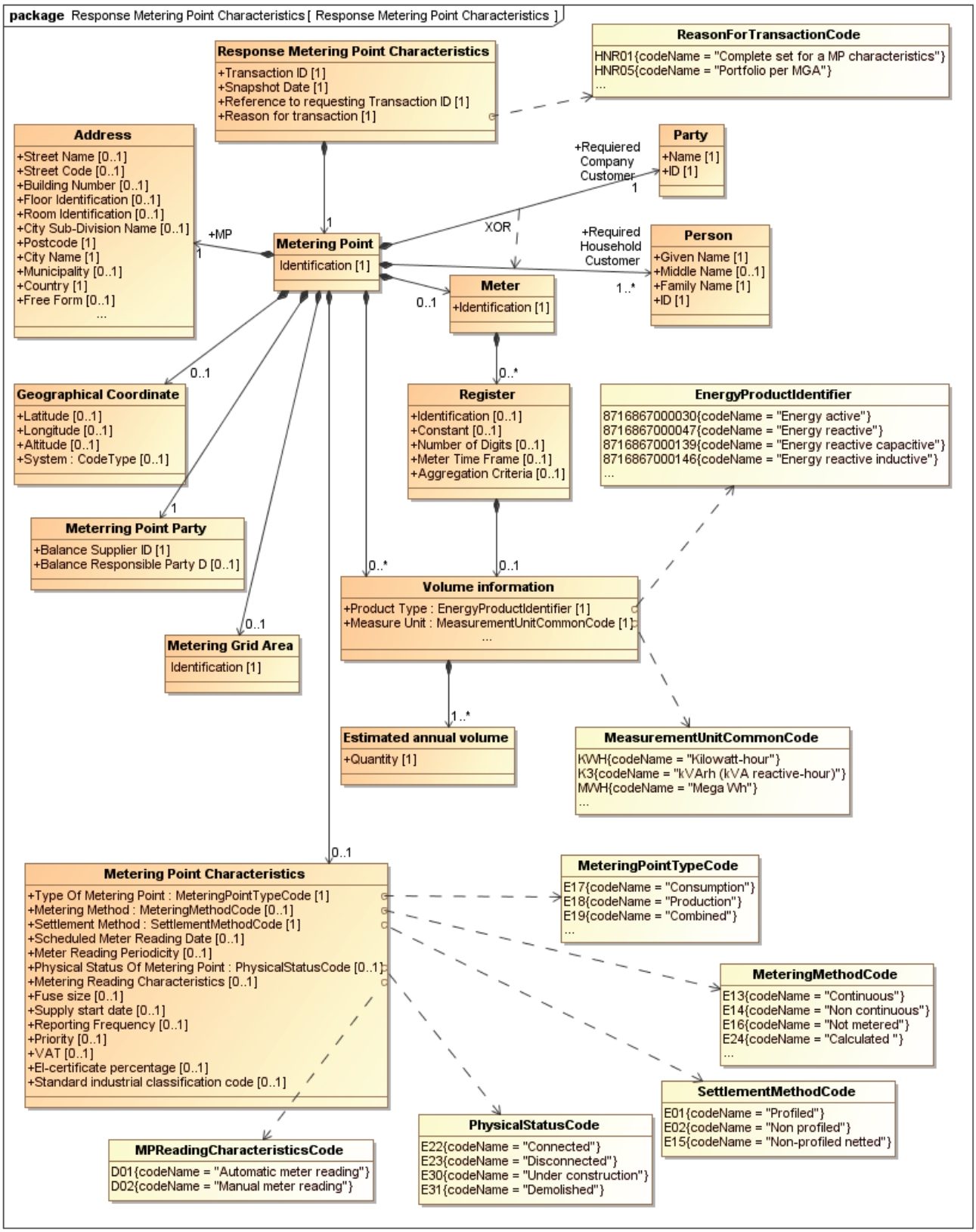



**Figure 56** Response Metering Point Characteristics

| Element definitions | |
|---|---|
| **«Business entity»** Response Metering Point Characteristics | The information set to be returned to an *Balance Supplier* from the *Metering Point Administrator* when requesting Metering Point Characteristics |
| Transaction ID | The unique identification of this set of information, given by the *Balance Supplier* |
| Reference to requesting Transaction ID | The Transaction ID from the request, which this is the response for, given by the sender of the original document |
| Snapshot date | The date and time when the set of information was extracted from the *Metering Point* register |
| Reason for transaction | The reason for sending this document, such as such as Responding to a request for a complete set of characteristics of a *Metering Point* or a portfolio list for a *Metering Grid Area* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Metering Point ID | The unique identification of the *Metering Point* the Request Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Metering Point Address | The address of the Metering Point |
| Address type | The type of address, i.e. *MP address* |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Building Number | The number, expressed as text, of the building or house on this street at this address15 |
| Postcode | The code specifying the postcode of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Street Code | A code identifying a street |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address |
| Municipality | Code for the Municipality where the MP is situated. |

[15] The Building Number may include a "Building Number Extension", such as one or more character making the address unique.

| | |
|---|---|
| Free Form | A free form representation of this address, expressed as text |
| Geographical Coordinate | The set of geographical coordinates of this Metering Point |
| Latitude | The measure of the latitude as an angular distance north or south from the Equator meridian to the meridian of this Metering Point for this geographical coordinate. (Reference ISO 6709) |
| Longitude | The measure of the longitude as an angular distance east or west from the Greenwich meridian to the meridian of this Metering Point (Reference ISO 6709) |
| Altitude | The measure of the altitude that reflects the vertical elevation of this Metering Point above a surface for this geographical coordinate (Reference ISO 6709) |
| System | The unique identifier of the reference system used for measuring this geographical coordinate |
| Metering Point Party | The party that has, within the context of this process, a relevant responsibility for this Metering Point |
| Balance Supplier ID | The unique identification of the Balance Supplier responsible for this Metering Point |
| Balance Responsible Party ID | The unique identification of the Balance Responsible Party responsible for this Metering Point |
| Company Customer Party | The Name and ID of the Company Customer that has the contract for supply of energy for this Metering Point |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the Person Customer that has the contract for supply of energy for this Metering Point |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |
| Metering Point characteristics | The relevant characteristics of this Metering Point |
| Type Of Metering Point | A code specifying the direction of the active energy flow in this Metering Point, such as consumption, production. |
| Metering Method | A code specifying how the energy volumes are established for this Metering Point, such as continuous- non-continuous- or not-metered |
| Settlement Method | A code specifying how the energy volumes are treated for settlement for this Metering Point, such as profiled or non-profiled |
| Scheduled Meter Reading Date | The indication of when the regular meter read is scheduled |
| Meter Reading Periodicity | The length of time between the meter readings |
| Physical Status Of Metering Point | A code specifying if the installation of the Metering Point is physically connected to the grid |
| Meter Reading Characteristics | A code specifying how a Metered Data Collector collects data from the Meter for this Metering Point, such as Automatic or Manually |
| Fuse Size | The size of the fuses for this Metering point |

| | |
|---|---|
| Supply Start Date | The Date when the related Balance Supplier became or becomes the Balance Supplier of this Metering point |
| Reporting Frequency | Reporting Frequency specifies how often the values will be sent, i.e. once a day, once a month |
| Priority | A code giving the disconnection priority for disconnectable *Metering Points*. Information needed in situations of power rationalisation (government required) |
| VAT | Value Added Tax percentage |
| El-certificate percentage | The percentage of the consumption in a Metering point that are El-certificate obliged |
| Standard industrial classification code | A code giving the type of business in the Metering Point, used for statistical purposes (Næringskode) |
| Volume information | Characteristics of the energy volume for this Metering Point |
| Product Type | A code specifying the energy product for the estimated annual volume |
| Measure Unit | The unit of measure used for the Estimated Annual Volume |
| Estimated annual volume | The energy volume used for profiled nomination and allocation for this Metering Point |
| Quantity | The estimated annual volume for the specified time frame |
| Meter Time Frame Type | A code specifying the tariff time frame for this estimated annual volume |
| Meter | A physical device containing one or more registers |
| Identification | The unique identification of the Meter |
| Register | A physical or logical counter measuring energy products |
| Identification | The unique identification of the Register |
| Constant | The factor used to multiply a meter stand to get the correct measure unit (e.g. kWh) for a calculated volume |
| Number of digits | Number of digits in a Register, without decimals |
| Aggregation criteria | A code specifying how a time series will be aggregated, such as on Balance supplier level combined with national codes, e.g. type of production, “disconnectable consumption” etc. |

## Element usage in the Nordic countries

| «Business entity» Response Metering Point Characteristics | NordREG | ebIX® | DK | FI | NO | SE | HNR Proposal | Comments |
|---|---|---|---|---|---|---|---|---|
| Transaction ID | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | | | R | |
| Snapshot date | | ✓ | | | | | R | |
| Reason | | | | | ✓ | ✓ | R | Reasons:<br>**HNR01** Complete set of characteristics of a *Metering point*<br>**HNR05** Portfolio per MGA |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Identification | | ✓ | ✓ | ✓ | ✓ | ✓ | R | |
| Metering Point Address | | | | | | | D | Used in: **HNR01** |
| Address type | | | | | | | R | |
| City Name | | ✓ | ✓ | | ✓ | ✓ | R | |
| Street Name | | ✓ | ✓ | | ✓ | ✓ | D | Required if exist |
| Building Number | | ✓ | ✓ | | ✓ | | D | Required if exist |
| Postcode | | ✓ | ✓ | | ✓ | ✓ | R | |
| Room Identification | | ✓ | ✓ | | | | O | |
| Floor Identification | | ✓ | ✓ | | | | O | |
| Country | | ✓ | ✓ | | ✓ | | R | |
| Street code | | | ✓ | | | | D | Optional and only used in Denmark |
| City sub-division name | | | | | | | D | Optional and only used in Denmark |
| Municipality code | | | | | | | D | Optional in Denmark<br>Will be used in Sweden for tax reason |
| Free form | | | | | | | O | |
| Geographical Coordinate | | | | | | | | Used in: **HNR01** |
| Latitude | | ✓ | | | | | O | |
| Longitude | | ✓ | | | | | O | |
| Altitude | | ✓ | | | | | O | |
| System | | ✓ | | | | | O | |
| Metering Point Party | | | | | | | | Used in: **HNR01** |
| Balance Supplier ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Balance Responsible Party ID | | ✓ | ✓ | | | ✓ | D | • Required in Denmark, Norway and Sweden<br>• Not used in Finland |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Company Customer Party | | | | | | | D | Either *Company Customer Party* or *Household Customer Person*<br><br>There can only be one *Company Customer*<br><br>Used in: **HNR01** and **HNR05** |
| Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | R | |
| Household Customer Person | | | | | | | D | Either *Company Customer Party or Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers*<br><br>Used in: **HNR01** and **HNR05** |
| Given Name | | | | | | ✓ | R | |
| Middle Name | | | | | | | D | If exist |
| Family Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | R | |
| Metering Point characteristics | | | | | | | | |
| Type Of Metering Point | | ✓ | ✓ | | | ✓ | D | Such as Production or Consumption<br><br>Required in: **HNR01** |
| Metering Method | | ✓ | ✓ | | | ✓ | D | Required in Sweden (Continuous/Non-continuous)<br><br>Required in: **HNR01** |
| Settlement Method | | ✓ | ✓ | | ✓ | ✓ | D | Profiled/Non-profiled<br><br>Used in: **HNR01** |
| Scheduled Meter Reading Date | | ✓ | ✓ | | ✓ | | D | FI and SE: Not used<br>DK and NO: Only used for profiled MPs<br><br>Used in: **HNR01** |
| Meter Reading Periodicity | | ✓ | | | ✓ | ✓ | D | SE: Specifies if you will get yearly, monthly or hourly values, compare with Reporting Frequency<br>DK: Danish code list telling if yearly, monthly, hourly, 15 minutes, manual<br>NO: Not used (may be replaced by *Reporting Frequency*)<br>Used in: **HNR01** |
| Physical Status Of Metering Point | | ✓ | ✓ | | | ✓ | D | NO: Not used<br>SE: Required in **HNR01**<br><br>Used in: **HNR01** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Meter Reading Characteristics | | ✓ | ✓ | | ✓ | | D | Automatic or manual reading<br>NO and DK: Required<br><br>Used in: **HNR01** |
| Reporting Frequency | | | | | | ✓ | D | SE: Specifies how often the values will be sent, i.e. once a day, once a month<br>NO: Number of readings per year<br><br>Used in: **HNR01** |
| Fuse size | | | | | | | D | FI: Required<br>NO: Not used<br><br>Used in: **HNR01** |
| Supply start date | | | | | | | D | Used in: **HNR01** and **HNR05**<br>SE: Otherwise used if sent before Start date |
| Priority (disconnectable MP) | | | | | ✓ | | D | Only used in NO<br><br>Used in: **HNR01** |
| VAT | | | | | ✓ | | D | Only used in NO (Norwegian regulation)<br><br>Used in: **HNR01** |
| El-certificate percentage | | | | | ✓ | | D | Only used in NO (Norwegian regulation)<br><br>Used in: **HNR01** |
| Standard industrial classification code | | | | | ✓ | | D | Only used in NO(Norwegian regulation)<br><br>Used in: **HNR01** |
| Volume information | | | | | | | | Used in: **HNR01** |
| Product Type | | ✓ | ✓ | | | | D | NO: Not used<br>FI: Required |
| Measure Unit | | ✓ | ✓ | | | | D | NO: Not used<br>FI: Required |
| Estimated annual volume | | | | | | | D | Used in: **HNR01** |
| Quantity | | ✓ | ✓ | | ✓ | ✓ | R | |
| Meter | | | | | | | | Used in: **HNR01** |
| Identification | | | | | ✓ | ✓ | D | FI: Optional |
| Register | | | | | | | | Used in: **HNR01** |
| Identification | | | | | ✓ | ✓ | D | SE: Sent per register<br>FI: Optional |
| Constant | | | | | ✓ | ✓ | D | SE: Sent per register, when multiplied with the meter stand the value will be in the sent measure unit, e.g. kWh.<br>FI: Optional |
| Number of digits | | | | | ✓ | ✓ | D | FI: Optional |
| Meter Time Frame Type | | ✓ | | | | ✓ | D | SE: Sent per register, national codes<br>NO: Not used |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Aggregation criteria | | | | | | ✓ | D | SE: Specifies how the time series will be aggregated on Balance supplier level, national codes, e.g. type of production, interruptible consumption<br>FI, NO: Not used |

### 7.8.4 Reject Request Metering Point Characteristics (Class Diagram)

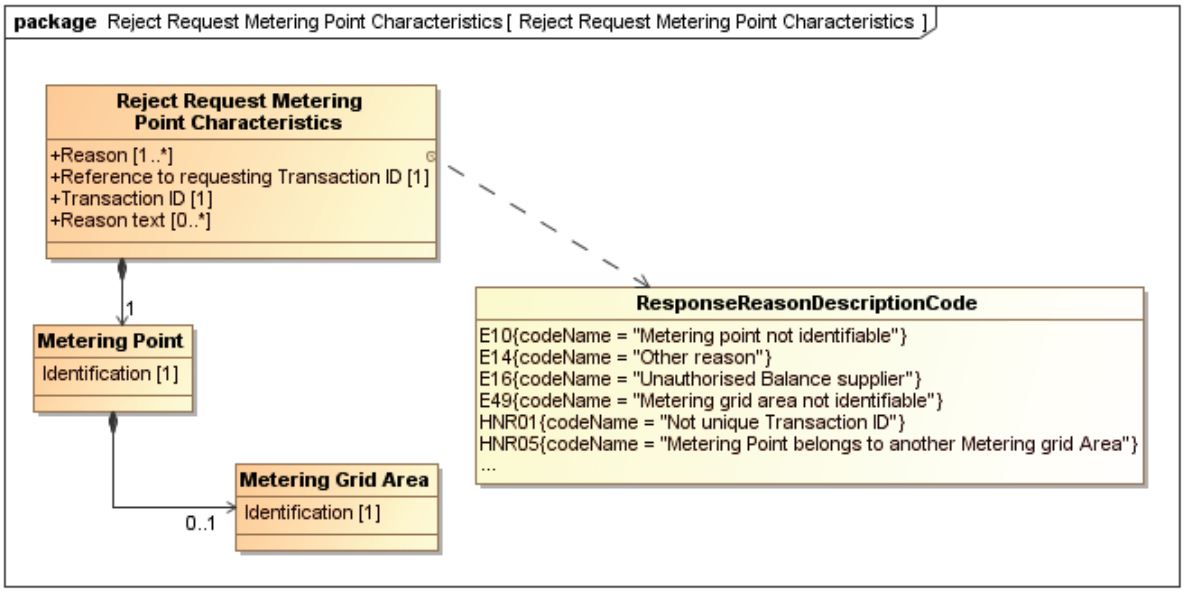



**Figure 57** Reject Request Metering Point Characteristics

| **Element definitions, Reject Request Metering Point Characteristics** | |
|---|---|
| **«Business entity»** Request Metering Point Characteristics | The information set sent from the *Metering Point Administrator* to the *Balance Supplier* when rejecting a Request Metering Point Characteristics |
| Reason | One or more codes specifying the reason(s) for the rejection of the Request Metering Point Characteristics |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request, where this is the response for, given by the Initiator |
| Reason text | A textual description of the reason for the rejection |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* the Request Metering Point Characteristics was intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Reject Request Metering Point Characteristics | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR proposal** | |
| Reason | | ✓ | ✓ | | | | R | |
| Transaction ID | | | ✓ | | | | R | |
| Reference to requesting Transaction ID | | | ✓ | | | | R | |
| Reason text | | | | | | | D | Requiered for reason code "**E14** Other reason" |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | ✓ | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Identification | | | ✓ | ✓ | ✓ | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

## 7.9 Notify update Customer information

### 7.9.1 Notify update Customer information (Sequence Diagram)

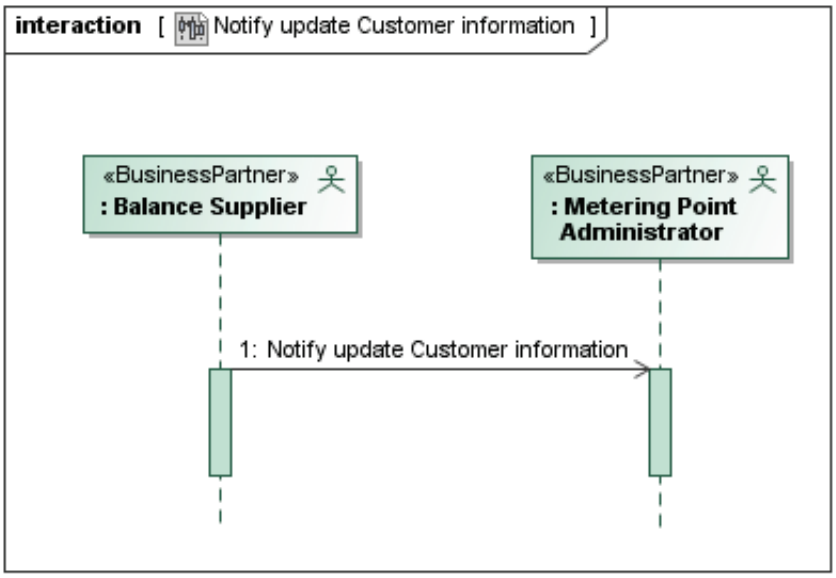



**Figure 58** Sequence diagram: Notify update Customer information

### 7.9.2 Notify update Customer information (Class Diagram)

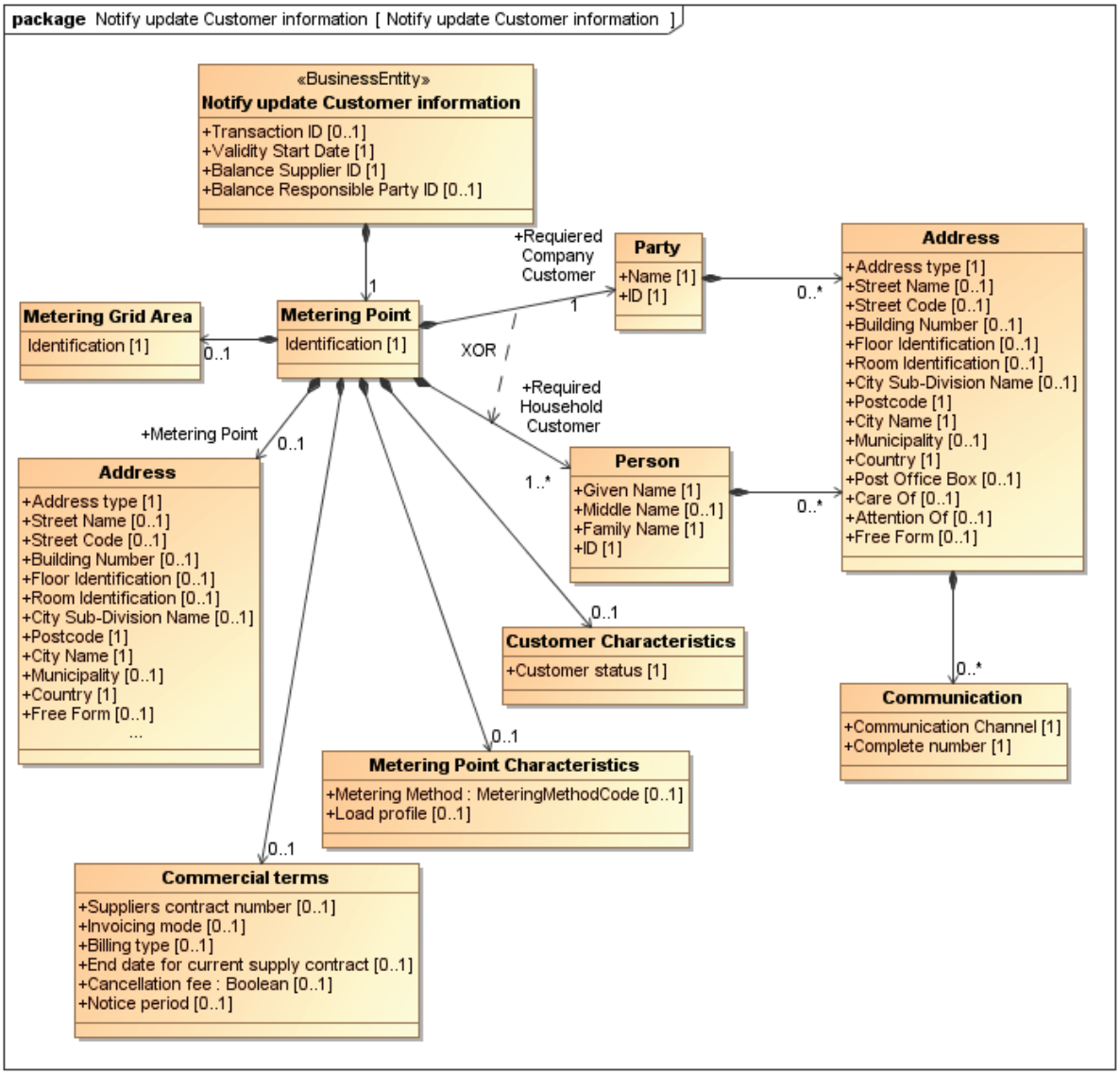



**Figure 59** Notify update Customer information

| Element definitions | |
|---|---|
| **«Business entity»** Notify update Customer information | The information set sent by the *Balance Supplier* to the *Metering Point Administrator* when notifying Customer information |
| Transaction ID | The unique identification of this set of information, given by the *Balance Supplier* |
| Validity start date | The date when the content of this business document becomes or became valid |
| Balance Supplier ID | The unique identification of the *Balance Supplier* responsible for this Metering Point |
| Balance Responsible Party ID | The unique identification of the *Balance Responsible Party* responsible for this Metering Point |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* the Notify Customer information is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Metering Point Address | The address of the *Metering Point* |
| Address type | The type of address, i.e. *MP address* |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Building Number | The number, expressed as text, of the building or house on this street at this address[16] |
| Postcode | The code specifying the postcode of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Street Code | A code identifying a street |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address |

[16] The Building Number may include a "Building Number Extension", such as one or more character making the address unique.

| | |
|---|---|
| Municipality | Code for the Municipality where the MP is situated |
| Free Form | A free form representation of this address, expressed as text |
| Customer Characteristics | |
| Customer status | Coded status element with codes for death, bankruptcy etc. |
| Company Customer Party | The Name and ID of the *Company Customer* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the *Person Customer* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |
| Customer Address | Address information related to the Customer in this Metering Point |
| Address type | The type of address, i.e.:<br>• Customer address<br>• Invoicee address<br>• Maintenance information<br>• Voting address (only Denmark) |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Street Code | A code identifying a street |
| Building Number | The number, expressed as text, of the building or house on this street at this address[17] |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address. |
| Postcode | The code specifying the postcode of this address |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |

[17] The Building Number may include a "Building Number Extension", such as one or more character making the address unique.

| | |
|---|---|
| Post Office Box | The unique identifier, expressed as text, of a container commonly referred to as a box, in a post office or other postal service location, assigned to a person or organization, where postal items may be kept for this address. |
| Care Of | 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'. |
| Attention Of | The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for the attention of' or 'FAO' or 'ATTN' for this address. |
| Free Form | A free form representation of this address, expressed as text. |
| Communication | |
| Communication Channel | The code specifying the channel or manner in which a communication can be made, such as telephone or email. |
| Complete number | A text string of characters that make up the complete number for this communication. |
| Commercial terms | Information related to the contract between the Balance Supplier and the Customer |
| Suppliers contract no | The ID of the contract between the *Balance Supplier* and the *Customer* |
| Invoicing mode | Finnish speciality; combined or separate invoice |
| Billing type | Finnish speciality; annual estimation or metered values |
| End date for current supply contract | The end date for the current supply contract |
| Notice period | The Notice period of a supply contract (number of days or months) |
| Cancellation fee | A Boolean element (true/false) indicating if a cancellation fee applies if a supply contract is broken.<br><br>The content of this attribute must be defined more precisely. |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Notify update Customer information | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Validity start date | | | | | | ✓ | R | |
| Transaction ID | | | | | | ✓ | R | |
| Balance Supplier ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Balance Responsible Party ID | | ✓ | ✓ | | | ✓ | D | Required in Denmark, Norway and Sweden<br>Not used in Finland |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | | | | | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Identification | | | | | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |
| Metering Point Address | | | | | | | | |
| Address type | | | | | | | R | |
| City Name | | ✓ | ✓ | | ✓ | ✓ | R | |
| Street Name | | ✓ | ✓ | | ✓ | ✓ | D | Required if exist |
| Building Number | | ✓ | ✓ | | ✓ | | D | Required if exist |
| Postcode | | ✓ | ✓ | | ✓ | ✓ | R | |
| Room Identification | | ✓ | ✓ | | | | O | |
| Floor Identification | | ✓ | ✓ | | | | O | |
| Country | | ✓ | ✓ | | ✓ | | R | |
| Street code | | | | | | | D | Optional and only used in Denmark |
| City sub-division name | | | | | | | D | Optional and only used in Denmark |
| Municipality code | | | | | | | D | Optional in Denmark<br>Will be used in Sweden for tax reason |
| Free form | | | | | | | O | |
| Customer Characteristics | | | | | | | | |
| Customer status | | | | | | ✓ | D | If changed |
| Company Customer Party | | | | | | | D | Either *Company Customer Party or Household Customer Person*<br><br>There can only be one *Company Customer* |
| Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | R | |
| Household Customer Person | | | | | | | | Either *Company Customer Party or Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers* |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Given Name | | | | | | ✓ | R | |
| Middle Name | | | | | | | D | |
| Family Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | R | |
| Customer Address | | | | | | | | |
| Address type | | | | | | | R | |
| Street Name | | | | | | | D | If exist |
| Street Code | | | | | | | D | Only used in DK |
| Building Number | | | | | | | D | If exist |
| Floor Identification | | | | | | | D | If exist |
| Room Identification | | | | | | | D | If exist |
| City Sub-Division Name | | | | | | | D | Only used in DK |
| Postcode | | | | | | | R | |
| City Name | | | | | | | D | If exist |
| Municipality | | | | | | | D | Only used in DK and SE |
| Country | | | | | | | R | |
| Post Office Box | | | | | | | D | If exist |
| Care Of | | | | | | | D | If exist |
| Attention Of | | | | | | | D | If exist |
| Free Form | | | | | | | D | If exist |
| Communication | | | | | | | O | |
| Communication Channel | | | | | | | R | |
| Complete number | | | | | | | R | |
| Commercial terms | | | | | | | D | Used in Finland and Sweden |
| Suppliers contract number | | | | ✓ | | | D | • Only used in Finland, Required |
| Invoicing mode | | | | ✓ | | | D | • Only used in Finland, Required |
| Billing type | | | | ✓ | | | D | • Only used in Finland, Required |
| End date for current supply contract | | | | ✓ | | | D | • Required in Finland if a valid long term contract<br>• Not decided in Sweden<br>• Denmark and Norway: Not wanted |
| Notice period (number of days or months) | | | | ✓ | | | D | • Proposed in Sweden and Finland for contracts with a specific notice period<br>• Denmark and Norway: Not wanted |
| Cancellation fee (true/false) | | | | ✓ | | | D | • Required in Finland<br>• Not decided in Sweden<br>• Denmark and Norway: Not wanted |
| MP Characteristics | | | | | | | | |
| Metering Method | | | | | | ✓ | D | SE: Required until all MPs are hourly read |
| Load Profile | | | | ✓ | | | D | |

## 7.10 Request Customer information

### 7.10.1 Request Customer information (Sequence Diagram)

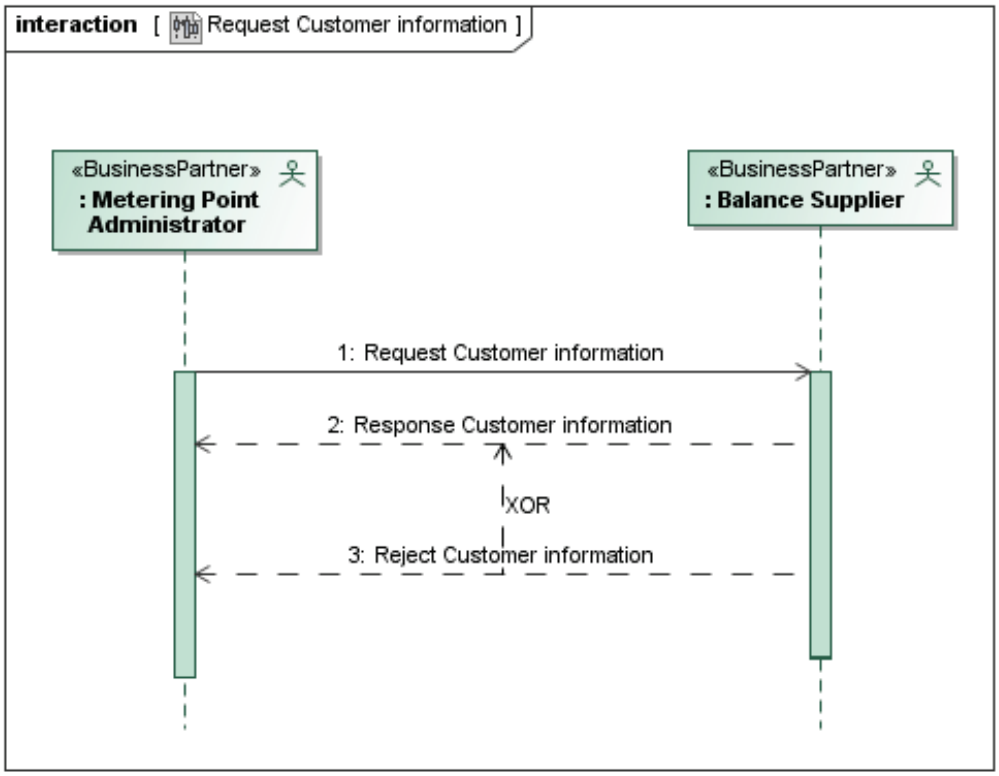



**Figure 60** Sequence diagram: Request Customer information

### 7.10.2 Request Customer information (Class Diagram)

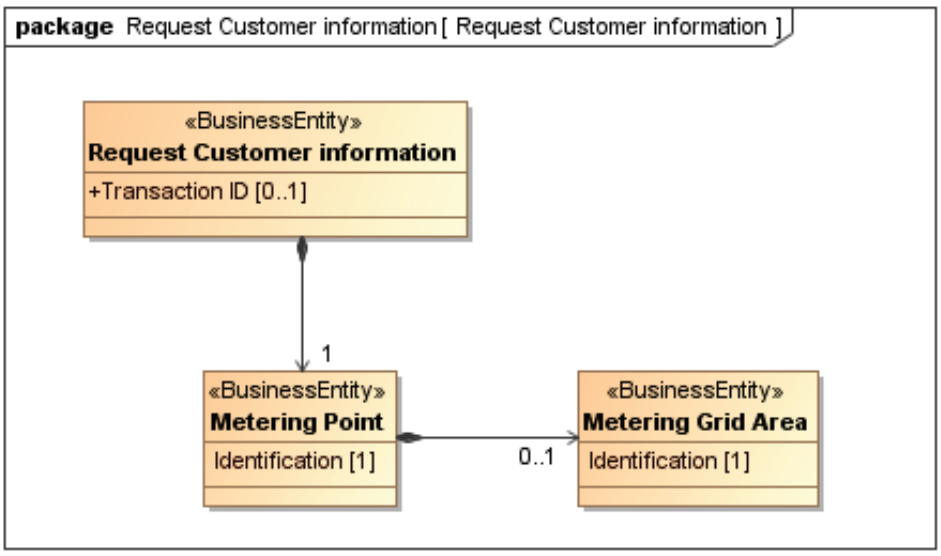



Figure 61 Request Customer information

| Element definitions | |
|---|---|
| **«Business entity»** Request Customer information | The information set to be sent by a *Metering Point Administrator* to a *Balance Supplier* when requesting Customer information. |
| Transaction ID | The unique identification of this set of information, given by the *Metering Point Administrator*. |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed. |
| Identification | The unique identification of the *Metering Point* the Request Customer information is intended for |
| **«Business entity»** Metering Grid Area | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs. |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Request Metering Point Characteristics | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | ✓ | ✓ | | | | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | ✓ | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

### 7.10.3 Response Customer information (Class Diagram)

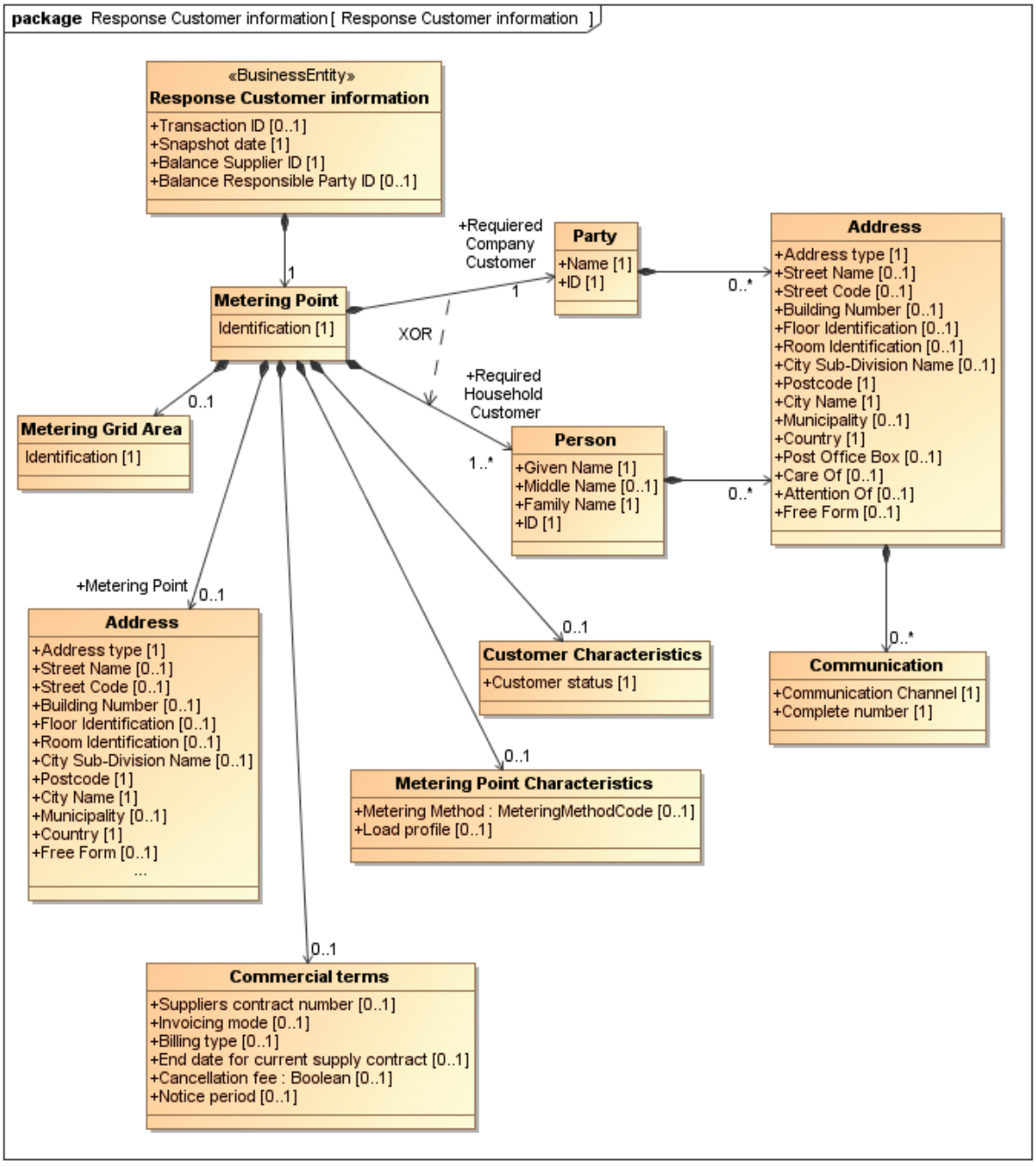



**Figure 62** Response Customer information

| Element definitions | |
|---|---|
| **«Business entity»** Response Customer information | The information set sent by the *Balance Supplier* to the *Metering Point Administrator* when notifying Customer information |
| Transaction ID | The unique identification of this set of information, given by the *Balance Supplier* |
| Snapshot date | The date when the content of this business document becomes or became valid |
| Balance Supplier ID | The unique identification of the *Balance Supplier* responsible for this Metering Point |
| Balance Responsible Party ID | The unique identification of the *Balance Responsible Party* responsible for this Metering Point |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* the Notify Customer information is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Metering Point Address | The address of the *Metering Point* |
| Address type | The type of address, i.e. *MP address* |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Building Number | The number, expressed as text, of the building or house on this street at this address[18] |
| Postcode | The code specifying the postcode of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |
| Street Code | A code identifying a street |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address |

[18] The Building Number may include a "Building Number Extension", such as one or more character making the address unique.

| | |
|---|---|
| Municipality | Code for the Municipality where the MP is situated |
| Free Form | A free form representation of this address, expressed as text |
| Customer Characteristics | |
| Customer status | Coded status element with codes for death, bankruptcy etc. |
| Company Customer Party | The Name and ID of the *Company Customer* that has the contract for supply of energy for this *Metering Point* |
| Name | A name, expressed as text, for this party |
| ID | The unique identification of this Supply Customer |
| Household Customer Person | The Name and ID of the *Person Customer* that has the contract for supply of energy for this *Metering Point* |
| Given Name | Name or names, expressed as text, usually given to a person by his/her parents at birth |
| Middle Name | A name between the Given Name and Family Name, usually a surname within the related family |
| Family Name | A name, expressed as text, that a person shares with members of his/her family |
| ID | The unique identification of this Supply Customer |
| Customer Address | Address information related to the Customer in this Metering Point |
| Address type | The type of address, i.e.:<br>• Customer address<br>• Invoicee address<br>• Maintenance information<br>• Voting address (only Denmark) |
| Street Name | The name, expressed as text, of this street or thoroughfare of this address |
| Street Code | A code identifying a street |
| Building Number | The number, expressed as text, of the building or house on this street at this address[19] |
| Floor Identification | The identification by name or number, expressed as text, of the floor in the building as part of this address |
| Room Identification | The identification, expressed as text, of the room, suite, office or apartment as part of this address |
| City Sub-Division Name | A name, expressed as text, of the sub-division of a country for this address. |
| Postcode | The code specifying the postcode of this address |
| City Name | The name, expressed as text, of the city, town or village of this address |
| Municipality | Code for the Municipality where the MP is situated. |
| Country | The unique identifier of the country for this address (Reference ISO 3166 and UN/ECE Rec 3) |

[19] The Building Number may include a "Building Number Extension", such as one or more character making the address unique.

| | |
|---|---|
| Post Office Box | The unique identifier, expressed as text, of a container commonly referred to as a box, in a post office or other postal service location, assigned to a person or organization, where postal items may be kept for this address. |
| Care Of | 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'. |
| Attention Of | The name, expressed as text, of a person or department in the organization to whom incoming mail is marked with words such as 'for the attention of' or 'FAO' or 'ATTN' for this address. |
| Free Form | A free form representation of this address, expressed as text. |
| Communication | |
| Communication Channel | The code specifying the channel or manner in which a communication can be made, such as telephone or email. |
| Complete number | A text string of characters that make up the complete number for this communication. |
| Commercial terms | Information related to the contract between the Balance Supplier and the Customer |
| Suppliers contract no | The ID of the contract between the *Balance Supplier* and the *Customer* |
| Invoicing mode | Finnish speciality; combined or separate invoice |
| Billing type | Finnish speciality; annual estimation or metered values |
| End date for current supply contract | The end date for the current supply contract |
| Notice period | The Notice period of a supply contract (number of days or months) |
| Cancellation fee | A Boolean element (true/false) indicating if a cancellation fee applies if a supply contract is broken.<br><br>The content of this attribute must be defined more precisely. |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Response Customer information | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | | | | | ✓ | R | |
| Snapshot date | | | | | | | R | |
| Balance Supplier ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Balance Responsible Party ID | | ✓ | ✓ | | | ✓ | D | Required in Denmark, Norway and Sweden<br>Not used in Finland |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | | | | | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Identification | | | | | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |
| Metering Point Address | | | | | | | | |
| Address type | | | | | | | R | |
| City Name | | ✓ | ✓ | | ✓ | ✓ | R | |
| Street Name | | ✓ | ✓ | | ✓ | ✓ | D | Required if exist |
| Building Number | | ✓ | ✓ | | ✓ | | D | Required if exist |
| Postcode | | ✓ | ✓ | | ✓ | ✓ | R | |
| Room Identification | | ✓ | ✓ | | | | O | |
| Floor Identification | | ✓ | ✓ | | | | O | |
| Country | | ✓ | ✓ | | ✓ | | R | |
| Street code | | | | | | | D | Optional and only used in Denmark |
| City sub-division name | | | | | | | D | Optional and only used in Denmark |
| Municipality code | | | | | | | D | Optional in Denmark<br>Will be used in Sweden for tax reason |
| Free form | | | | | | | O | |
| Customer Characteristics | | | | | | | | |
| Customer status | | | | | | ✓ | D | If changed |
| Company Customer Party | | | | | | | D | Either *Company Customer Party or Household Customer Person*<br><br>There can only be one *Company Customer* |
| Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | R | |
| Household Customer Person | | | | | | | | Either *Company Customer Party or Household Customer Person*<br><br>NO, SE: Only one *Household Customer*<br>DK: Up to two *Household Customers*<br>FI: Unlimited number of *Household Customers* |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Given Name | | | | | | ✓ | R | |
| Middle Name | | | | | | | D | |
| Family Name | | | | | | ✓ | R | |
| ID | | | | | | ✓ | R | |
| Customer Address | | | | | | | | |
| Address type | | | | | | | R | |
| Street Name | | | | | | | D | If exist |
| Street Code | | | | | | | D | Only used in DK |
| Building Number | | | | | | | D | If exist |
| Floor Identification | | | | | | | D | If exist |
| Room Identification | | | | | | | D | If exist |
| City Sub-Division Name | | | | | | | D | Only used in DK |
| Postcode | | | | | | | R | |
| City Name | | | | | | | D | If exist |
| Municipality | | | | | | | D | Only used in DK and SE |
| Country | | | | | | | R | |
| Post Office Box | | | | | | | D | If exist |
| Care Of | | | | | | | D | If exist |
| Attention Of | | | | | | | D | If exist |
| Free Form | | | | | | | D | If exist |
| Communication | | | | | | | O | |
| Communication Channel | | | | | | | R | |
| Complete number | | | | | | | R | |
| Commercial terms | | | | | | | D | Used in Finland and Sweden |
| Suppliers contract number | | | | ✓ | | | D | • Only used in Finland, Required |
| Invoicing mode | | | | ✓ | | | D | • Only used in Finland, Required |
| Billing type | | | | ✓ | | | D | • Only used in Finland, Required |
| End date for current supply contract | | | | ✓ | | | D | • Required in Finland if a valid long term contract<br>• Not decided in Sweden<br>• Denmark and Norway: Not wanted |
| Notice period (number of days or months) | | | | ✓ | | | D | • Proposed in Sweden for contracts with a specific notice period<br>• Denmark and Norway: Not wanted |
| Cancellation fee (true/false) | | | | ✓ | | | D | • Required in Finland<br>• Not decided in Sweden<br>• Denmark and Norway: Not wanted |
| MP Characteristics | | | | | | | | |
| Metering Method | | | | | | ✓ | D | SE: Required until all MPs are hourly read |
| Load profile | | | | ✓ | | | D | • Only used in Finland, Optional |

### 7.10.4 Reject Request Customer information (Class Diagram)

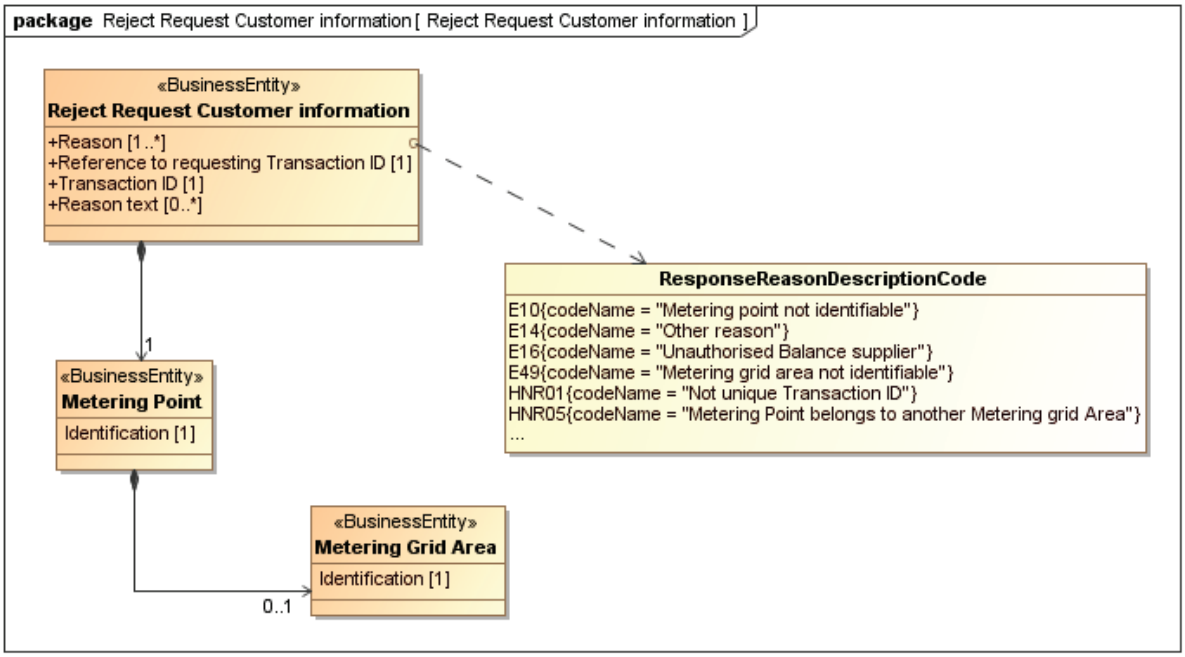



**Figure 63** Reject Request Customer information

| Element definitions, Reject Request Customer information | |
|---|---|
| **«Business entity»** Reject Request Customer information | The information set sent from the *Balance Supplier* to the *Metering Point Administrator* when rejecting a Request Customer information |
| Reason | One or more codes specifying the reason(s) for the rejection of the Request Customer information. |
| Transaction ID | The unique identification of this set of information given by the *Balance Supplier*. |
| Reference to requesting Transaction ID | The Transaction ID from the request, where this is the response for, given by the Initiator. |
| Reason text | A textual description of the reason for the rejection |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point the Request Customer information was intended for |
| **«Business entity»** Metering Grid Area | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs. |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Reject Request Customer information | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | |
| Reason | | | | | | | R | |
| Transaction ID | | | | | | | R | |
| Reference to requesting Transaction ID | | | | | | | R | |
| Reason text | | | | | | | D | Requiered for reason code "**E14** Other reason" |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | | | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | | | | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

## 7.11 Change of Balance Responsible Party

### 7.11.1 Change of Balance Responsible Party (Sequence Diagram)

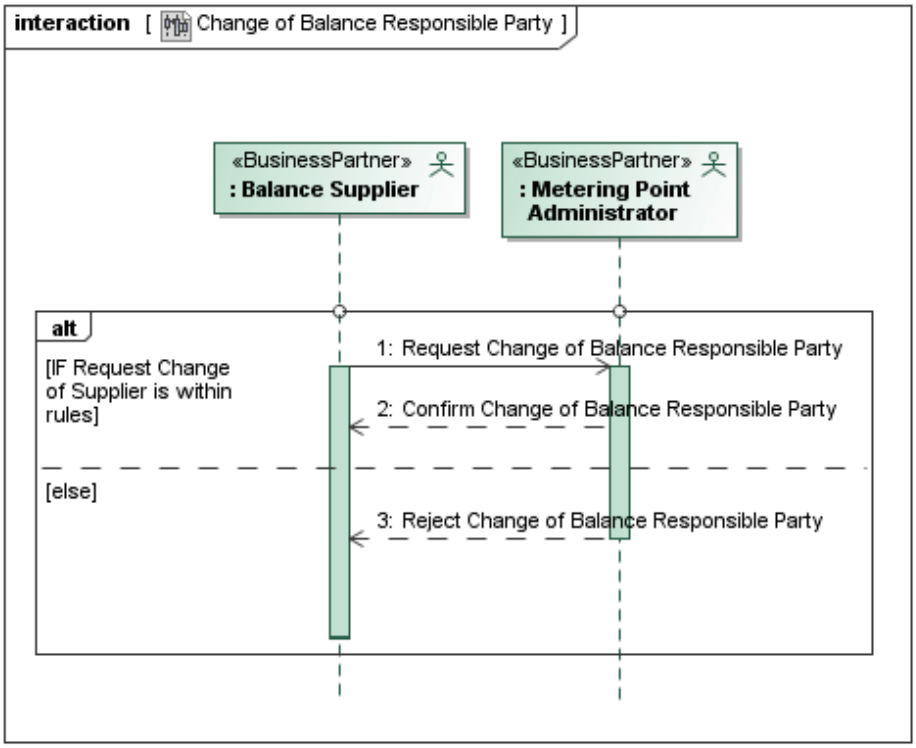



**Figure 64** Sequence diagram: Change of Balance Responsible Party

### 7.11.2 Request Change of Balance Responsible Party (Class Diagram)

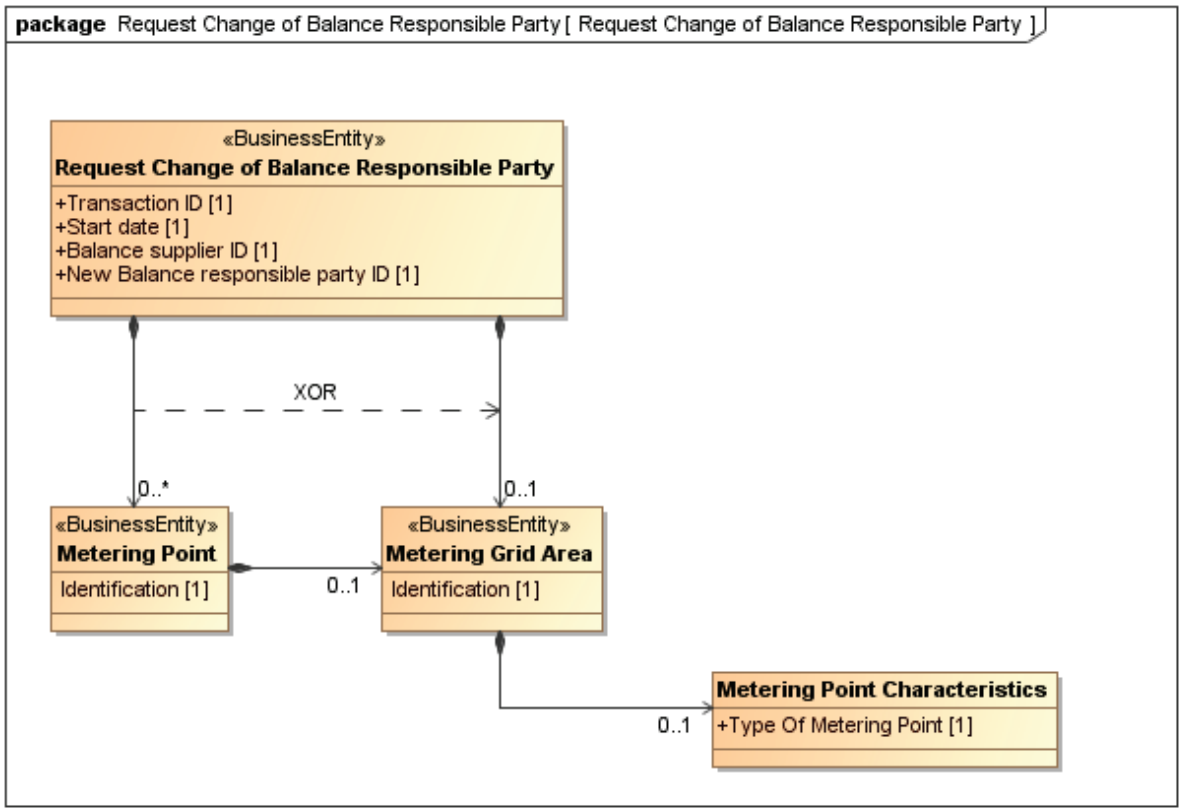



**Figure 65** Request Change of Balance Responsible Party

| Element definitions | |
|---|---|
| **«Business entity»**<br>Request Change of Balance Responsible Party | The information set to be sent by a *Balance Supplier* to the *Metering Point Administrator* when requesting a Change of *Balance Responsible Party* |
| Transaction ID | The unique identification of this set of information given by the requesting *Balance Supplier*. |
| Start date | The requested date for the New *Balance Responsible Party* to take over the responsibility for the balance for this *Metering Point* |
| Balance Supplier ID | The unique identification of the requesting *Balance Supplier* |
| New Balance Responsible Party ID | The unique identification of the requested *New Balance Responsible Party*, as stated by the *Balance Supplier*. |
| **«Business entity»**<br>Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point |
| **«Business entity»**<br>Metering Grid Area | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Metering Point characteristics | The relevant characteristics of this Metering Point |
| Type Of Metering Point | A code specifying the direction of the active energy flow in this Metering Point, such as consumption, production. |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Request Change of Balance Responsible Party | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | | | | | | R | |
| Start date | | | | | | | R | |
| Balance Supplier ID | | | | | | | R | |
| New Balance Responsible Party ID | | | | | | | R | |
| **«Business entity»** Metering Point | | | | | | | D | May be repeated<br><br>Not used if the request concerns all MPs in a *Metering Grid Area* |
| Identification | | | | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | D | Required if the request concerns all MPs in a Metering Grid Area |
| Metering Grid Area ID | | | | | | | D | Requiered if changing *Balance Responsible Party* for all *Metering Points* a *Balance Supplier* has in a *Metering Grid Area*<br><br>Requiered in Finland and Sweden together with the *Metering Point ID* until unique MP IDs are implemented |
| Metering Point characteristics | | | | | | | D | Used if change of BRP for all consumption or production MPs in a MGA |
| Type Of Metering Point | | | | | | | R | Such as Production or Consumption |

### 7.11.3 Confirm Change of Balance Responsible Party (Class Diagram)

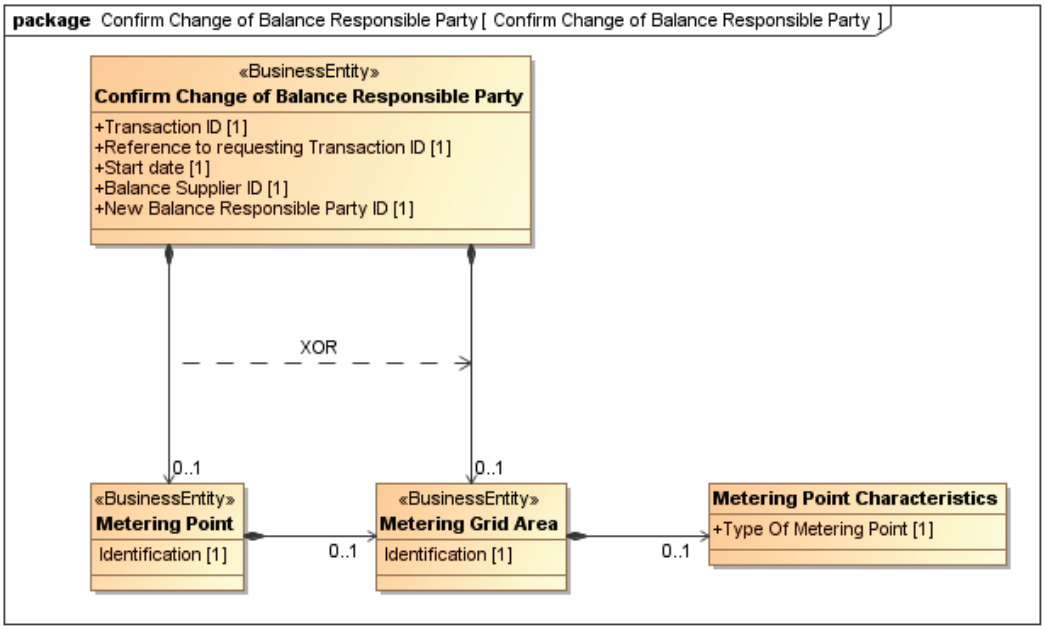



Figure 66 Confirm Change of Balance Responsible Party

| Element definition | |
|---|---|
| **«Business entity»**<br>Confirm Change of Balance Responsible Party | The information set to be sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to confirm this Change of *Balance Responsible Party*. |
| Transaction ID | The unique identification of this set of information given by the Metering Point Administrator. |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier*. |
| Start date | The confirmed date for the *New Balance Responsible Party* to take over the balance responsibility for this *Metering Point* |
| Balance Supplier ID | The unique identification of the requesting *Balance Supplier*. |
| New Balance Responsible Party ID | The unique identification of the confirmed New Balance Responsible Party. |
| «Business entity»<br>Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point |
| «Business entity»<br>Metering Grid Area | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Metering Point characteristics | The relevant characteristics of this Metering Point |
| Type Of Metering Point | A code specifying the direction of the active energy flow in this Metering Point, such as consumption, production. |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Confirm Change of Balance Responsible Party | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | | | | | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Start date | | | | | | | R | |
| Balance Supplier ID | | | | | | | R | |
| New Balance Responsible Party ID | | | | | | | R | |
| **«Business entity»** Metering Point | | | | | | | D | May be repeated<br><br>Not used if the request concerns all MPs in a Metering Grid Area |
| Identification | | | | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | D | Required if the request concerns all MPs in a Metering Grid Area |
| Metering Grid Area ID | | | | | | | D | Requiered if changing *Balance Responsible Party* for all *Metering Points* a *Balance Supplier* has in a *Metering Grid Area*<br><br>Requiered in Finland and Sweden together with the *Metering Point ID* until unique MP IDs are implemented |
| Metering Point characteristics | | | | | | | D | Used if change of BRP for all consumption or production MPs in a MGA |
| Type Of Metering Point | | | | | | | R | Such as Production or Consumption |

### 7.11.4 Reject Change of Balance Responsible Party (Class Diagram)

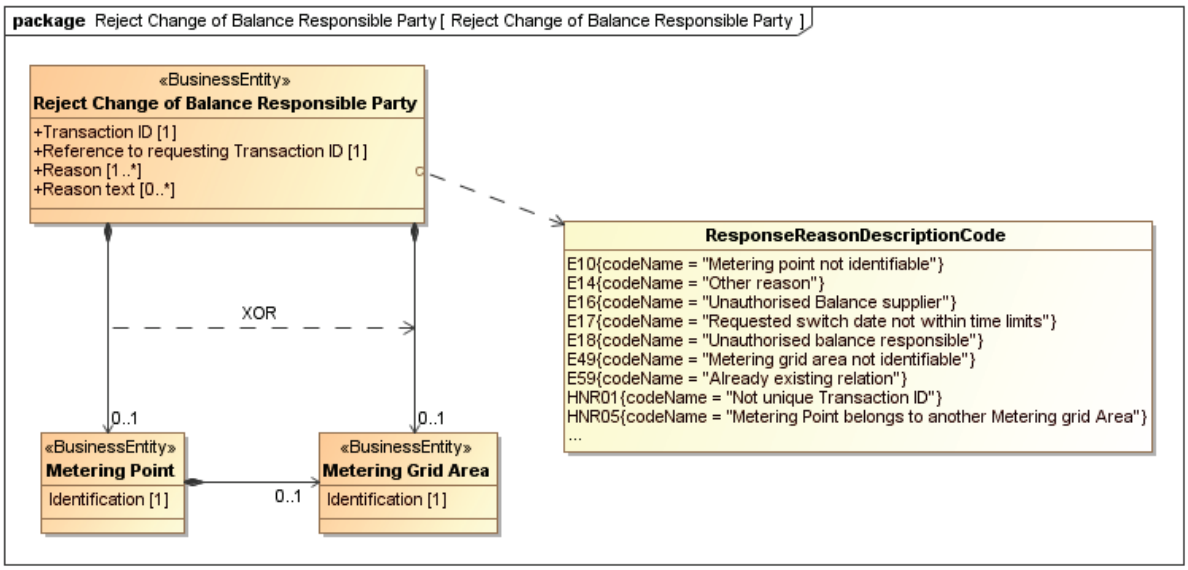



Figure 67 Reject Change of Balance Responsible Party

| Element definitions | |
|---|---|
| **«Business entity»** Reject Change of Balance Responsible Party | The information set sent by the *Metering Point Administrator* to the requesting *Balance Supplier* to reject this Change of *Balance Responsible Party*. |
| Transaction ID | The unique identification of this set of information given by the *Metering Point Administrator* |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| Reason | One or more codes specifying the reason for the rejection of the requested Change of *Balance Responsible Party* |
| Reason text | A textual description of the reason for the rejection |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point |
| **«Business entity»** Metering Grid Area | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the Metering Grid Area to which this Metering Point belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Reject Change of Balance Responsible Party | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | | | | | | R | |
| Reference to requesting Transaction ID | | ✓ | ✓ | | ✓ | ✓ | R | |
| Reason | | | | | | | R | |
| Reason text | | | | | | | D | Requiered for reason code "**E14** Other reason" |
| **«Business entity»** Metering Point | | | | | | | D | May be repeated<br><br>Not used if the request concerns all MPs in a Metering Grid Area |
| Identification | | | | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | D | Required if the request concerns all MPs in a Metering Grid Area |
| Metering Grid Area ID | | | | | | | D | Requiered if changing *Balance Responsible Party* for all *Metering Points* a *Balance Supplier* has in a *Metering Grid Area*<br><br>Requiered in Finland and Sweden together with the *Metering Point ID* until unique MP IDs are implemented |

## 7.12 Notify Change of Meter

### 7.12.1 Notify Change of Meter (Sequence Diagram)

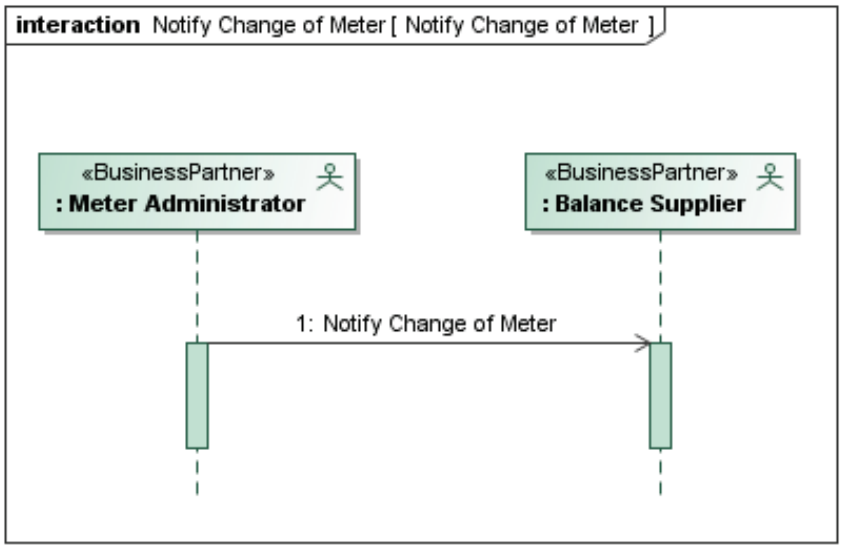



**Figure 68** Sequence diagram: Notify Change of Meter

## 7.12.2 Notify Change of Meter (Class Diagram)

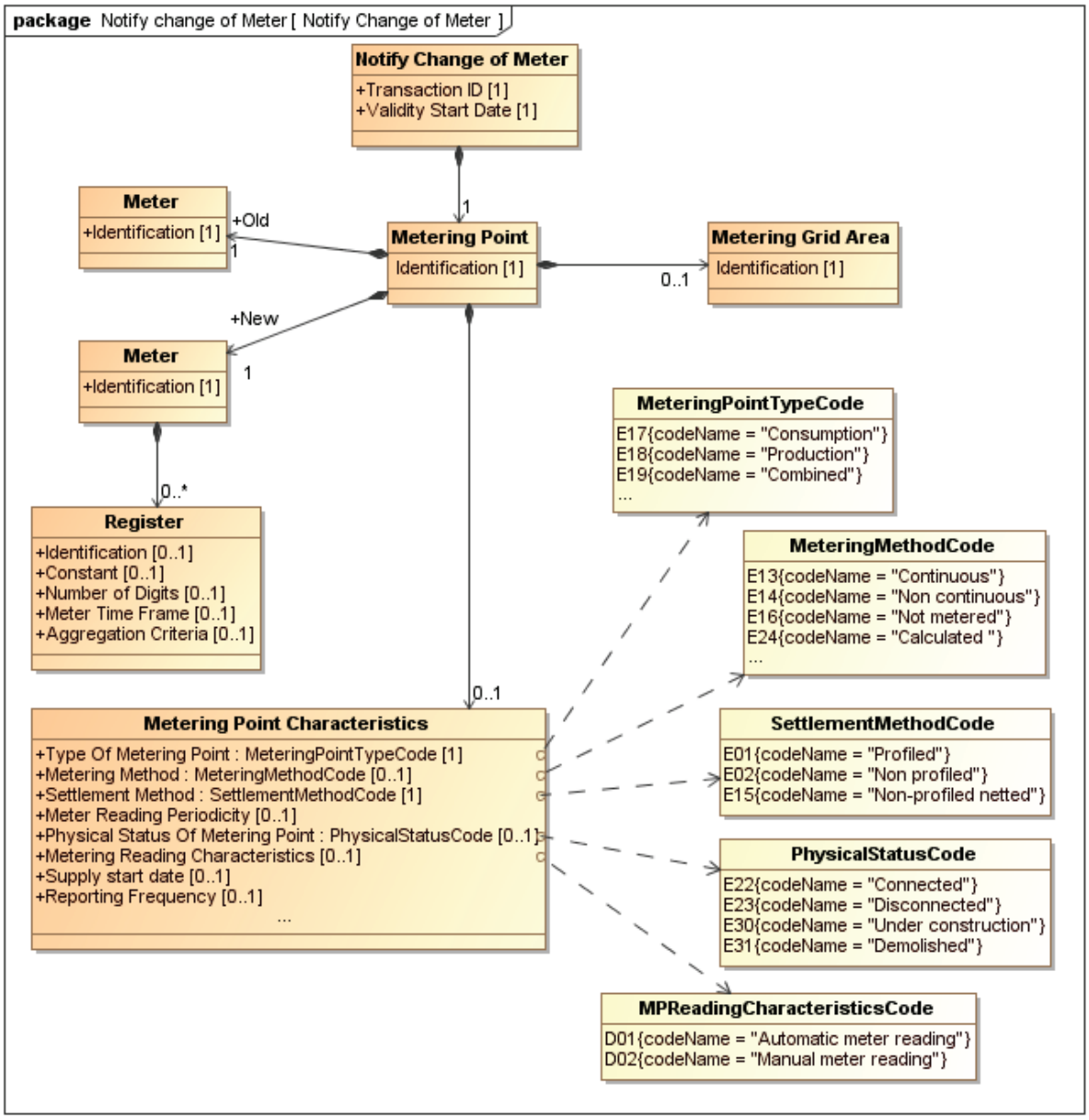



**Figure 69** Notify Change of Meter

| Element definitions | |
|---|---|
| **«Business entity»** Notify Change of Meter | The information set sent by the *Meter Administrator* to the *Balance Supplier* when notifying Change of Meter |
| Validity start date | The date when the content of this business document becomes or became valid |
| Transaction ID | The unique identification of this set of information, given by the *Meter Administrator* |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* the Notify Metering Point Characteristics is intended for |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Metering Point characteristics | The relevant characteristics of this *Metering Point* |
| Type Of Metering Point | A code specifying the direction of the active energy flow in this *Metering Point*, such as consumption, production or combined. |
| Metering Method | A code specifying how the energy volumes are established for this *Metering Point*, such as continuous- non-continuous- or not-metered |
| Settlement Method | A code specifying how the energy volumes are treated for settlement for this *Metering Point*, such as profiled or non-profiled |
| Meter Reading Periodicity | The length of time between the meter readings |
| Physical Status Of Metering Point | A code specifying if the installation of the Metering Point is physically connected to the grid |
| Meter Reading Characteristics | A code specifying how a *Metered Data Collector* collects data from the *Meter* for this *Metering Point*, such as Automatic or Manually |
| Supply Start Date | The Date when the related *Balance Supplier* became or becomes the *Balance Supplier* of this *Metering point* |
| Reporting Frequency | Reporting Frequency specifies how often the values will be sent, i.e. once a day, once a month |
| **«Business entity»** Old Meter | A physical device containing one or more registers |
| Meter number | The unique identification of the Meter |
| **«Business entity»** New Meter | A physical device containing one or more registers |
| Identification | The unique identification of the Meter |
| Register | A physical or logical counter measuring energy products |
| Identification | The unique identification of the Register |
| Constant | The factor used to multiply a meter stand to get the correct measure unit (e.g. kWh) for a calculated volume |
| Number of digits | Number of digits in a Register, without decimals |
| Meter Time Frame Type | A code specifying the tariff time frame for this *Register* |

| | |
|---|---|
| Aggregation criteria | A code specifying how a time series will be aggregated, such as on Balance supplier level combined with national codes, e.g. type of production, "disconnectable consumption" etc. |

## Element usage in the Nordic countries

| «Business entity» Notify Change of Meter | NordREG ebIX® | DK | FI | NO | SE | Harmonised | Comments |
|---|---|---|---|---|---|---|---|
| Validity start date | | | | | ✓ | R | |
| Transaction ID | | | ✓ | | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | |
| Identification | | | ✓ | ✓ | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | |
| Identification | | | ✓ | ✓ | ✓ | R | |
| Metering Point characteristics | | | | | | | |
| Type Of Metering Point | | | | | | R | Such as Production or Consumption |
| Metering Method | | | | | ✓ | D | Required in Sweden (Continuous/Non-continuous) |
| Settlement Method | | | | ✓ | ✓ | R | Profiled/Non-profiled |
| Meter Reading Periodicity | | | | | ✓ | D | Only used in Sweden, Required |
| Physical Status Of Metering Point | | | | | | R | |
| Meter Reading Characteristics | | | ✓ | | | D | Automatic or manual reading<br>NO and DK: Required |
| Supply start date | | | | | ✓ | D | Only used in Sweden and only when sent before Start date |
| Reporting Frequency | | | | | ✓ | D | Only used in Sweden (Required) |
| Old Meter | | | | | | | |
| Identification | | | | | ✓ | R | |
| New Meter | | | | | | | |
| Identification | | | ✓ | ✓ | ✓ | R | |
| Register | | | | | | | |
| Constant | | | ✓ | ✓ | ✓ | R | |
| Number of digits | | | ✓ | ✓ | ✓ | R | |
| Meter Time Frame | | | | | ✓ | D | Only used in Sweden, required for metering points with meter stands |
| Aggregation criteria | | | | | ✓ | D | Only used in Sweden, sent if changed |

## 7.13 Request Validated Data for Billing Energy

### 7.13.1 Request Validated Data for Billing Energy (Sequence Diagram)

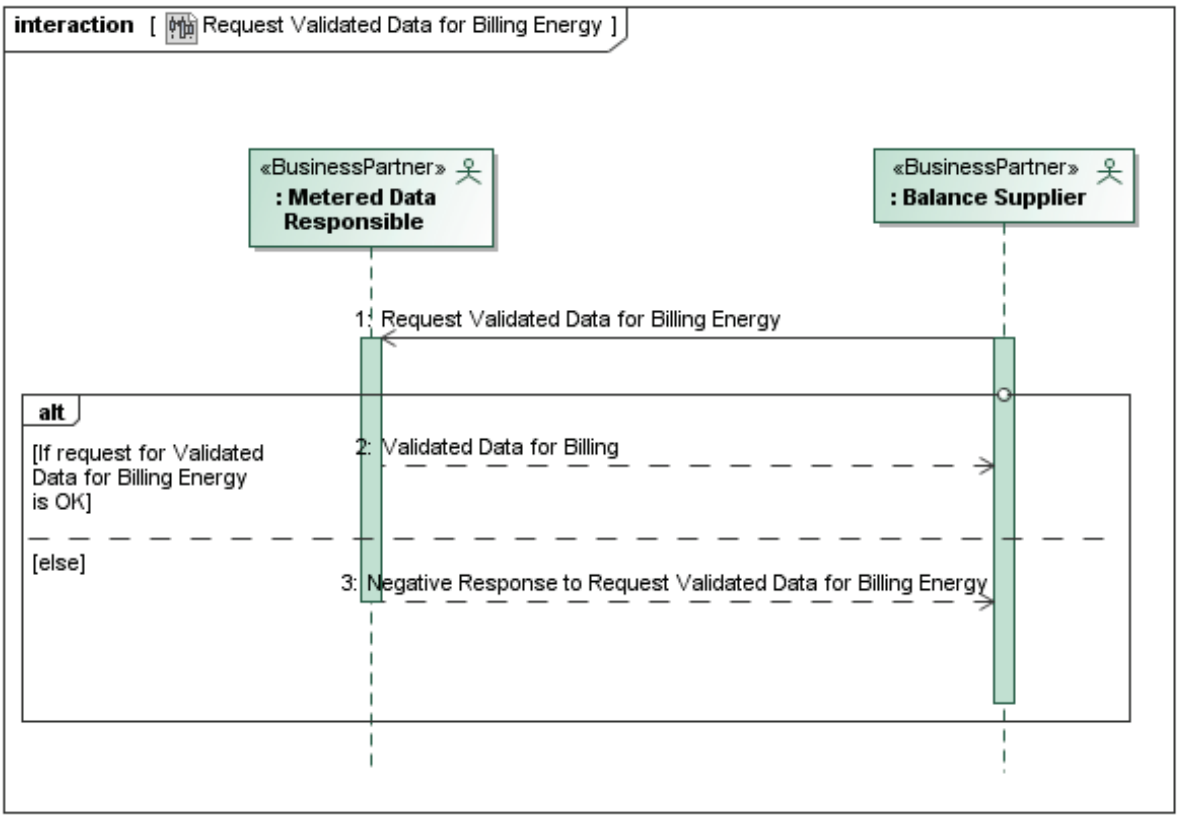



**Figure 70** Sequence diagram: Request Validated Data for Billing Energy

### 7.13.2 Request Validated Data for Billing Energy (Class Diagram)

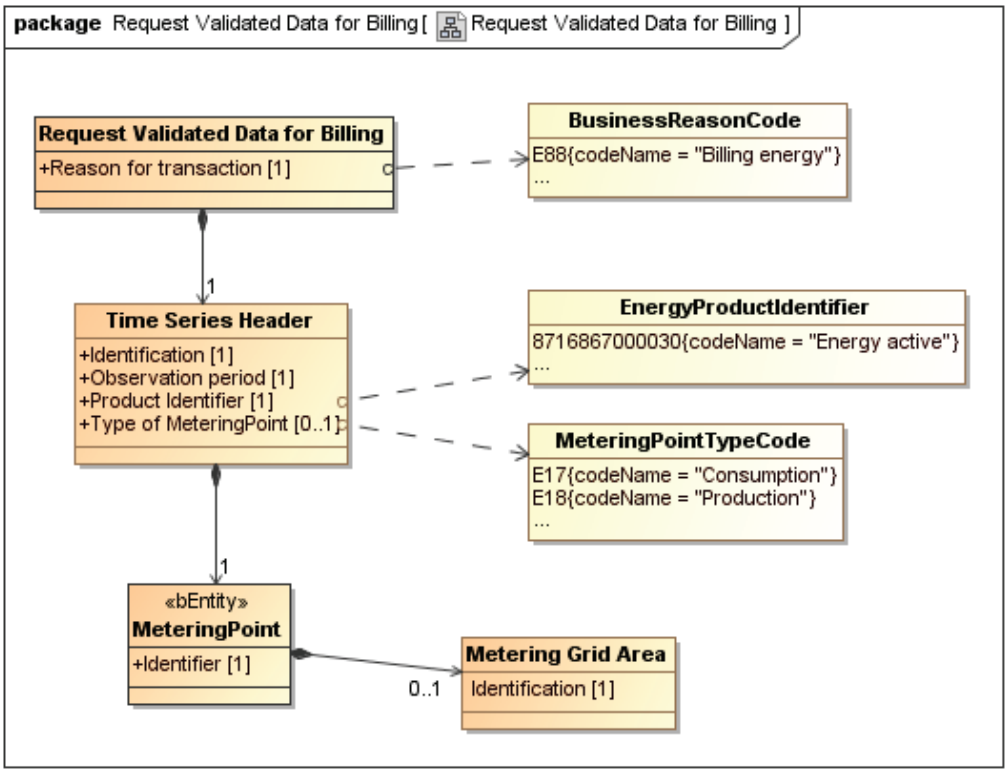



**Figure 71** Request Validated Data for Billing Energy

| Element definitions | |
|---|---|
| **«Business entity»** Request Validated Data for Billing Energy | The information set sent by the *Balance Supplier* to the *Metered Data responsible* when Requesting Validated Data for Billing Energy or when sending Meter Stands, on behalf of the Customer, to the *Metered Data responsible* |
| Reason for transaction | The reason code is used to specify the reason for sending this time series (transaction), such as Change of supplier or periodic meter reading |
| Time Series Header | |
| Identification | The unique identification of this Request for Validated Data for Billing Energy |
| Product Identifier | The identification of the relevant product for the time series |
| Observation period | The start and end of the valid period of the observations the request concerns |
| Type of Metering Point | The type of Metering Point |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point |
| **«Business entity»** Metering Grid Area | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Request Validated Data for Billing Energy | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Reason for transaction | | | | | | ✓ | R | |
| Time Series Header | | | | | | | | |
| Validated Data for Billing Energy Identification | | | | | | | R | |
| Product Identifier | | | | | | ✓ | R | |
| Observation period | | | | | | ✓ | R | |
| Type of Metering Point | | | | | | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | ✓ | | | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Metering Grid Area ID | | | | | | ✓ | D | FI, SE: Finnish and Swedish speciality (request) until all unique MP IDs are implemented |

### 7.13.3 Response Validated Data for Billing Energy (Class Diagram)

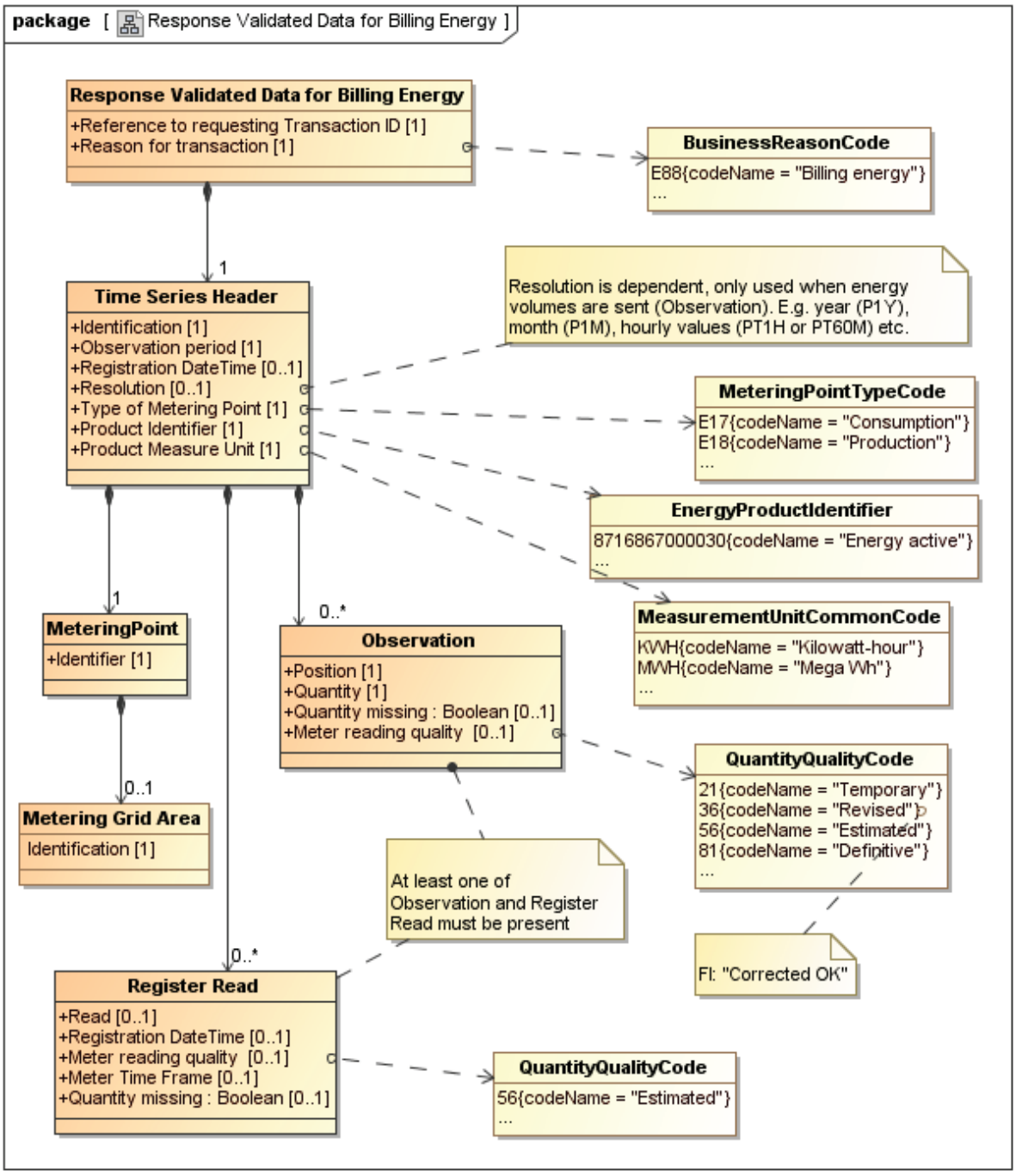



**Figure 72** Response Validated Data for Billing Energy

***Comments to the diagram:***

- If needed in the future, the Product Identifier and the Product Measure Unit may be extended to include other products, such as reactive energy
- The Quantity Quality Code "**127** Metered" is the default value of the coded element, hence not exchanged
- How to use different Quantity Quality Codes should be harmonised with the Nordic Balance Settlement system (NBS)

| Element definitions | |
|---|---|
| **«Business entity»** Response Validated Data for Billing Energy | The information set sent by the *Metered Data responsible* to the *Balance Supplier* when responding Validated Data for Billing Energy after a request |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier*. |
| Reason for transaction | The reason code is used to specify the reason for sending this time series (transaction) |
| Time Series Header | Characteristics of the time series in question |
| Identification | The unique identification of this set of Validated Data (Time Series) |
| Observation period | The start and end of the valid period of the observations |
| Registration Date Time | The date and time when the latest relevant observation was registered in the metered data database |
| Resolution | The resolution of each observation in a time series, such as 15 minutes or one hour<br><br>**Note:** The Resolution is only used for Observations |
| Type of Metering Point | The type of *Metering Point* |
| Product Identifier | The identification of the relevant product for the time series |
| Product Measure Unit | Measure Unit used in this set of Validated Data |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Register Read | **Note:** The Register Read is only used for meter stands (one or more) and related date(s) |
| Read | A meter stand |
| Registration Date Time | The date and time when the Read was registered |
| Meter Reading Quality | The quality of a meter reading, such as estimated or metered |
| Meter Time Frame | A code specifying the tariff time frame for this *Register* |
| Quantity missing | A Boolean element (true/false) used if a quantity is missing |
| Observation | An observation within a time series containing a quantity (volume) anr related characteristics |
| Position | The reads position in the sequence of observations |
| Quantity | The quantity of this observation |
| Meter Reading Quality | The quality of he observation |
| Quantity missing | The relevant Meter Time Frame for this observation |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Response Validated Data for Billing Energy | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Reference to requesting Transaction ID | | | | | | | R | |
| Reason for transaction | | ✓ | | | | ✓ | R | |
| Time Series Header | | | | | | | | |
| Identification | | ✓ | | | | ✓ | R | |
| Observation period | | ✓ | | | | ✓ | R | |
| Registration Date Time | | ✓ | | | | ✓ | R | |
| Resolution | | ✓ | | | | ✓ | D | Used when sending Observations |
| Type of Metering Point | | ✓ | | | | ✓ | R | |
| Product Identifier | | ✓ | | | | ✓ | R | |
| Product Measure Unit | | ✓ | | | | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | | | | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Identification | | | | | | ✓ | D | FI, SE: Finnish and Swedish speciality (request) until all unique MP IDs are implemented |
| Register Read | | | | | | | R | SE: Sweden will send all relevant meter stands within the period (e.g. at beginning and end plus a possible meter stand within the period without quality if one of the other has a quality code and this is based on the third meter stand within the period).<br><br>May be repeated |
| Read | | | | | | ✓ | R | |
| Registration Date Time | | | | | | ✓ | R | |
| Meter Reading Quality | | | | | | | D | Not used if the quality is “Metered” (default) |
| Meter Time Frame | | | | | | ✓ | D | Only used in Sweden, required for metering points with meter stands |
| Quantity missing | | | | | | | D | Only used if “Read” (meter stand) is missing |
| Observation | | | | | | | D | Only used when sending energy volumes (time series) |
| Position | | | | | | ✓ | R | |
| Quantity | | | | | | ✓ | R | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Meter Reading Quality | | | | | | ✓ | D | Not used if the quality is “Metered” (default)<br><br>Code “**36** Revised” (“Corrected OK” is only used in Finland |
| Quantity missing | | | | | | | D | Only used if “Quantity” is missing |

### 7.13.4 Reject Request Validated Data for Billing Energy (Class Diagram)

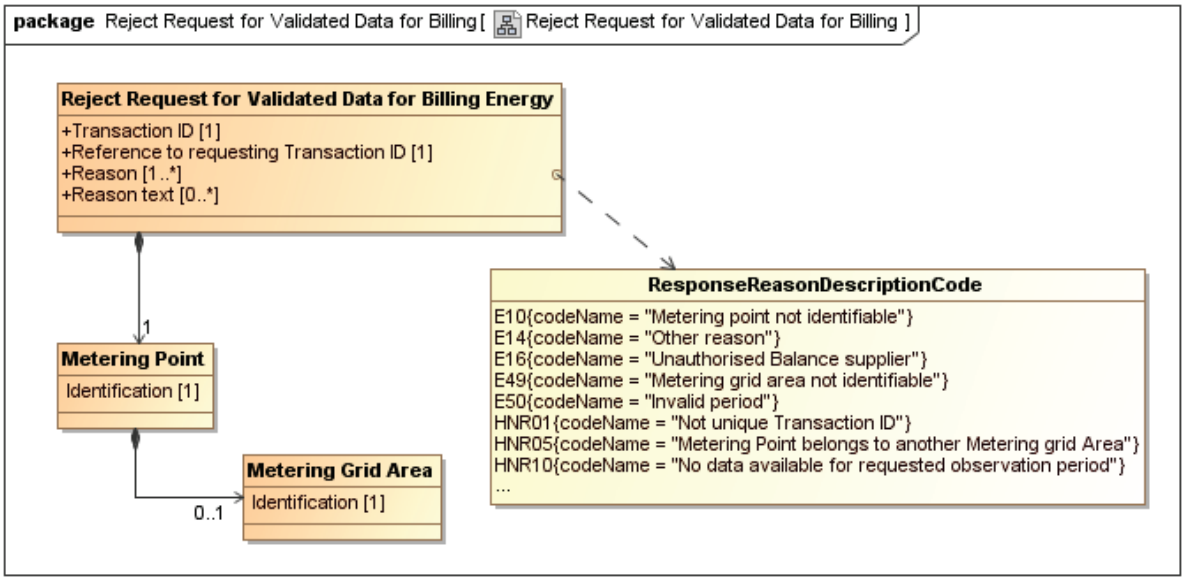



**Figure 73** Reject Request for Validated Data for Billing Energy

| Element definitions | |
|---|---|
| **«Business entity»** Reject Request for Validated Data for Billing Energy | The information set sent by the *Metered Data responsible* to the *Balance Supplier* when Rejecting a Request for Validated Data for Billing Energy |
| Transaction ID | The unique identification of this rejection of a Request for Validated Data for Billing Energy |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| Reason | One or more codes specifying the reason for the rejection of the request |
| Reason text | A textual description of the reason for the rejection |
| «Business entity» Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point |
| «Business entity» Metering Grid Area | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the Metering Grid Area to which this Metering Point belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Reject Request for Validated Data for Billing Energy | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | | | | | | R | |
| Reference to requesting Transaction ID | | | | | | | R | |
| Reason | | | | | | | R | |
| Reason text | | | | | | | D | Requiered for reason code "**E14** Other reason" |
| **«Business entity»** Metering Point | | | | | | | D | May be repeated |
| Identification | | | | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | D | Required if the request concerns all MPs in a Metering Grid Area |
| Metering Grid Area ID | | | | | | | R | FI, SE: Finnish and Swedish speciality (request) until all unique MP IDs are implemented |

## 7.14 Notify Validated Data for Billing Energy

### 7.14.1 Notify Validated Data for Billing Energy (Sequence Diagram)

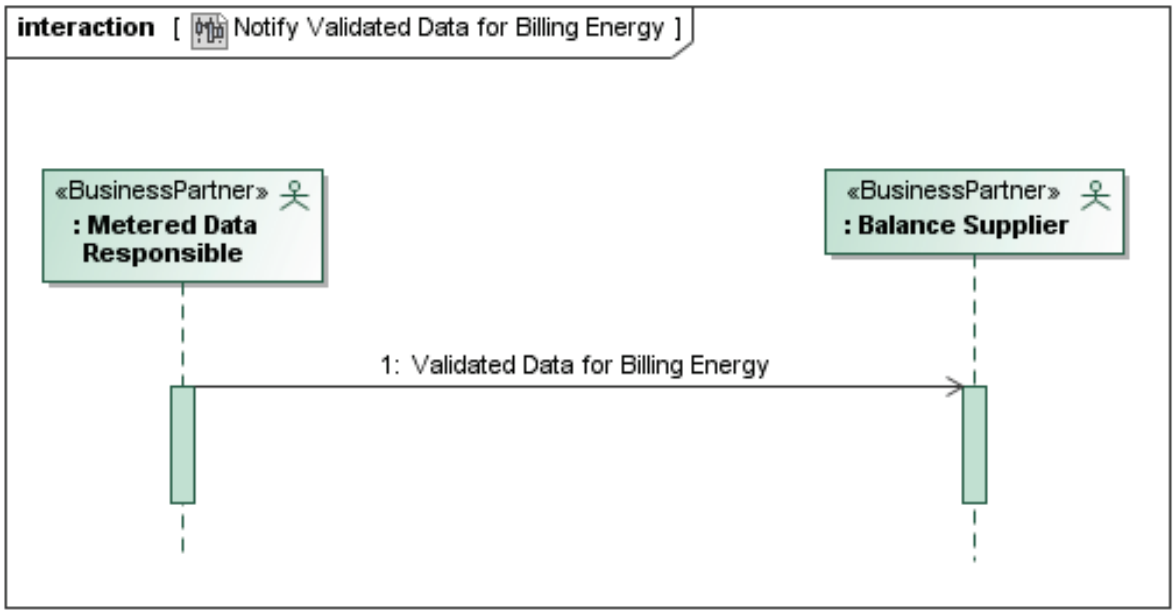



**Figure 74** Sequence diagram: Notify Validated Data for Billing Energy

### 7.14.2 Notify Validated Data for Billing Energy (Class Diagram)

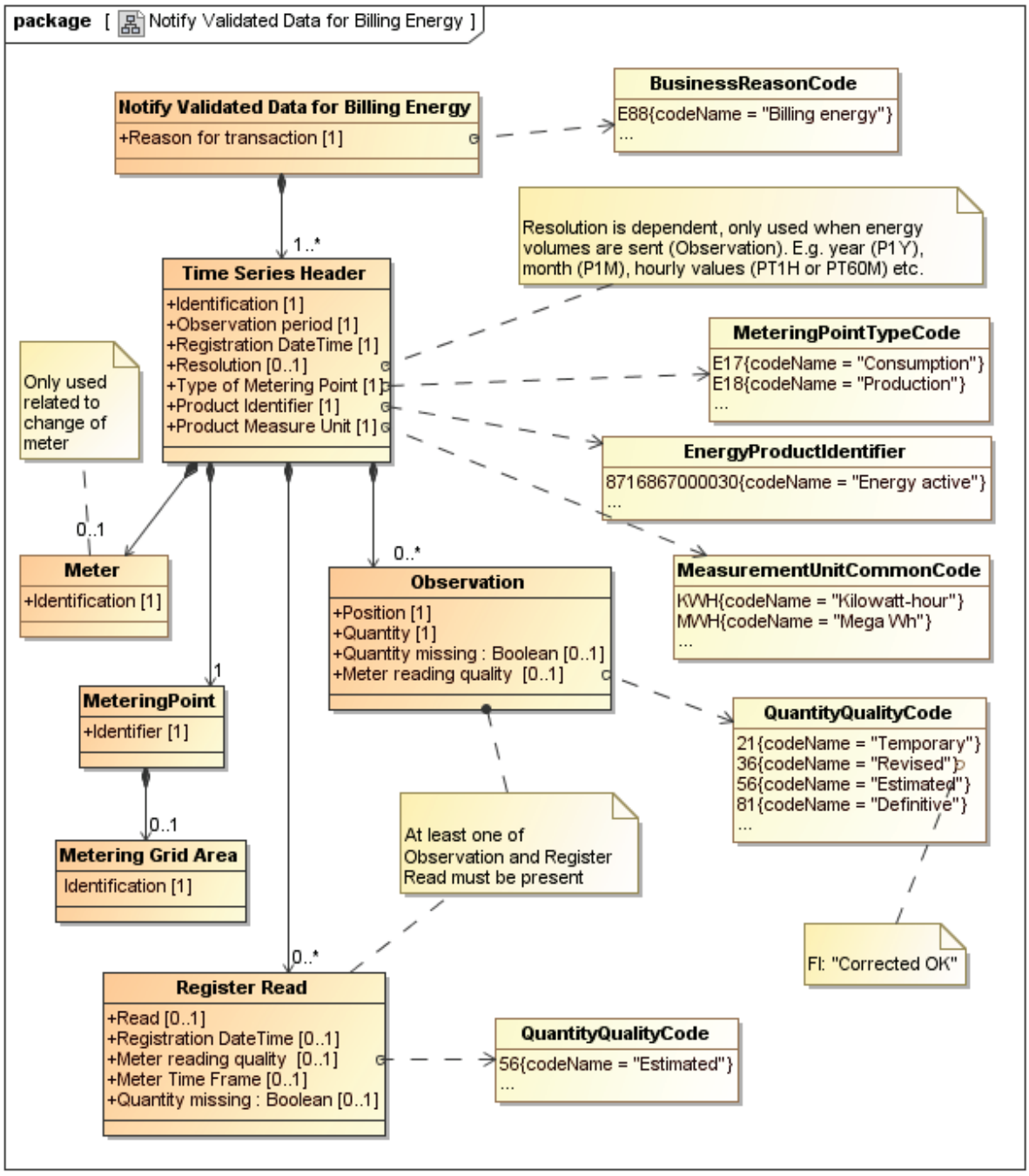



**Figure 75** Notify Validated Data for Billing Energy

***Comments to the diagram:***

- If needed in the future, the Product Identifier and the Product Measure Unit may be extended to include other products, such as reactive energy
- The Quantity Quality Code "**127** Metered" is the default value of the coded element, hence not exchanged
- How to use different Quantity Quality Codes should be harmonised with the Nordic Balance Settlement system (NBS)

| Element definitions | |
|---|---|
| **«Business entity»** Notify Validated Data for Billing Energy | The information set sent by the *Metered Data responsible* to the *Balance Supplier* when notifying Validated Data for Billing Energy |
| Reason for transaction | The reason code is used to specify the reason for sending this time series (transaction) |
| Time Series Header | Characteristics of the time series in question |
| Identification | The unique identification of this set of Validated Data (Time Series) |
| Observation period | The start and end of the valid period of the observations |
| Registration Date Time | The date and time when the latest relevant observation was registered in the metered data database |
| Resolution | The resolution of each observation in a time series, such as 15 minutes or one hour<br><br>**Note:** The Resolution is only used for Observations |
| Type of Metering Point | The type of *Metering Point* |
| Product Identifier | The identification of the relevant product for the time series |
| Product Measure Unit | Measure Unit used in this set of Validated Data |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| **«Business entity»** Meter | A physical device containing one or more registers |
| Meter number | The unique identification of the Meter |
| Register Read | **Note:** The Register Read is only used for meter stands (one or more) and related date(s) |
| Read | A meter stand |
| Registration Date Time | The date and time when the Read was registered |
| Meter Reading Quality | The quality of a meter reading, such as estimated or metered |
| Meter Time Frame | A code specifying the tariff time frame for this *Register* |
| Quantity missing | A Boolean element (true/false) used if a quantity is missing |
| Observation | An observation within a time series containing a quantity (volume) anr related characteristics |
| Position | The reads position in the sequence of observations |
| Quantity | The quantity of this observation |
| Meter Reading Quality | The quality of he observation |
| Quantity missing | The relevant Meter Time Frame for this observation |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Notify Validated Data for Billing Energy | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Reason for transaction | | ✓ | | | | | R | |
| Time Series Header | | | | | | | | |
| Identification | | ✓ | | | | ✓ | R | |
| Observation period | | ✓ | | | | ✓ | R | |
| Registration Date Time | | ✓ | | | | ✓ | R | |
| Resolution | | ✓ | | | | ✓ | D | Used when sending Observations |
| Type of Metering Point | | ✓ | | | | ✓ | R | |
| Product Identifier | | ✓ | | | | ✓ | R | |
| Product Measure Unit | | ✓ | | | | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | | | | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Identification | | | | | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |
| **«Business entity»** Meter | | | | | | | | |
| Identification | | | | | | ✓ | D | Only used related to change of Meter |
| Register Read | | | | | | | R | SE: Sweden will send all relevant meter stands within the period (e.g. at beginning and end plus a possible meter stand within the period without quality if one of the other has a quality code and this is based on the third meter stand within the period). May be repeated |
| Read | | | | | | ✓ | R | |
| Registration Date Time | | | | | | ✓ | R | |
| Meter Reading Quality | | | | | | | D | Not used if the quality is “Metered” (default) |
| Meter Time Frame | | | | | | ✓ | D | Only used in Sweden, required for metering points with meter stands |
| Quantity missing | | | | | | | D | Only used if “Read” (meter stand) is missing |
| Observation | | | | | | | D | Only used when sending energy volumes (time series) |
| Position | | | | | | ✓ | R | |
| Quantity | | | | | | ✓ | R | |
| Meter Reading Quality | | | | | | ✓ | D | Not used if the quality is “Metered” (default) |
| Quantity missing | | | | | | | D | Only used if “Quantity” is missing |

## 7.15 Request Update of Metered Data

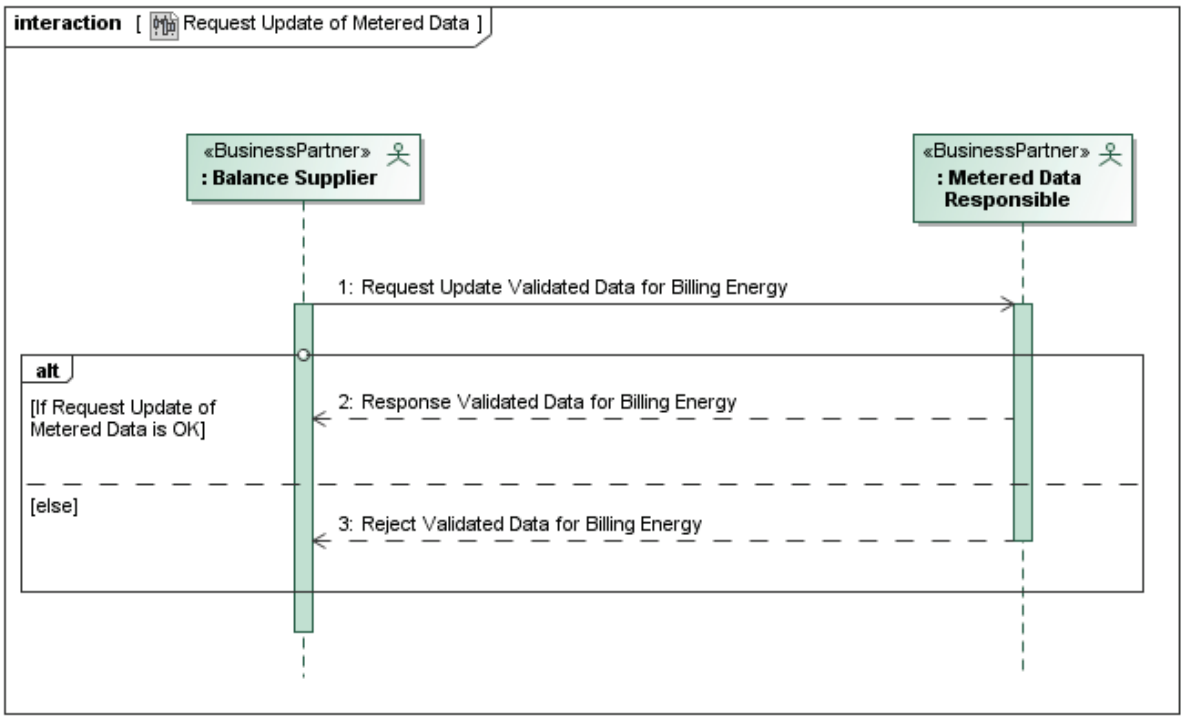



**Figure 76** Sequence diagram: **Request Update of Metered Data**

### 7.15.1 Request Update of Metered Data (Class Diagram)

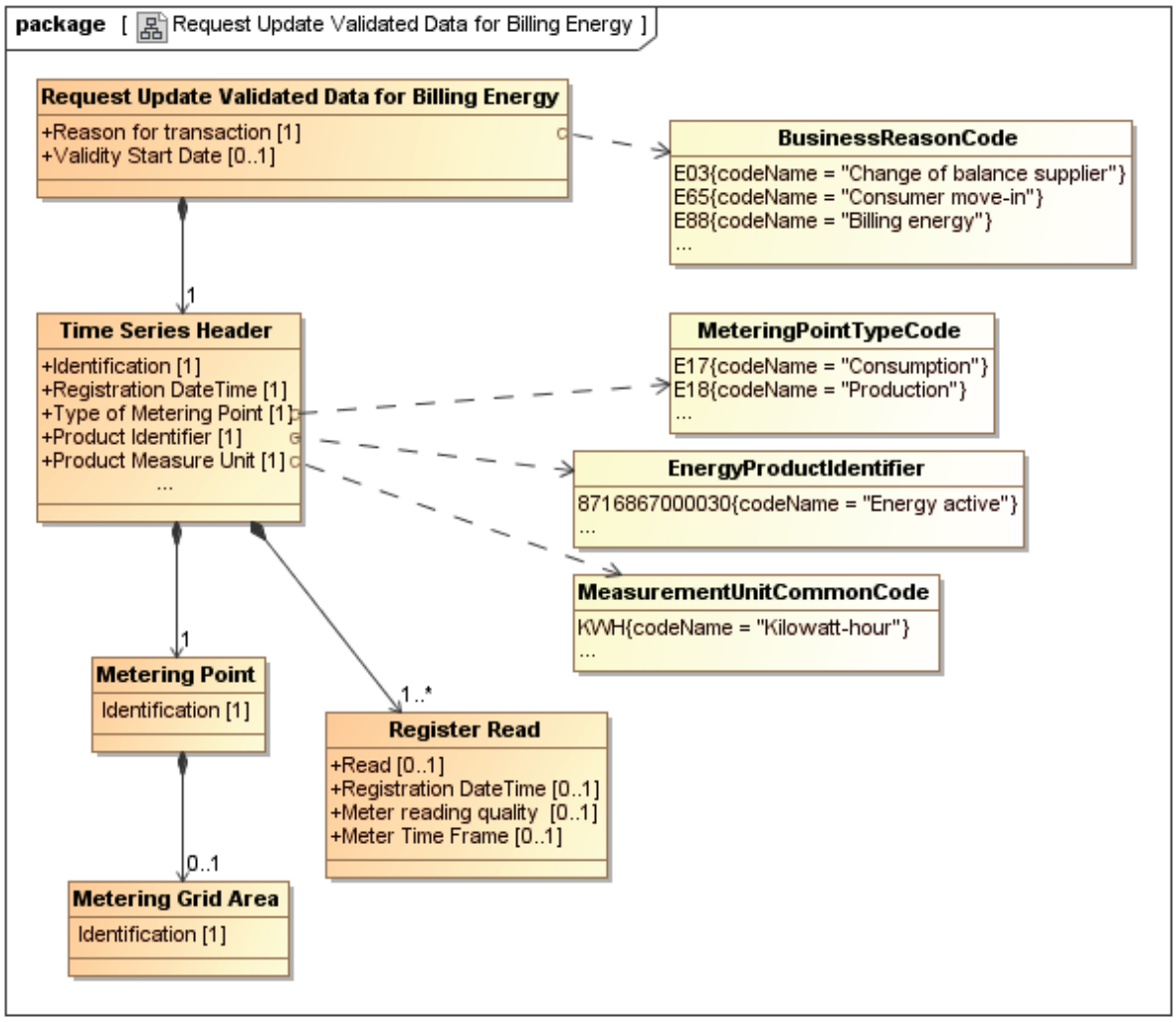



**Figure 77** Request Validated Data for Billing Energy

***Comments to the diagram:***

- If needed in the future, the Product Identifier and the Product Measure Unit may be extended to include other products, such as reactive energy
- The Quantity Quality Code "**127** Metered" is the default value of the coded element, hence not exchanged
- How to use different Quantity Quality Codes should be harmonised with the Nordic Balance Settlement system (NBS)

| Element definitions | |
|---|---|
| **«Business entity»** Request Validated Data for Billing Energy | The information set sent by the *Balance Supplier* to the *Metered Data responsible* when Requesting Validated Data for Billing Energy or when sending Meter Stands, on behalf of the Customer, to the *Metered Data responsible* |
| Reason for transaction | The unique identification of this set of information given by the requesting *Balance Supplier*. |
| Validity Start Date | The date when the Metered data becomes valid, e.g. the switch date when changing supplier |
| Time Series Header | |
| Identification | The unique identification of this set of Data |
| Registration Date Time | The date and time when the latest relevant observation was registered in the metering data database |
| Type of Metering Point | The type of *Metering Point*, such as consumption or production |
| Product Identifier | The identification of the relevant product for the time series |
| Product Measure Unit | Measure Unit used in this set of Validated Data |
| **«Business entity»** Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the *Metering Point* |
| **«Business entity»** Metering Grid Area | A *Metering Grid Area* is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the *Metering Grid Area* to which this *Metering Point* belongs |
| Register Read | |
| Read | A meter stand |
| Registration Date Time | The date and time when the Read was registered |
| Meter Reading Quality | The quality of a meter reading, such as estimated or metered |
| Meter Time Frame | A code specifying the tariff time frame for this Register |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Validated Data for Billing Energy | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Reason for transaction | | | | | | | R | |
| Validity Start Date | | | | | | | R | |
| Time Series Header | | | | | | | | |
| Identification | | ✓ | | | | ✓ | R | |
| Registration Date Time | | ✓ | | | | ✓ | R | |
| Type of Metering Point | | ✓ | | | | ✓ | R | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Product Identifier | | ✓ | | | | ✓ | R | |
| Product Measure Unit | | ✓ | | | | ✓ | R | |
| **«Business entity»** Metering Point | | | | | | | | |
| Identification | | ✓ | | | | ✓ | R | |
| **«Business entity»** Metering Grid Area | | | | | | | | |
| Identification | | | | | | ✓ | D | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |
| Register Read | | | | | | | R | May be repeated |
| Read | | | | | | ✓ | R | |
| Registration Date Time | | | | | | ✓ | D | Dependent on national rules |
| Meter Reading Quality | | | | | | | R | |
| Meter Time Frame | | | | | | ✓ | D | Only used in Sweden, required for metering points with meter stands |

### 7.15.2 Response Validated Data for Billing Energy (Class Diagram)

Response Validated Data for Billing Energy is elaborated in chapter 7.14.2.

### 7.15.3 Reject Request for Update of Metered Data (Class Diagram)

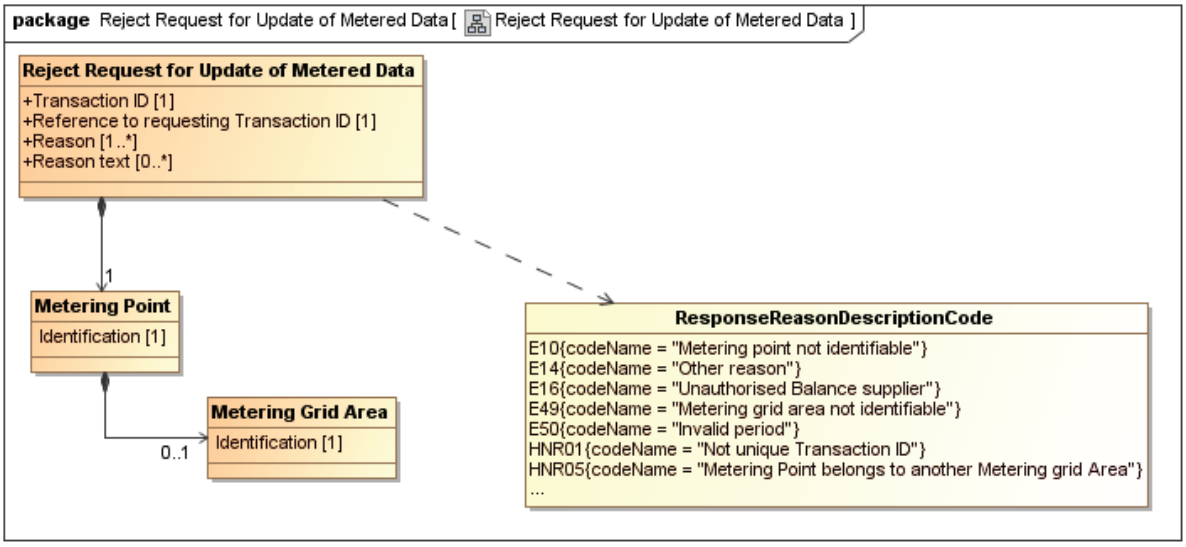



**Figure 78** Reject Request for Update of Metered Data

| Element definitions |
|---|

| **«Business entity»** Reject Request for Update of Metered Data | The information set sent by the *Metered Data responsible* to the *Balance Supplier* when Rejecting a Request for Update of Metered Data |
|---|---|
| Transaction ID | The unique identification of this rejection of a Request for Update of Metered Data |
| Reference to requesting Transaction ID | The Transaction ID from the request given by the requesting *Balance Supplier* |
| Reason | One or more codes specifying the reason for the rejection of the request |
| Reason text | A textual description of the reason for the rejection |
| «Business entity» Metering Point | An entity where energy products are measured or computed |
| Identification | The unique identification of the Metering Point |
| «Business entity» Metering Grid Area | A Metering Grid Area is a physical area where consumption, production and exchange can be metered. It is delimited by the placement of meters for period measurement for input to, and withdrawal from the area. It can be used to establish the sum of consumption and production with no period measurement and network losses. |
| Identification | The unique identification of the Metering Grid Area to which this Metering Point belongs |

| Element usage in the Nordic countries | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **«Business entity»** Reject Request for Update of Metered Data | **NordREG** | **ebIX®** | **DK** | **FI** | **NO** | **SE** | **HNR Proposal** | **Comments** |
| Transaction ID | | | | | | | R | |
| Reference to requesting Transaction ID | | | | | | | R | |
| Reason | | | | | | | R | |
| Reason text | | | | | | | D | Requiered for reason code "**E14** Other reason" |
| **«Business entity»** Metering Point | | | | | | | R | May be repeated |
| Identification | | | | | | | R | |
| **«Business entity»** Metering Grid Area | | | | | | | D | Required if the request concerns all MPs in a Metering Grid Area |
| Metering Grid Area ID | | | | | | | R | FI, SE: Finnish and Swedish speciality (required) until all unique MP IDs are implemented |

# 8 Acknowledgements

## 8.1 Introduction

This acknowledgement process is based on the ENTSO-E acknowledgement process [11].

The acknowledgement processes will only be used for technical acknowledgements and not for acceptance and rejection on a business level. Acceptance and rejection on a business level will be handled by sending responding documents. For "Notification documents", such as *Notify Metering Point Characteristics* there are no responding documents. If errors is found on a business level, this must be notified to the sender manually (telephone, mail, web-form…), e.g. receiving metered data for an invalid period.

Technical acknowledgement on a syntax level (similar to the CONTRL messages used in FI, NO and SE) or on an "application level" (similar to the APERAK messages used in FI, NO and SE) will only be used for asynchronous communication, such as SMTP. For Web Services (WS), technical acknowledgement on a syntax level is not needed, since the response will appear more or less immediately, as a part of the service.

## 8.2 Business Process

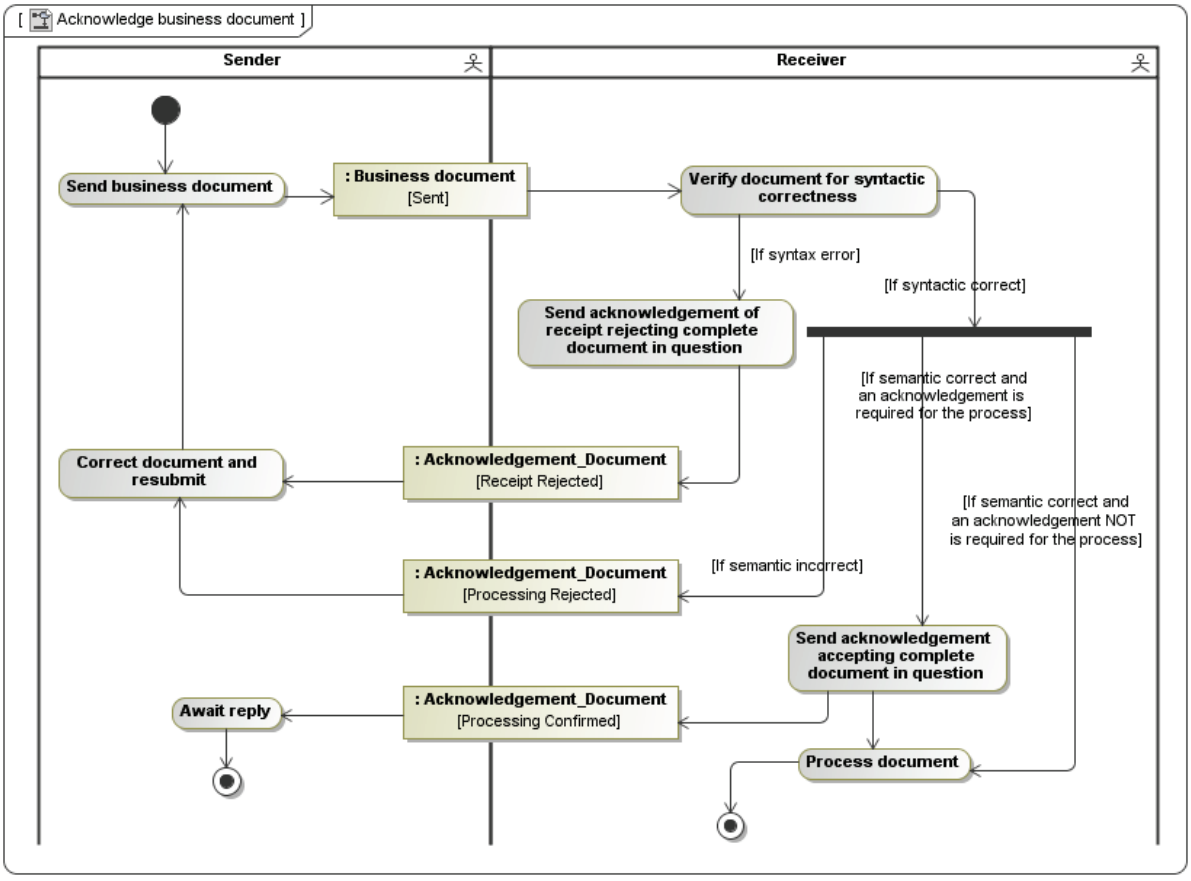



Figure 79 Acknowledgement process

A document is controlled within the system environment at two levels:

1. It is first controlled at system level to detect syntax errors (XML parsing errors, file-processing errors, etc.);

2. It is then controlled at the application level to detect any semantic errors (invalid data, wrong process, etc.)

### 8.2.1 Acknowledgement principles

- If there is a problem encountered at the first level then a negative acknowledgement of receipt will be sent to inform the originator of the problem
    - For synchronous WS the acknowledgement of receipt is always used and is assumed to be a "SOAP ack"
    - For asynchronous communication (MADES, SMTP….) the negative acknowledgement of receipt is always used (see below). The error code used is always "999". The related error text shall always be used and should be so detailed that the recipient of the acknowledgement can understand the error, i.e. where the error occur (element or object), line number etc.
- If errors are encountered at the second level, a negative acknowledgement of processing will be sent to inform the originator of the problem
    - For synchronous WS the negative acknowledgement of processing is always used and is assumed to be a "SOAP ack"
    - For asynchronous communication (MADES, SMTP….) the negative acknowledgement of processing is always used (see below)
- If the application can successfully process the information then a positive acknowledgement of processing may be sent, dependent on the process and the means of communication, to inform the originator that the original document is accepted
    - For one-way transaction patterns (notifications) a positive acknowledgement of processing is always used:
        - For synchronous WS the positive acknowledgement of processing is assumed to be a "SOAP ack"
        - It is a prerequisite that all acknowledgements can be logged for follow up purposes
        - For asynchronous communication (MADES, SMTP….) the positive acknowledgement of processing is always used
    - For two-way transaction patterns the use of positive acknowledgement of processing is specified in the process
- In general there shall be an acknowledgement stating that the recipient of a business document has received the document. This may be a "communication handshake", an acknowledgement document etc.
- The language in error text shall be English

## 8.3 Acknowledgement document (Class Diagram)

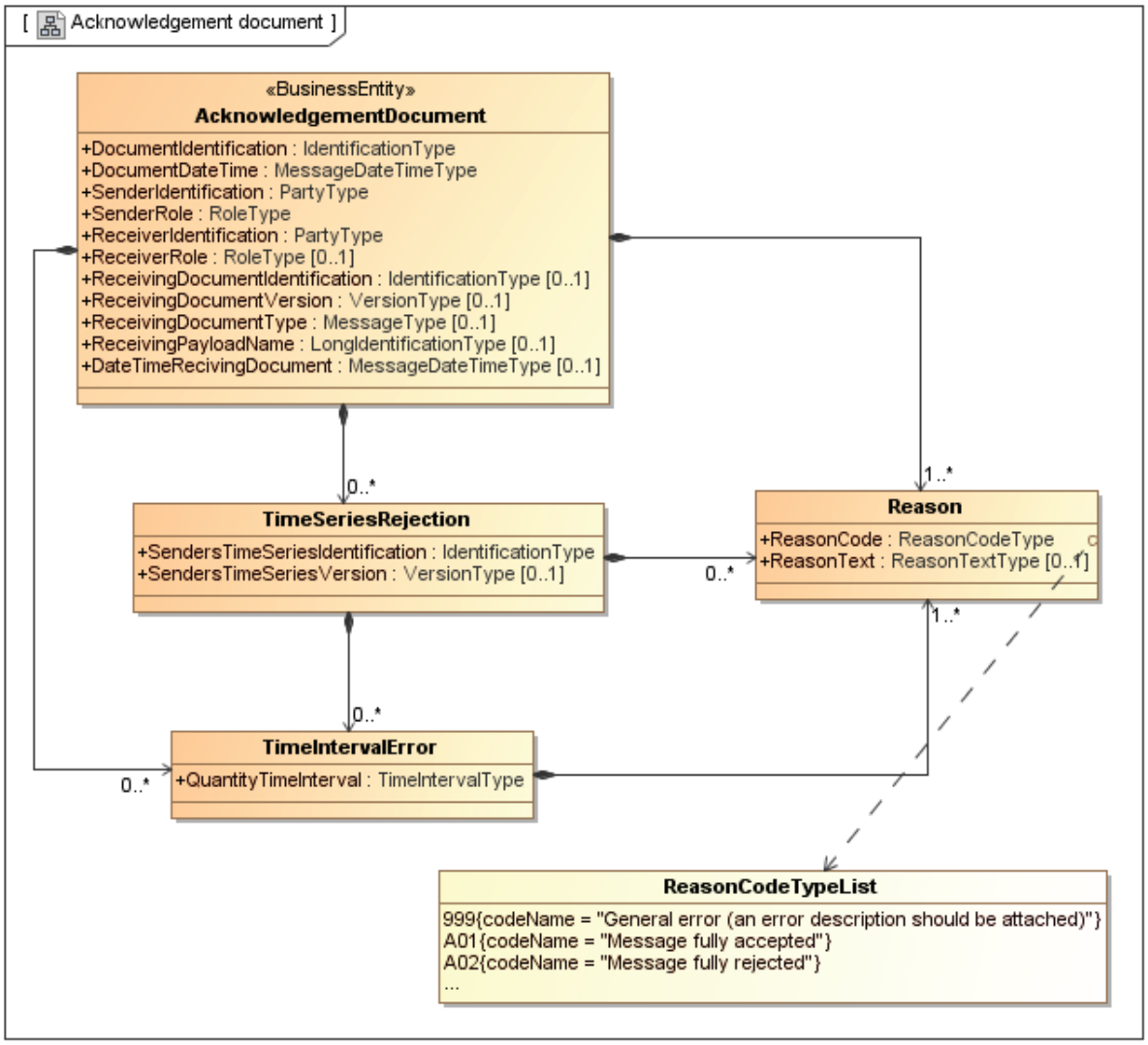



**Figure 80** Acknowledgement document

***Comments to the diagram:***

- There might be a need for addition of “Process type”

# 9 Cancellation process

## 9.1 Introduction

The cancellation procedures described in this document is based on the ebIX® recommendations for cancellations of business documents and business processes. The recommendations are of a generic nature and will be used for cancellations of all relevant message exchange scenarios. The principles described are based on UN/CEFACT Modelling Methodology (UMM).

An automatic (electronic) cancellation must be sent before the "point of no return". An example of "point of no return" is the day before an actual switch takes place. The "point of no return" is described for each relevant process.

In the Nordic countries cancellations is basically done by resending the original business document with a code stating that this is a cancellation (resending the original business document with the "Reason for transaction" = "E05 cancellation").

Note that corrections of a previously sent metered data, is not seen as a cancellation.

## 9.2 Cancel business document (Business Process UseCase)

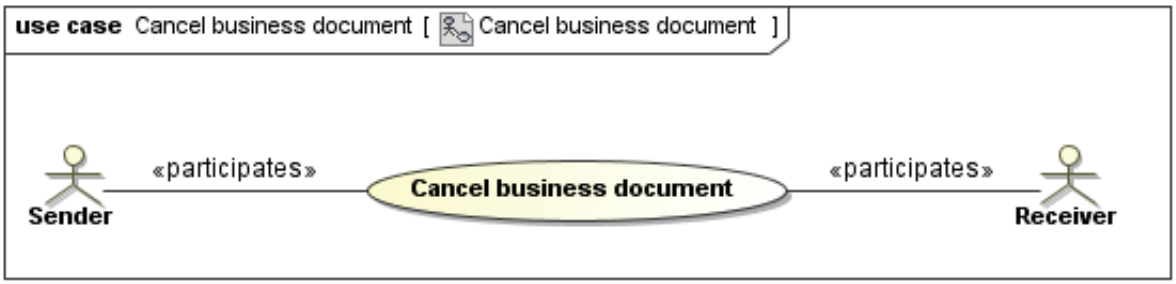



**Figure 81** UseCase: Cancel business document

**UseCase Description**

| UseCase description: Cancel business document | |
|---|---|
| definition | This is a generic business process describing the principles of cancellation of business documents. If a business document can be cancelled and the related business rules are described in the relevant processes. |
| beginsWhen | When the sender of a business document finds a reason for cancelling a sent business document |
| preCondition | The time for sending the cancellation is within the specified time limit |
| endsWhen | The business document is cancelled or the cancellation has been rejected |

| | |
|---|---|
| postCondition | The sender has received a confirmation or rejection of the cancellation |
| exceptions | None |
| actions | |
| acknowledgements | Acknowledgment of processing is not used for cancellations or confirmation/rejection of a cancellation |

## 9.3 Cancel business document (sequence diagram)

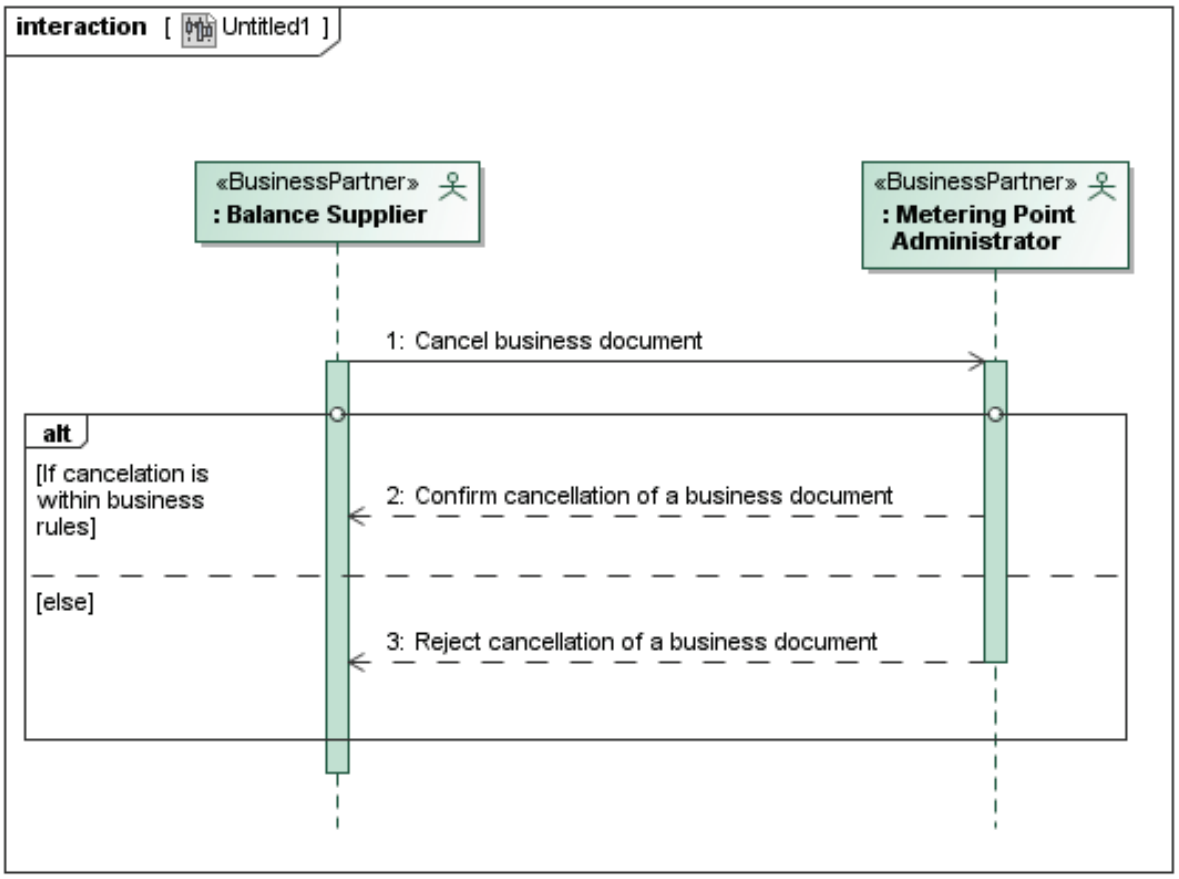



**Figure 82** Sequence diagram: Cancel business document

## 9.4 Technical rules

- The cancellation business document shall have the same information in the header as the original document to be cancelled except for:
    - The attribute "Reason for transaction" shall be "**E05**, cancellation"
    - A reference to the original business document identification shall be added
    - A new unique Business document identification shall be issued

# 10 Means of communication

The HNR project propose to introduce MADES (MArket Data Exchange Standard) as the means of communication:

- MADES is a general communication standard, based on web-services, developed by ENTSO-E to facilitate reliable and secure exchange of documents
- MADES supports encryption, authentication, non-repudiation and compression
- MADES is published by IEC as a Technical Specification on September 20th 2013
- The MADES specification specifies two interfaces:
    - Web Services
    - FSSF (File share)
- ECP (Energy Communication Platform) is free-ware implementation of MADES owned by ENTSO-E
    - The ECP has three additional interfaces:
        - Native JAVA API
        - SMTP
        - Web interface
    - Made and maintained by Unicorn
    - Officially supported on MS Windows and Linux
    - The endpoint is free of charge for TSO customers
    - In use in CWE (Belgium) for several years
    - Will be used in EMFIP

However, the introduction of MADES requires that the four Nordic TSOs (or some other national or Nordic organisations, such as the Danish and Norwegian datahubs) agree to run “MADES nodes”.

As an alternative, if MADES cannot be agreed, SMTP may be used. SMTP is already used in Norway and Sweden. It is assumed that the Danish and Norwegian datahubs will be communication hubs between the Danish and Norwegian Balance Suppliers and the DSOs in Finland and Sweden (and vice versa).

# 11 Syntax

The HNR project propose that the syntax will be XML, based on ebIX® and ENTSO-E standards, among others because of:

- NBS will use a combination of ebIX® and ENTSO-E XML documents
- For the ENTSO-E based documents there are no existing alternative based on EDIFACT syntax
- The Danish Datahub have already implemented XML documents based on ebIX® and ENTSO-E standards

A final decision must be made nationally.

# Appendix A Introduction to UMM and UML

## A.2 Introduction to UMM

The methodology used in this document is based on the UN/CEFCAT modelling Methodology (UMM). UMM is a UML modelling approach to design the business services that each partner must provide in order to collaborate. It provides the business justification for the services to be implemented in a service oriented collaboration architecture. UMM focuses on developing a global choreography of inter organizational business processes and their information exchanges. UMM models are notated in UML syntax and are platform independent models. The platform independent UMM models identify which services need to be realised in a service oriented architecture, implementing the business collaboration. This approach provides insurance against technical obsolescence.

UMM consists of three views each covering a set of well-defined artefacts:

- Business Requirements View
- Business Choreography View
- Business Information View

Only the first view is elaborated in this document.

A UMM business collaboration model is a special kind of an UML model, based on the UML meta model. It provides a UML Profile consisting of stereotypes, tagged definitions and constraints. Stereotypes may be used as a description of the type of UMM elements used and works as a placeholder for tagged values. The stereotypes may also be used to show the organisation of the model and for transformation to syntax specific information exchanges.

## A.3 Business Requirements View

The Business Requirements View is used to gather existing knowledge. It identifies the business processes in the domain and the business problems that are important to stakeholders. It is important at this stage that business processes are not constructed, but discovered. Stakeholders might describe intra organisational as well as organisational business processes. All of this takes place in the language of the business experts and stakeholders. The business requirements view results in a categorisation of the business domain (manifested as a hierarchical structure of packages) and a set of relevant business processes (manifested as UseCases). The result may be depicted in UseCase diagrams. In order to model the dynamics of each business process, one may use a Business Process Activity Model, or a Sequence Diagram, which would be placed beneath the Business Process UseCase.

As a practical note, the Business Process Activity Model may depict a process or processes which involve one or more Business Partners. A Sequence Diagram will depict information exchanges between two or more Business Partners. The Business Partners are described within their own package (Business Partner View).

A Business Process Activity Model may show state changes to Business Entities. Business Entities are "real world things" having business significance and are shared among the business partners involved in the collaboration. The Business Entities and their lifecycles of state changes are modelled in the Business Entity View. Furthermore, the Business Entity View also contains one or more packages which represent the conceptual data structures of the Business Entities.

### A.3.1 Business Partner View

A business partner is an organisation type, an organisational unit type or a person type that participates in a business process. A *Business Partner View* must contain at least two *Business Partners*. A stakeholder is a person or representative of an organisation who has a stake – a vested interest – in a certain business category or in the outcome of a business process. By definition, a business partner always has a vested interest in the business processes which they are participating in. Therefore, a *Business Partner* is a special type of a *Stakeholder*. In UML, specific relationships between Actors may be defined. The business partner view does not restrict the definition of those relationships between business partners and/or stakeholders. For example, generalisations between business partners may be defined.

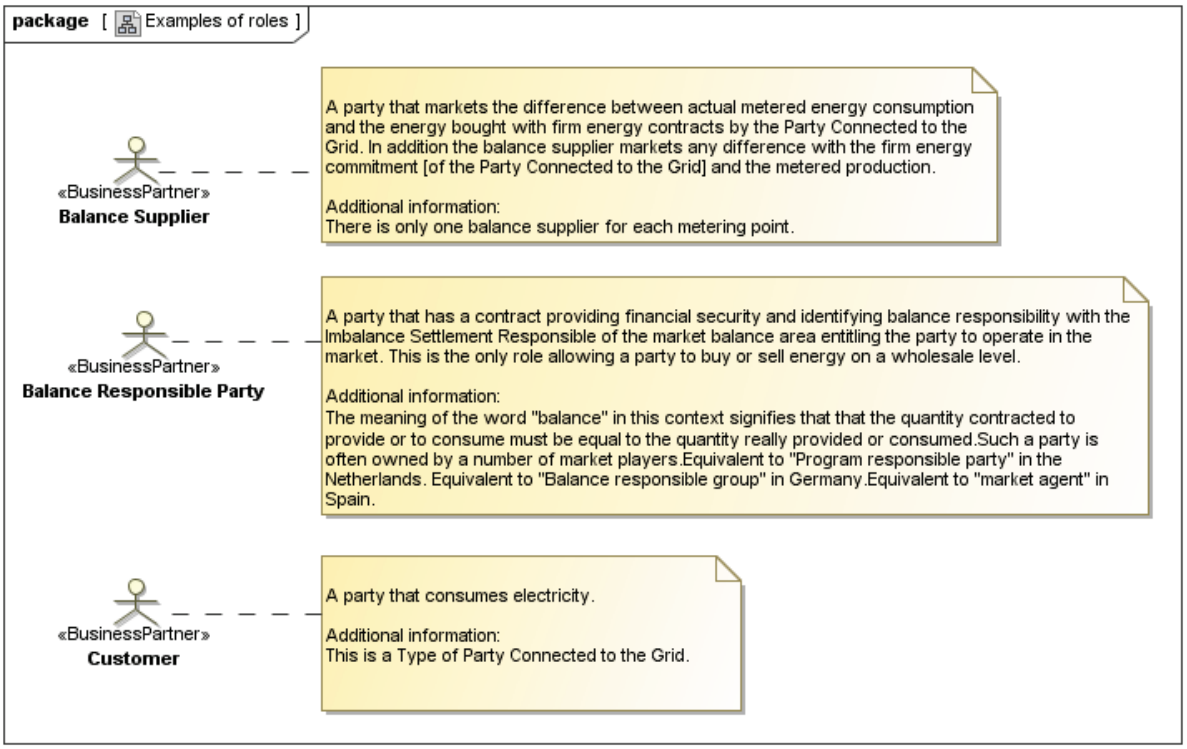



**Figure 83** Business Partners (example)

### A.3.2 Business Entity View

A business entity is a real-world thing having business significance that is shared between two or more business partners in a collaborative business process (e.g. “order”, “account”, etc.). Within the business entity view at least one, but possibly more business entities are described.

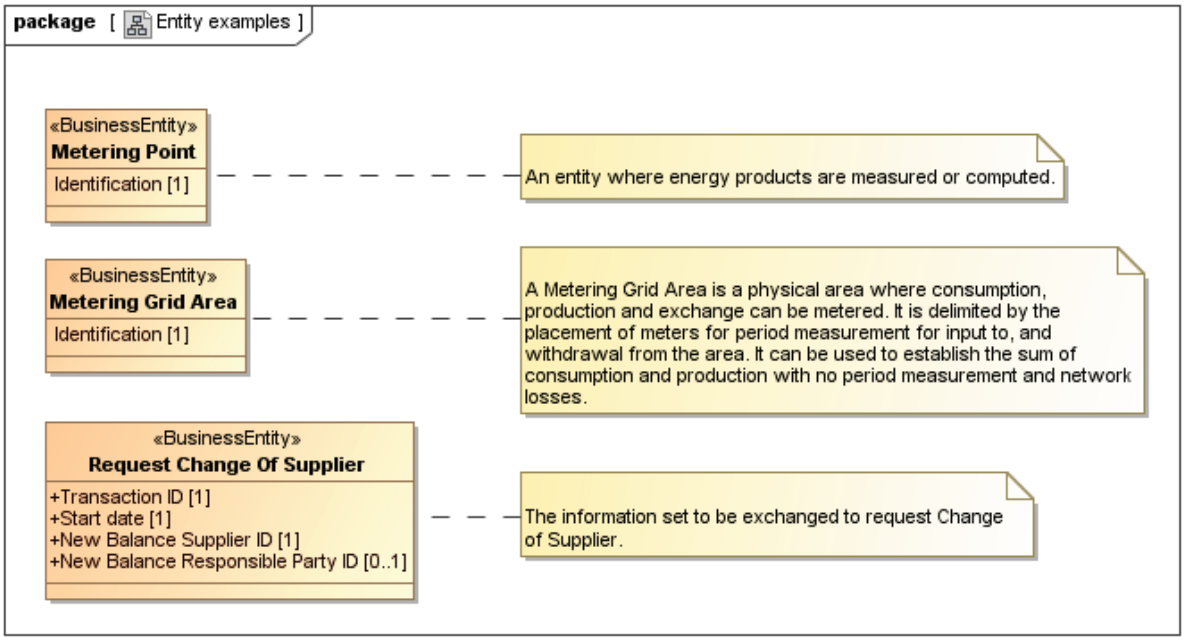



**Figure 84** Business Entities (example)

### A.3.3 Business entity states

The lifecycle of a business entity may be described as a flow of business entity states. Depending on the importance of the business entity lifecycle, the lifecycle may or may not be included. A lifecycle is described using a UML State Diagram. The lifecycle represents the different business entity states a business entity can exist in. The lifecycle of a business entity consists of at least one business entity state. Therefore, the lifecycle of a business entity is composed of one or more *Business Entity States*.

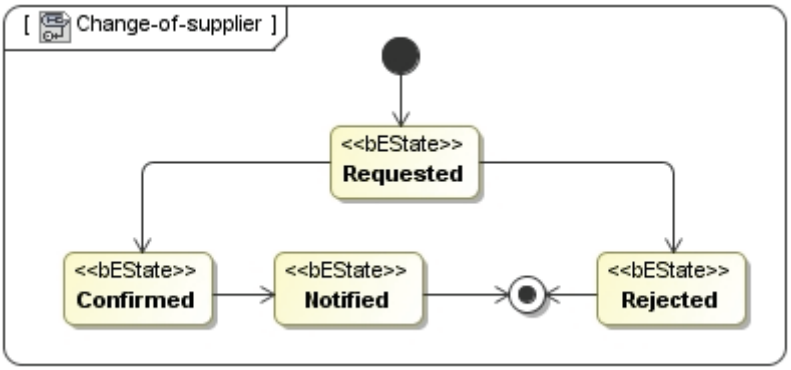



**Figure 85** Business Entity State Diagram (example)

### A.3.4 Business Data View

A business entity is a potential candidate for becoming a business document in later steps of the UMM. A business data view MAY be used to elaborate a first conceptual design of a business entity. Within a business data view, A UML class diagram is used to describe the assembly of a business entity.

### A.3.5 UseCase diagrams

A UseCase diagram is used to show relationships between UseCases and Roles. A UseCase is the specification of a set of actions performed by a system, such as a SCADA system, which yields an observable result that is, typically, of value for one or more actors or other stakeholders of the system.

The following notations may be used in UseCase diagrams:

### A.3.6 Generalisation

A generalisation is used to show a relationship between a general role and one or more specific roles. A Generalisation is shown as a line with a hollow triangle as an arrowhead between the symbols representing the involved classifiers. The arrowhead points to the symbol representing the general classifier.

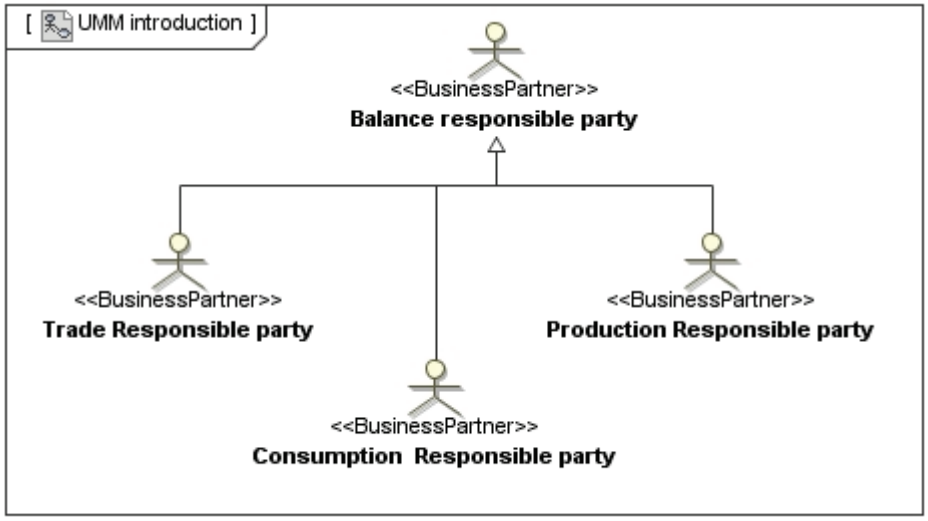



**Figure 86** UseCase diagram, generalisation

### A.3.7 Include relationship

An *Include relationship* from use case A to use case B indicates that an instance of the use case A will also contain the behaviour as specified by B. *Include relationship* is used to split a system into smaller parts.

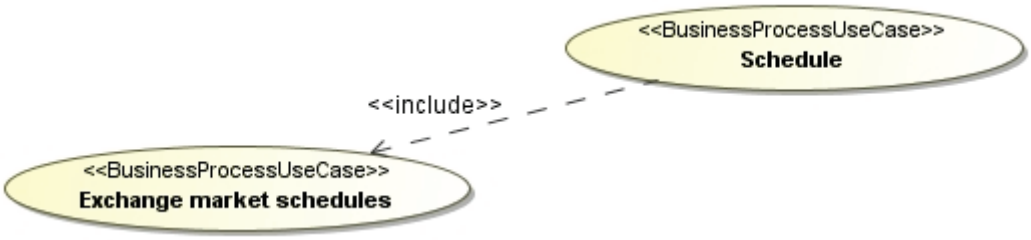



**Figure 87** UseCase diagram, include relationship

### A.3.8 Extend relationship

An *Extend relationship* from use case A to use case B indicates that an instance of the use case A may contain the behaviour as specified by B, dependent on the condition specified for the extend relationship.

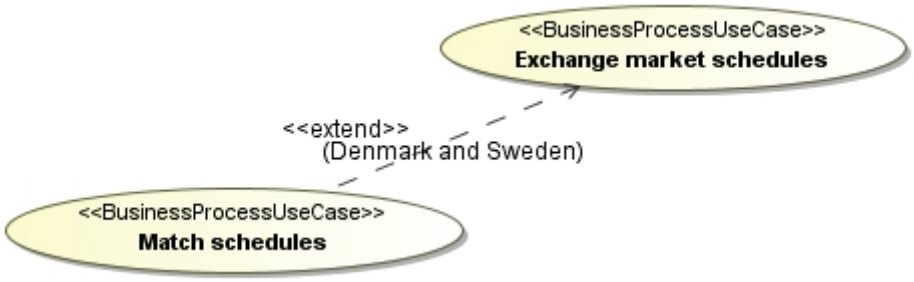



**Figure 88** UseCase diagram, extend relationship

### A.3.9 Participate relationship

A *Participate relationship* is used to show that a certain role participates in a specific UseCase.

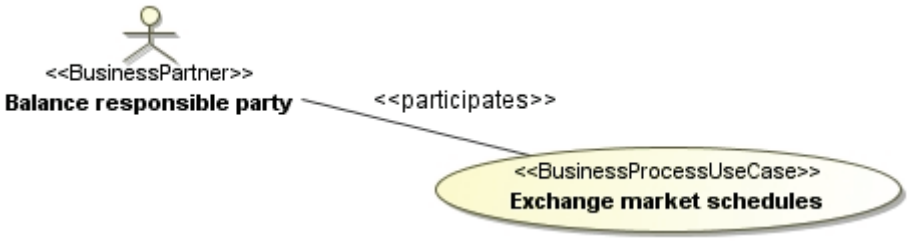



**Figure 89** UseCase diagram, participate relationship

### A.3.10 Roles

A role is of a logical nature (such as a *Balance responsible party*) which acts within a given domain (such as a *Market balance area*). In the same context, it is not necessary for any two parties to play the same set of roles. The roles have been atomically decomposed in order to satisfy the minimal information flows for a given process required by the electricity market. A legal entity can therefore play one or more of the roles for a given domain.

### A.3.11 <<Business partner>>

A business partner stereotype is an organization type, an organizational unit type or a person type that participates in a business process. Business partner types typically provide input to and/or receive output from a business process. Due to the fact that a business partner type participates in a business process, they have, by default, a vested interest in the business process.

## A.4 Activity diagrams

The focus of activity modelling is the sequence and conditions for coordinating lower-level behaviours, rather than which classifiers own those behaviours. These are commonly called control flow and object flow models. The behaviours coordinated by these models can be initiated because other behaviours finish executing, because objects and data become available, or because events occur external to the flow. An activity *execution* is the execution of an activity, ultimately including the executions of actions within it. Note, however, that a *call behaviour action* may reference an activity definition, in which case the execution of the call action involves the execution of the referenced activity and its actions.

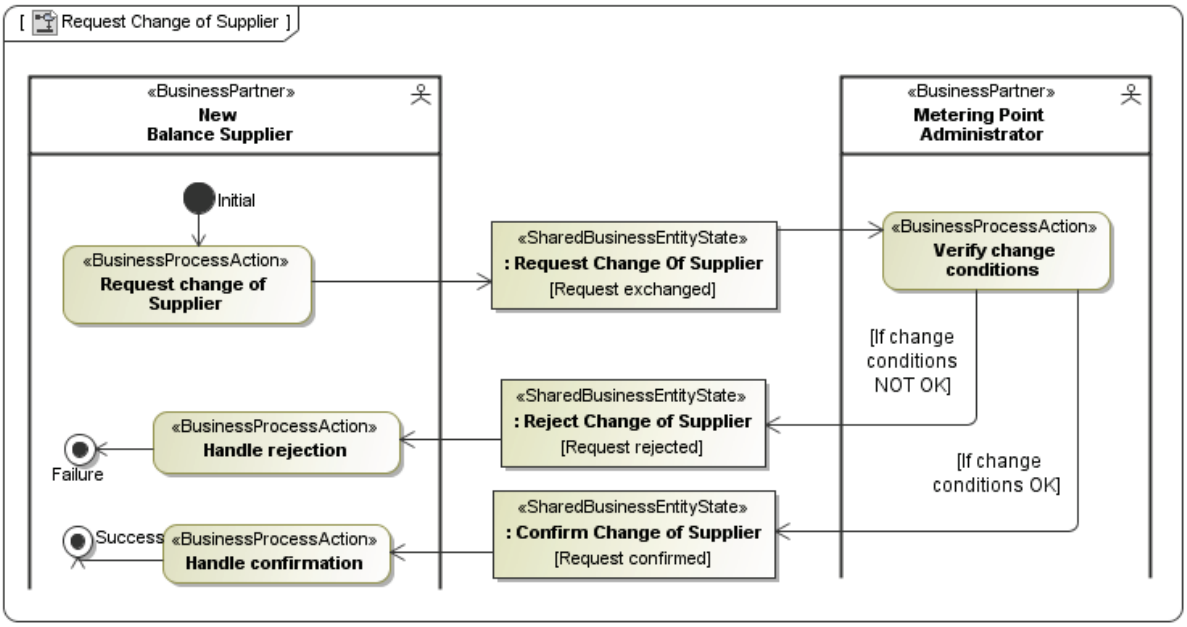



**Figure 90** Activity diagrams

## A.5 Sequence diagrams

A sequence diagram is a time-oriented view of the interaction between roles. Sequence diagrams model the fact that the document exchange does take place, in what order, and under what constraints. The sequence diagram has two dimensions: the vertical axis represents time, while the horizontal axis represents participating roles. The business documents, shown as arrows in the sequence diagrams, are further decomposed in class diagrams.

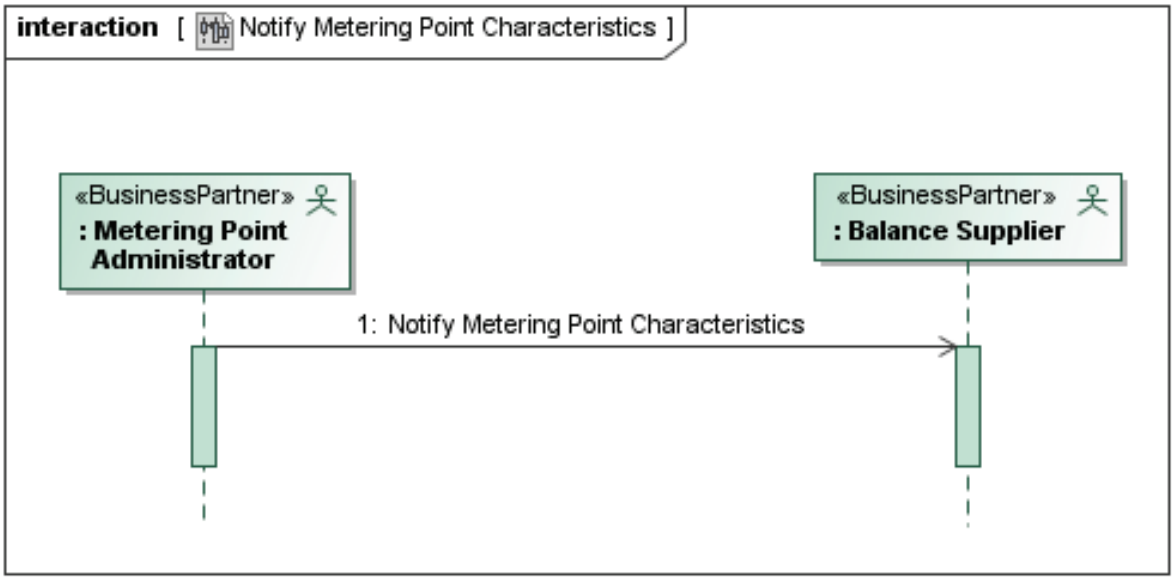



**Figure 91** Sequence diagrams

Related to the documents (arrows) it may be defined time constraints (shown within brackets) for when the documents are exchanged, e.g.:

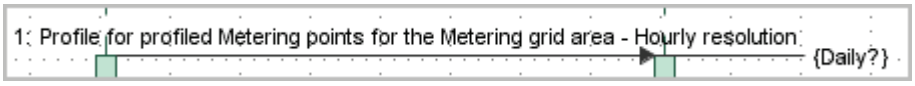



**Figure 92** Sequence diagrams, time constrain

## A.6 Classes and Class diagram

### A.6.1 Classes

A class describes a set of objects that share the same specifications of features, constraints, and semantics. A class is a kind of classifier whose features are attributes and operations. Attributes of a class are represented by instances of Property that are owned by the class. The purpose of a class is to specify a classification of objects and to specify the features that characterize the structure and behaviour of those objects.

A class is often shown with three compartments. The middle compartment holds a list of attributes while the bottom compartment holds a list of operations. Additional compartments may be supplied to show other details, such as constraints, or to divide features.

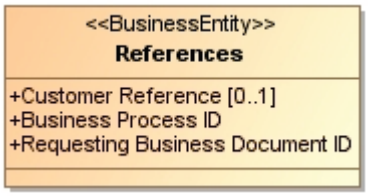



**Figure 93** Class

### A.6.2 Data types

A data type is a type whose instances are identified only by their value. A Data Type may contain attributes to support the modelling of structured data types. A typical use of data types would be to represent programming language primitive types. For example, integer and string types are often treated as data types.

### A.6.3 Enumeration

An enumeration is a data type whose values are enumerated in the model as enumeration literals.

# Appendix B Content of pre-switch checking documents in Nordic countries

## B.2 Norway; NUBIX pre-switch checking process

In Norway NUBIX is used in the pre-switch checking process. NUBIX is a system where all DSO's databases are connected to a central service hosted by Statnett (TSO). Suppliers can make requests against the central service via web-site www.nubix.no or via web-services. The requests are routed to the right DSO based on postal code. The main idea of NUBIX is to let new suppliers obtain and/or verify information about the customer and his Metering Point ID before starting the switching process. This can be done by three different requests:

Request for private customers.

- Request for companies.
- Verify already known Metering Point ID.

The tables below lists request and response content for each request.

### B.2.1 Request for private customers

| **Request** |
|---|
| Customer first name |
| Customer middle name |
| Customer family name |
| Customer address |
| Date of birth |
| Flat/unit number |
| Postal code |
| City |
| Meter ID |

All fields are optional except Postal Code. At least three fields must be filled in. Customer name fields are considered as one field. Wildcard search with three, four or five characters + an asterisk (*) depending on field, are allowed.

| **Response.** |
|---|
| Request status (Information found/not found etc.) |
| Grid owner |
| Customer Name |
| Date of birth |
| Meter ID |
| Address |
| Postal code |
| City |
| Metering Point ID |
| Way of metering (hourly/automatic or manual reading) |
| Description (free text) |
| Status of installation active/inactive |
| Date of last meter reading |
| Date for delivery obligation |
| Number of digits on meter |
| Grid owner. |

### B.2.2 Request for companies

| Request |
|---|
| Customer name |
| Customer address |
| Organization number |
| Postal code |
| City |
| Meter ID |

All fields are optional except Postal Code. At least three fields must be filled in. Wildcard search with three, four or five characters+ an asterisk (*) depending on field, are allowed.

| Response. |
|---|
| Request status (Information found/not found etc.) |
| Grid owner |
| Customer Name |
| Date of birth |
| Meter ID |
| Address |
| Postal code |
| City |
| Metering Point ID |
| Way of metering (hourly/automatic or manual reading) |
| Description (free text) |
| Status of installation active/inactive |
| Date of last meter reading |
| Date for delivery obligation |
| Number of digits on meter |
| Grid owner. |

### B.2.3 Verify already known Metering Point ID

| Request |
|---|
| Date of birth |
| Organization number |
| Metering Point ID |
| Postal code |

Metering Point ID and Postal code are mandatory.

| **Response.** |
|---|
| Request status (Information found/not found etc.) |
| Date of birth or organization number |
| Address of Metering Point |
| Postal code |
| City |
| Metering Point ID |
| Way of metering (hourly/automatic or manual reading) |
| Description (free text) |
| Status of installation active/inactive |
| Date of last meter reading |
| Date for delivery obligation |
| Number of digits on meter |
| Grid owner. |

## B.3 Swedish pre-switch checking information

| **PRODAT/Z01 (Request):** |
|---|
| Metering Point ID |
| Start date |
| Metering Grid Area |
| Reference to authorisation |
| Transaction ID |
| Customer ID (Social security number or Organisation number) |
| Customer Name and Address |
| |
| **PRODAT/Z02 (Response):** |
| Metering Point ID |
| Metering Method |
| Metering Grid Area |
| Reference to requesting Transaction ID |
| Customer ID |
| Customer Name and Address |
| Metering Point Address |

The Swedish pre-switch checking process is optional and not much used. All fields are mandatory and the output of the process is a verification of the information sent in, possible a correction of the address and name fields and the Metering Method. The alternative to using PRODAT/Z01 and Z02 is for the supplier to get a “power of attorney” from the customer and send this to the DSO (e.g. via mail) to get the Metering Point ID.

## B.4 Finnish pre-switch checking information

In Finland there is a Metering Point database, accessible on internet or via Web Service, where the suppliers can get the Metering Point ID. Input is:

### B.4.1 Request for Metering Point ID

| |
|---|
| Street name |
| House and Apartment number |
| Postal code |
| DSO name |

### B.4.2 Response

| |
|---|
| Metering Point ID |
| DSO ID |
| Street name |
| House and Apartment number |
| Postal code |

OR

### B.4.3 Request for an Address of a Metering Point ID

| |
|---|
| Metering Point ID |
| DSO name |

### B.4.4 Response

| |
|---|
| Metering Point ID |
| Street name |
| House and Apartment number |
| DSO ID |
| Postal code |

## B.5 Danish pre-switch checking information

In Denmark the Metering Point ID can be obtained online from the Datahub. If the Metering Point ID is known a message based process can be used, where the Supplier sends in the Metering Point ID and the result is:

### B.5.1 Master Data Metering Point

| |
|---|
| Metering Point ID |
| Meter reading day |
| Type of meter reading |
| Meter reading frequency |
| Energy limit kW |
| Energy limit Ampere |
| Estimated annual consumption |
| Validity date |
| Hour data |
| Metering Point address |
| Type of Metering Point |
| Metering Gird Area ID |
| Connection status |
| Settlement method |
| Net settlement group |

### B.5.2 Master Data Meter

| |
|---|
| Metering Point ID |
| Meter number |
| Number of digits |
| Meter constant |
| Register ID (Tælleværksenhed) |
| Type of Register |

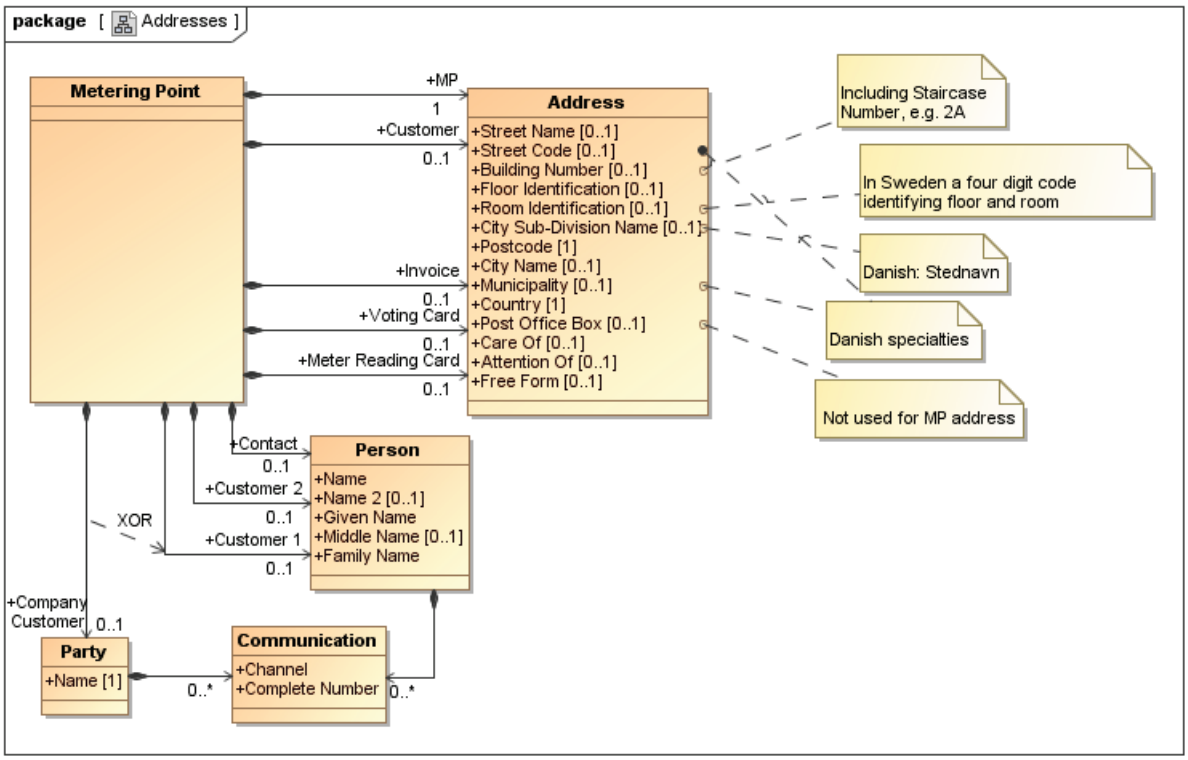
### B.5.3 Master data Customer, Balance Supplier

| |
|---|
| Metering Point ID |
| Sector code from Danish Energy |
| Electricity heating (Boolean) |
| Electricity heating fee start date |
| Supplier of last resort Customer |
| Validity date |
| Customer name(s) |

# Appendix C Name and address structure

## C.2 Name and address structure (Class diagram)

The following class diagram has been used when discussing a harmonised structure of names and addresses:




## C.3 Requirements:

- There shall be separate fields for c/o-address and Attention, as optional fields and only for addresses where a name (person or company) is relevant (i.e. NOT for MP address)
- This BRS suggests a split of the names into separate fields for company name and private person name and further of a split of private person name into Given Name, Middle Name and Family Name
  - To split the names as suggested is a huge job for the actors and the actors should be given 3 to 5 years for the migration
  - The Middle name will be optional
- The following address types are identified:
  - MP address
  - Customer Address
  - Invoicing Address
  - Optional Customer Contact Addresses, if different from Customer address, including type of contact code:
    - maintenance information
    - voting address in Denmark
    - e-mail
    - telephone
- This BRS assumes national rules regarding number of Customers in a Metering Point, i.e. one Customer in Norway and Sweden, Two Customers in Denmark and an unlimited number of Customers in Finland

## Appendix D Comparison of NordREG Moving-report and ebIX® BRS for Customer Move

Below is shown how the UseCases defined by the NordREG Business Process Task Force (BuP TF) Input Tem relates to the ebIX® UseCases described in this document, see [2]

| NordREG UseCase | ebIX® Use Case |
|---|---|
| **UC1**: New customer only reports Move-in<br><br>(in this UC there is no Customer linked to the MP when the Move-in is received) | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read<br>Excluding the UseCase:<br>• Notify Customer Move-in<br>**Exception:**<br>• In Denmark, there will be a Supplier of last resort connected to the MP if the Old Customer has been moved out before the Request Move-in has been received. I.e. The Supplier of last resort must be notified of the Move-in |
| **UC2**: New customer reports Move-in, current customer has not reported Move-out | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read |
| **UC3:** New customer reports Move-in, metering site is disconnected | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read |
| **UC4:** Move-in on empty site, not reported to anyone | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read<br>**Exceptions:**<br>• Time limits for Move-in date back in time must be decided nationally or by NordREG |
| **UC5:** Customer reports Move-in, ongoing new connection | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read<br>**Exceptions:**<br>• Time limits for Move-in date back in time must be decided nationally or by NordREG |
| **UC6:** Retroactive move | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read |

| | |
|---|---|
| | Exceptions:<br>• Time limits for Move-in date back in time must be decided nationally or by NordREG |
| **UC7:** Current customer only reports Move-out | Standard ebIX® Customer Move-out UseCase, including the UseCases:<br>• Request Customer Move-out<br>• Notify Customer Move-out 1)<br>• Determine Meter Read<br><br>1) Only used for notifying the Grid Access Provider if the Metering Point Administrator is a Datahub (i.e. currently only valid for Denmark) |
| **UC8:** New customer reports Move-in, current customer has reported different Move-out date<br><br>**a)** Move-out date later than the Move-in date | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read<br>The ebIX® Customer Move-out is cancelled<br>**Exceptions:**<br>• The Danish rules is opposite to the NordREG moving report. |
| **b)** Move-out date earlier than the Move-in date | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read<br>Standard ebIX® Customer Move-out UseCase, including the UseCases:<br>• Request Customer Move-out<br>• Notify Customer Move-out<br>• Determine Meter Read |
| **UC9:** Current customer reports Move-out, new customer has noted a different Move-in date<br><br>**a)** Move-out date later than the Move-in date | Standard ebIX® Customer Move-out UseCase, including the UseCases:<br>• Request Customer Move-out.<br>  ○ The ebIX® Customer Move-out is rejected |
| **b)** Customer Move-out as part of Customer Move-in | Standard ebIX® Customer Move-out UseCase, including the UseCases:<br>• Request Customer Move-out<br>  ○ The ebIX® Customer Move-out is confirmed<br>• Notify Customer Move-out<br>• Determine Meter Read |
| **UC10:** Cancelled move | Normal cancellation process<br>**Preconditions:**<br>• The Move-in or Move-out is in the future (at least one day), i.e. Cancellations cannot be performed back in time<br>**Exceptions:**<br>• In Denmark a Move-in cannot be cancelled today |
| **UC11:** Move-in to an incorrect Metering Point | Normal cancellation process and restart of new standard ebIX® Move-in and/or Move-out |

| | |
|---|---|
| | **Exceptions:**<br>• In Denmark the Move-in and/or Move-out to a wrong MP must be handled manually by the DataHub |
| **UC12:** Customer contacts several suppliers in case of Move-in | Standard ebIX® Customer Move-in UseCase for Supplier 2:<br>• Request Customer Move-in<br>  ○ The request is rejected<br>**Preconditions:**<br>• The first-in-first-out principles will always be valid for Move-in processes |
| **UC12.1:** Customer wants to have a contract with second or later Supplier and contract with first Supplier is not valid yet | Normal cancellation process followed by a standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read |
| **UC12.2:** Customer wants to have a contract with second or latter Supplier and contract with first Supplier is already valid | Standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>  ○ Request is rejected<br>Thereafter a normal ebIX® Change of Supplier is run |
| **UC13:** Move-in when customer reports contract party change due to e.g. divorce, death etc. | For divorce a standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read<br>**Exceptions:**<br>• For death or bankruptcy a “Update of Master data, party” can be used for changing to the estate of a deceased person or the estate of a bankrupt, as an intermediate step before using a Move-in and/or Move-out |
| **UC14:** Customer reports that existing connection contract is to be transferred to a new owner | The UseCase has no influence on document exchanges |
| **UC15:** Move-in when customer has lost his creditworthiness | The UseCase has no influence on document exchanges |
| **UC16:** Move-out/in when customer has fixed contract | The UseCase has no influence on document exchanges |
| **UC17:** Change Move-out date | Standard cancellation of current Move-out, followed by a standard ebIX® Customer Move-out UseCase, including the UseCases:<br>• Request Customer Move-out<br>  ○ The ebIX® Customer Move-out is confirmed<br>• Notify Customer Move-out<br>• Determine Meter Read<br>**Exceptions:** |

| | |
|---|---|
| | • In Denmark, it is currently not possible to make a new Move-out later than an already registered and valid Move-out, it is however possible to change to an earlier point in time |
| **UC18:** Change future Move-in date | Standard cancellation of current Move-in, followed by a standard ebIX® Customer Move-in UseCase, including the UseCases:<br>• Request Customer Move-in<br>  ○ The ebIX® Customer Move-out is confirmed<br>• Notify Customer Move-in<br>• Notify Metering Point Characteristics<br>• Determine Meter Read |

# Appendix E Norwegian requirements for El-certificate reporting

This appendix describes the process related to El-certificate reporting in Norway. No other Nordic country has a similar process; hence, it is added to this BRS for information only.

## E.2 UseCase diagram for El-certificate reporting

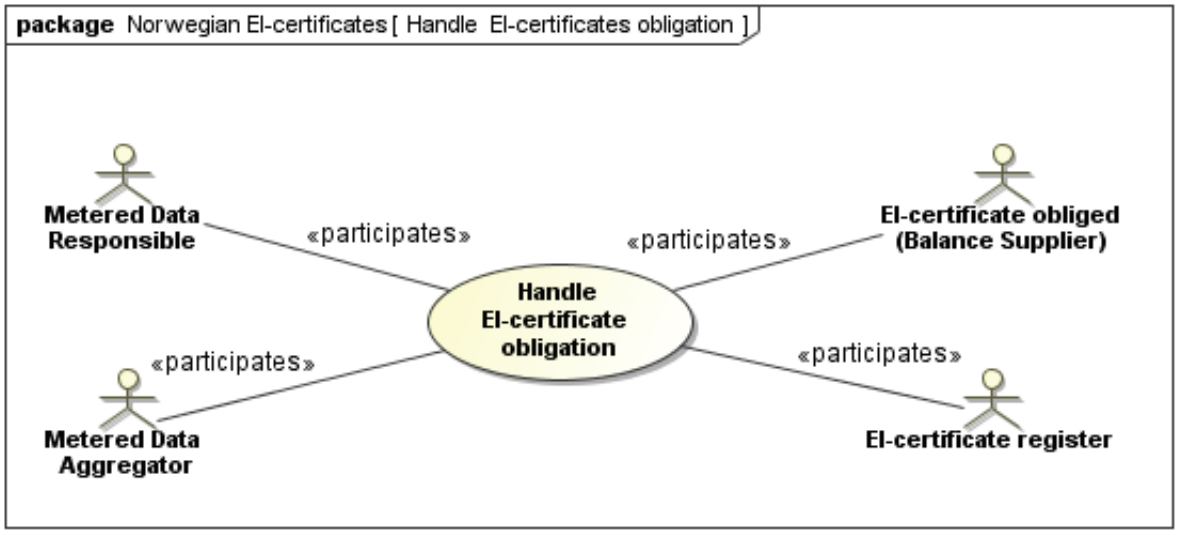



**Figure 94** UseCase diagram: El-certificate reporting

To handle the Norwegian El-certificate reporting a set of information flows are needed, such as Master Data between *Metering Point Administrator* and the *El-certificate obliged Balance Supplier*, to inform the *Balance Supplier* of which MPs that are El-certificate obliged and the percentage of the obligation, and Exchange of metered data for El-certificate obliged production and consumption to the *El-Certificate Register*.

In this appendix the exchange of metered data is described, while exchange of Master Data are described earlier in this BRS.

## E.3 Data exchange related to El-certificate obligation

The *Metered Data Aggregator* shall, within the middle of the following quarter, send a message to the *El-Certificate Register* containing El-Certificate relevant consumption for each *El-certificate obliged Balance Supplier* in his Metring Grid Area. The message contains aggregated El-Certificate relevant consumption for previous year and aggregated El-Certificate relevant consumption until the end of previous quarter actual year. The aggregated El-Certificate relevant consumption until the end of previous quarter shall include preliminary consumption.

To give the *El-certificate obliged Balance Supplier* a possibility to verify the El-Certificate relevant consumption, the *El-Certificate Register* is forwarding the message with aggregated data to the *El-certificate obliged Balance Supplier*.

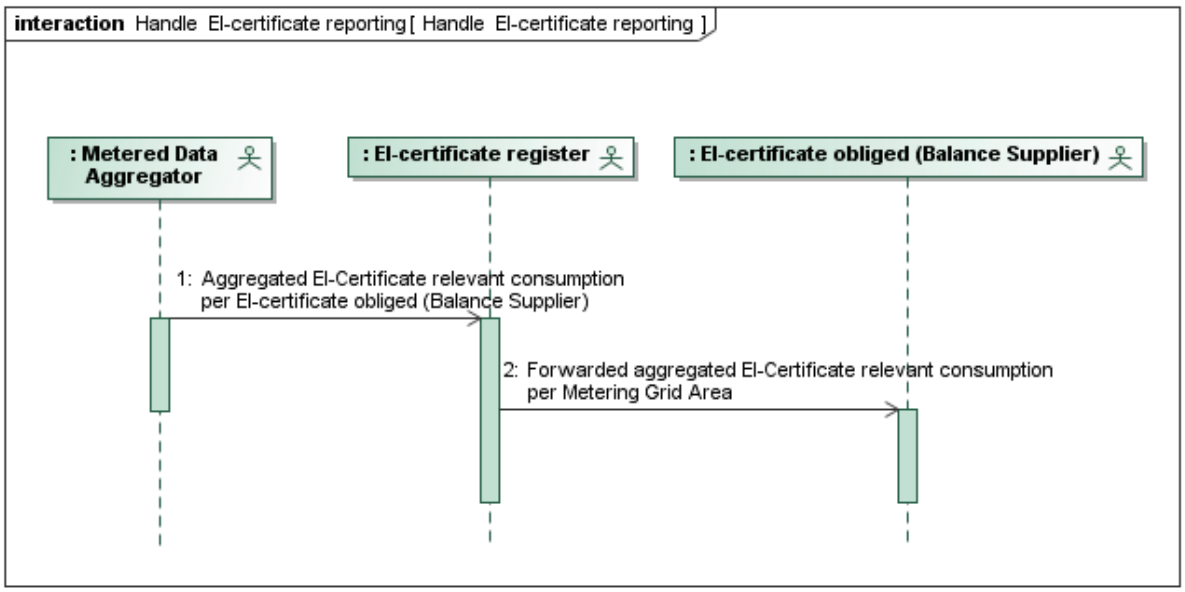



**Figure 95** Sequence diagram: El-certificate reporting

## E.4 El-Certificate relevant consumption to the El-certificate Register

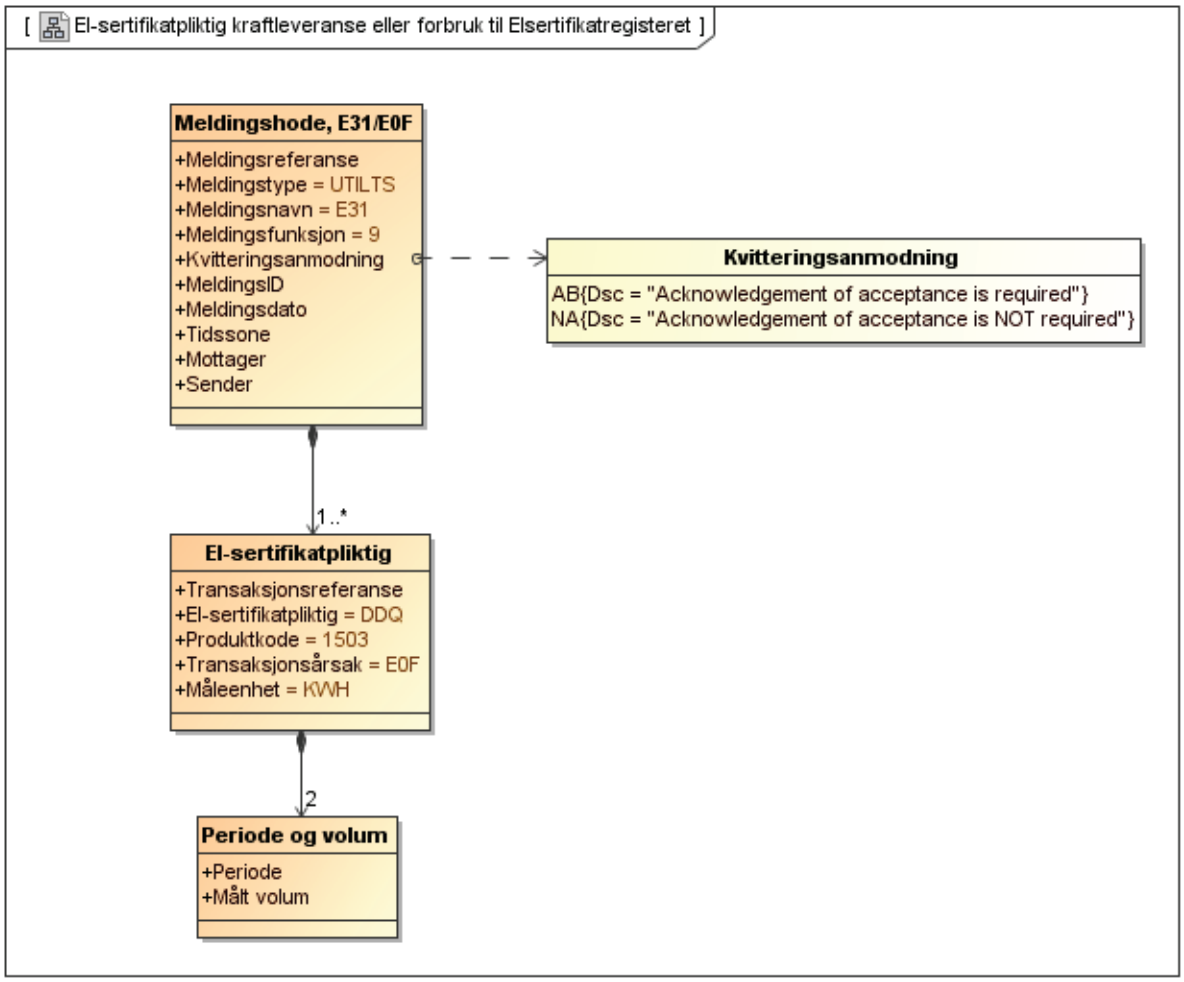



**Figure 96** Class Diagram: El-Certificate relevant consumption to the El-certificate Register

## E.5 El-Certificate relevant consumption to El-certificate obliged Balance Supplier

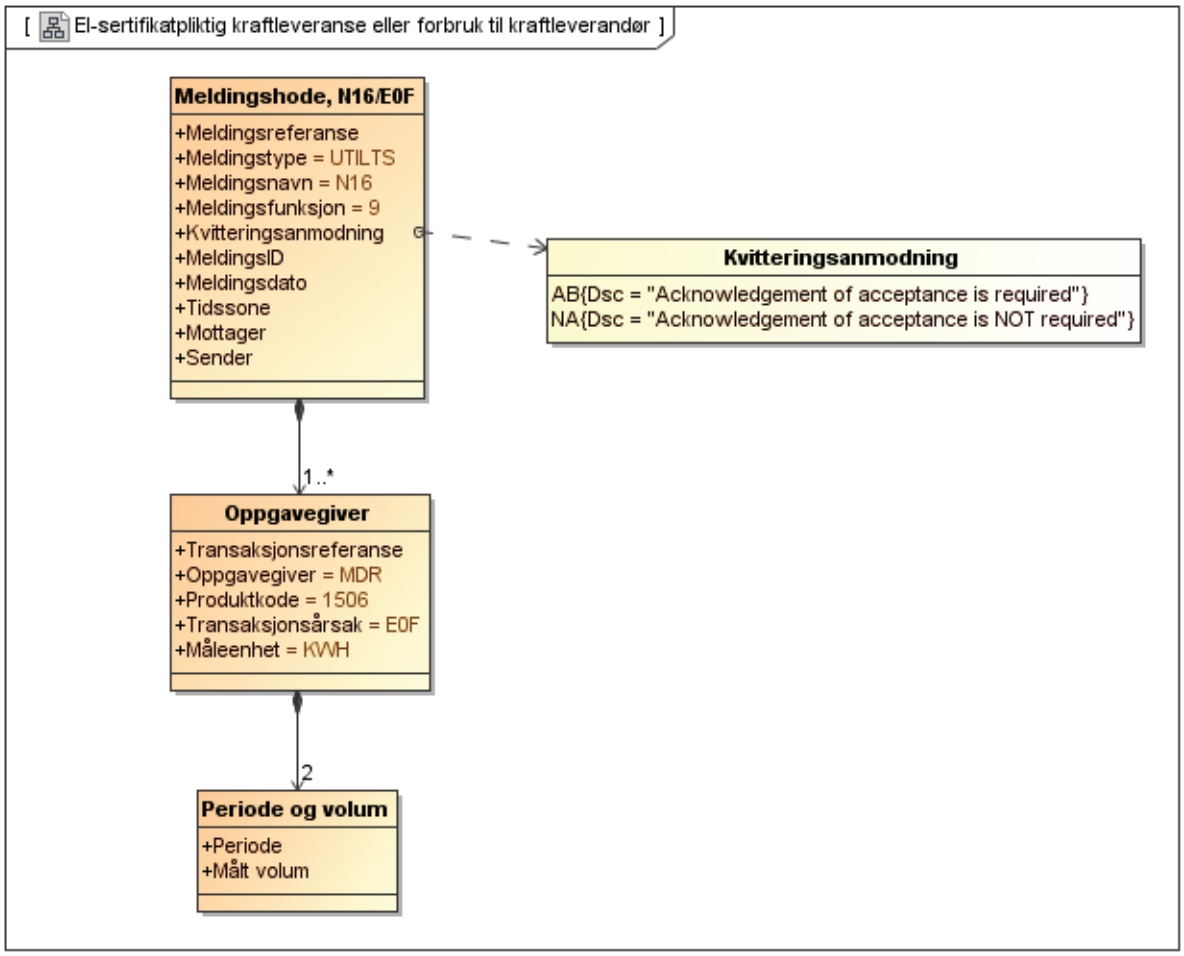



**Figure 97** Class Diagram: El-Certificate relevant consumption to the El-certificate obliged Balance Supplier

# Appendix F Swedish requirements for El-certificate reporting

This appendix describes the process related to El-certificate reporting in Sweden.

In Sweden it is the *Metered Data Responsible* that sends the metered production to the El-certificate register. If the production metering point is situated within a concession of power-lines it is the DSO that is responsible for the metering and reporting, otherwise the producer himself is responsible of the reporting of the metered values, i.e. he acts in the role *Metered Data Responsible*.

## F.2 Data exchange

The *Metered Data Responsible* shall, at the latest five days after the metering day, send a message to the *El-Certificate Register* containing the metered production, before then the values should have been corrected if needed.

Every message is acknowledged by the *El-certificate register*. At a web site is possible to see if the values have been received or not by the *El-certificate register*. The owner of the metering point can also see the production volume before the certificate is issued. The certificates are issued in the middle of each month regarding the production volume from previous month.

The following figure shows the content of the messages, sent as an E66 document.

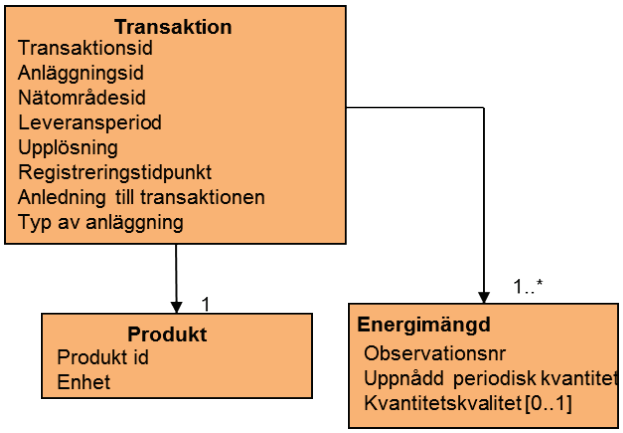



**Figure 98** Diagram with content of an El-Certificate transaction sent to the El-certificate Register

Code for Reason for Transaction is E23 – *Periodic Meter Reading*, compare otherwise with the exchange of validated metered data for billing, chapter 7.14.2.

# Appendix G Swedish exchange of Consumption prognosis

This appendix describes a message sent in Sweden from *Metered Data Responsible* to *New Balance Supplier*.

The message is required to be sent for metering points where the settlement method is profiled, after bilateral agreement it may also be sent for non-profiled metering points.

It is sent after the message *Notify Metering Point Characteristics* in the processes *Change of Supplier* (at the latest three days before switch date) and *Customer Move-in* (at the latest four working days after the move-in date).

The message contains twelve monthly energy volumes specified for the coming 12 calendar months after switch/move-in date. The values sent are taken from the previous 12 monthly energy volumes and then it is possible for the Balance supplier to use it for the consumption planning and also check the preliminary load profile shares. The sum of the 12 monthly values should be the same as the Estimated annual volume sent in the *Notify Metering Point Characteristics* message.

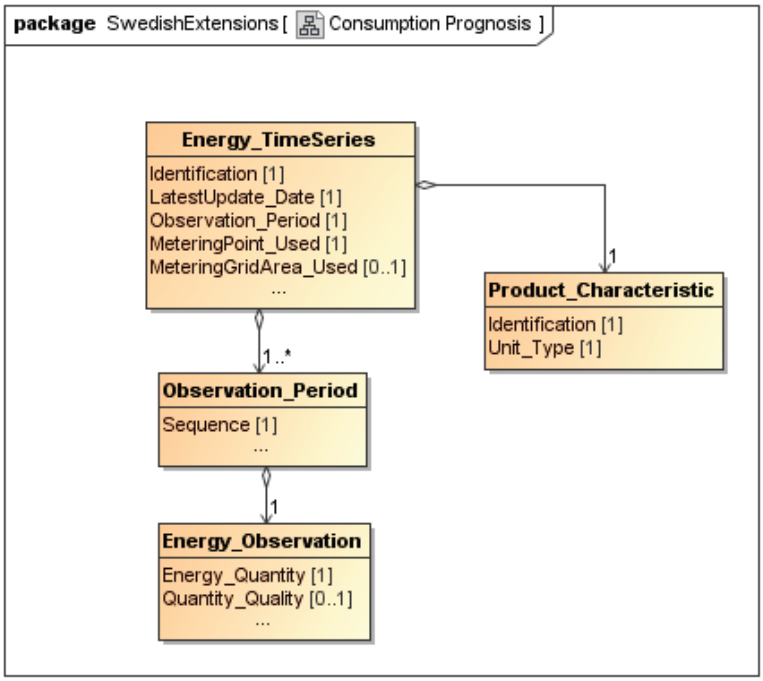



**Figure 99** Consumption prognosis

# Appendix H Summary of comments after public hearing

## H.1 Introduction

April 1st, NordREG asked for a public consultation until April 29th 2014. NordREG received seven answers to the public hearing:

Elenia Oy, see H.5
Energidataföreningen (EDF), see H.6
Vattenfall Nordic, see H.7
Svensk Energi - Swedenergy – AB, see H.8
Fortum, see H.9
NBS Messaging Forum, see H.10
Finnish Energy Industries, see H.11.

Chapter H.2 of this document gives a summary of the comments to the *Business Requirement Specification (BRS) for a Harmonised Nordic Retail Market*. An extract of the comments received in the answers from the actors are shown under the heading "Commenters view", under each paragraph. An evaluation of the comments are given, when relevant.

Chapter H.3 gives an overview of comments for possible further elaboration by the HNR project group, while chapter H.4 gives an overview of comments that NordREG, national regulators or other Nordic energy market bodies could elaborate. Note that the content of appendix H.3 and H.4 are taken form appendix H.2.

This appendix is written by the HNR project coordinator, Ove Nesvik, ove.nesvik@edisys.no in cooperation with the HNR project convenor, Jan Owe, jan.owe@svk.se.

## H.2 Summary of comments and related evaluation

### H.2.1 General comments

Most of the commenters think that the *Business Requirement Specification (BRS)* for a *Harmonised Nordic Retail Market (HNR)* is an extensive document, giving technical details for the Nordic retail market message exchange and will be useful for targeting a future implementation. However, the work on the business processes, messages, technical details of communication etc. needs to go on, to enable as good starting point for the harmonisation as possible. There are still many national differences described in the report that need to be solved in the future.

#### *H.2.1.1 Missing processes in the BRS*

##### *Commenters view*

Elenia comments that it is inconsistent that the project made assumptions on NordREG recommendations for billing, as it is at this point clearly open subject in some countries. Combined billing should not be a base assumption for the project.

Fortum comments that "Validated data for Billing Energy" sections do not seem to be sufficient for implementation of combined invoicing in the Nordics. Further work is needed in order to enable implementation of a Supplier Centric Model.

Swedenergy notes that there are several processes that are not covered in the BRS, such as making and ending contracts, combined billing and National processes related to Electricity certificates. Swedenergy also notes that there is a need for structuring information, such as Metring Grid Area (MGA) IDs, which MGAs that have connections, which MGAs are within which Market Balance Area (Elspot Area), etc. Finally, Swedenergy misses the existing Swedish message (S02) that includes yearly consumption divided into monthly values.

NBS Messaging Forum and Swedenergy takes up the point that the Balance Responsible Parties (BRPs) need for information is not taken care of in any of the two ongoing Nordic projects, Nordic Balance Settlement (NBS) and Harmonised Nordic Retail Market (HNR).

Fortum notes that creation of grid contracts is excluded from this document and seen as an internal process within DSO (see exceptions in section 4.4). If MPA is a hub, then the messages between MPA and DSO should also be defined in the model.

##### *Evaluation*

The assumption related to combined billing has not influenced the BRS much. Since the combined billing process still is under discussions in the Nordic countries (except for Denmark), the HNR project skipped (postponed) possible processes related to combined billing, such as exchange of tariffs, fees and subscriptions. The only element in the HNR BRS that relates to billing is the inclusion of invoice address in the document exchanges. The invoice address should be removed from the harmonised processes if combined billing is implemented.

Regarding making and ending contracts, this is implicitly covered in the change of supplier, customer move and end of supply processes regarding contracts between DSO and electricity supplier. Contracts between the energy market actors and the customers is outside the HNR scope. Norwegian and Swedish El-certificate processes is presented in appendix E and Appendix F, since these only are valid in Norway and Sweden, and in addition are very different and only are valid for a limited

number of years. Structuring information, such as Metring Grid Area (MGA) IDs will be handled in the NBS project. The Swedish message (S02) that includes yearly consumption divided into monthly values is a Swedish speciality, however described in Appendix G in the BRS.

NordREG should discuss how (where) to handle the BRPs need for information and make sure that the BRPs requirement for information will be covered within the Nordic electricity market processes.

The HNR project has not looked into the processes between DSOs and datahubs (currently relevant for Denmark and Norway), since this not is a relevant area for harmonisation, seen from a Nordic harmonisation point of view. Each DSOs in Denmark and Norway will only communicate with one datahub and how this communication is done will not influence the harmonised Nordic retail market.

### *H.2.1.2 Prerequisites for a harmonised Nordic retail market*

#### *Commenters view*

EDF lists a set of prerequisites that must be agreed before a harmonised Nordic retail market can be implemented:

- Supplier Centric Model
- Combined billing
- Hourly metering for all customers
- Harmonised tariffs
- Remote shutdown of meters
- One or two contracts with the customer

Vattenfall Nordic thinks that making the GS1-format mandatory for all DSOs will have a significant impact on Vattenfall's systems, but are considered necessary for future development.

#### *Evaluation*

The HNR project would have wished more prerequisites and prerequisites that are more specific from NordREG or the national regulators. E.g. if we knew that hourly metering would be the case in all countries at the latest from a specific date, we could make the proposals in the BRS more precise. However, we think a Harmonised Nordic Retail Market will be implemented even if not all of these issues are agreed – i.e. because of national decisions of when to implement and what to include in common rules.

The proposal from Vattenfall Nordic for making the GS1-format mandatory for all DSOs (for Metering points) is according to the proposal from the HNR project. Denmark and Norway have already implemented GS1 GSRN IDs for all Metering Points and similar decisions for Finland and Sweden must be taken by the national regulators.

### *H.2.1.3 Terminology*

#### *Commenters view*

Elenia comments that figure 3 (Harmonised Nordic Retail Market Role Model) should be removed from the report since it does not describe the real associations. Even if this is explained, it gives wrong impression on the actual roles and future roles of different actors in the future electricity retail markets. In the same paragraph, Elenia comments that the DSO connection to the customer is of an outmost importance to secure electricity supply and to ensure electricity quality.

Fortum comments that terminology should furthermore be harmonized with other NordREG material (Balance supplier=Supplier etc). Processes, use cases, messages and content of messages needs to be synchronized.

#### *Evaluation*

The HNR project thinks it is vital that the bodies working with document exchange standards in the European energy market uses the same terms and have the same understanding of the relevant entities (including roles and domains) and their responsibilities in the European energy market. The ebIX®, EFET and ENTSO-E Harmonised Electricity Role Model is a centrepiece for harmonisation of different markets. The role model is agreed between ebIX®, EFET and ENTSO-E and is a way of assuring that there is a consistent use of terms within the European electricity market, at least regarding roles and domains used in data exchange processes. The HNR BRS concentrates on the data exchange between the actors in the Nordic electricity market and do not propose any restrictions to how the customers may communicate with the electricity suppliers and DSOs.

The terms used in the BRS is many taken from the ebIX® and ENTSO-E framework for electronic document exchange in the European energy market and we believe this is in line with the terms used in technical documentation from other areas, such as the NBS project and document exchanges to the TSOs (e.g. scheduling and balance regulation market processes).

A possible removal of Figure 3 should be agreed by the HNR project group.

### *H.2.1.4 Commercial terms*

#### *Commenters view*

Elenia comments that the switch process is made customer friendly, in case of fixed term contracts, through the pre-switch checking process. The pre-switch process should be harmonized in all of the Nordic countries and a requirement for the new supplier to check if the customer has a fixed term contract.

#### *Evaluation*

There was a dissent in the HNR project regarding exchange of “commercial terms”, such as end date for current fixed term supply contract, notice period (number of days or months) and cancellation fee (true/false). Finland argued positively for exchange of commercial terms, Denmark and Norway did not want to exchange these elements, while Sweden was undecided. The argument for adding the commercial terms is that it is Customer friendly and it gives a more efficient process. The argument against is that commercial terms are a matter between the electricity supplier and the customer, and that the Metering Point Administrator not should be involved in contracts matters. The conclusion in the project was to make the commercial terms optional and let each country decide to use them or not. The project do not think this as major barrier for the harmonisation of the Nordic electricity market.

### *H.2.1.5 Country specific exceptions*

#### *Commenters view*

Elenia is afraid the implementation of the new model can be discouraged due to the fact that the report lists so many country specific exceptions.

Fortum notes that before implementation and development of nation wise technical specifications, the national differences should be looked upon more closely by NordREG.

#### *Evaluation*

The project worked hard to avoid country specific exceptions. There are however differences in national legislation and business rules that the HNR project had to specify as country specific exceptions, such as inclusion of a Balance Responsible Party (BRP) in the switch messages. Today an electricity supplier may have different BRPs within a Metering Grid Area in Denmark, hence the BRP is needed as switch information. This is however not the case I Finland, where the DSO not necessarily know who an electricity suppliers BRP is.

Harmonisation of country specific exceptions is a task for NordREG and the national regulators, and the HNR BRS can help to point out areas for further harmonisation.

### *H.2.1.6 Notification of planned outages*

#### *Commenters view*

EDF asks who is responsible for the actual sending of customer notifications of planned outages? Although the DSO is responsible for the information content EDF suggest that the supplier is responsible at all times for the actual sending of the information to the customer.

#### *Evaluation*

Information exchange (textual information, such as information of planned outages) from the DSO to the Customer, via the electricity supplier, is a new topic newer discussed in the HNR project.

Since this might be a manual process (e.g. using e-mail), we think the process first should be discussed in NordREG Business Process Task Force (BuP TF) Input Team or Drafting Team.

### *H.2.1.7 Hourly metering*

#### *Commenters view*

EDF asks how the five day policy for billing can be met and quality assured? We suggest that hourly metering is introduced for all customers, thus allowing daily monitoring and improved quality of billing.

#### *Evaluation*

This is a question for Nord REG and the national regulators, and outside the scope of the HNR project.

### *H.2.1.8 Contracts with the customer*

#### *Commenters view*

EDF asks if the customer should sign one contract with the supplier or also one with the DSO? We suggest that the customer should only have to sign one contract, i.e. with the supplier. The contract with the DSO could be included in the contract with the supplier. Contracts between supplier and DSOs should be regulated by the regulators to avoid time-consuming administration and to assure the neutrality of the DSOs.

EDF asks, regarding household customers, how many persons could sign and be responsible for a contract? EDF suggest that a maximum of two persons from a household should be responsible for a contract. This eases e.g. the processes of estates and divorces.

Vattenfall Nordic thinks that enabling connecting of several customers to one connection point will have a significant impact on Vattenfall's systems, but are considered necessary for future development.

#### *Evaluation*

Contracts between the energy market actors and the customer is a question for NordREG and the national regulators, and outside the scope of the HNR project.

Number of customers connected to a Metering Point (MP) is an example of different legislation in different countries. In Norway and Sweden, the same customer must hold the supply-contract and the grid-contract, hence only one customer in a MP. In Denmark, there can be two customers in a MP and in Finland, there can be an unlimited number. How to harmonise the number of customers in a MP is a question for Nord REG and the national regulators.

### *H.2.1.9 Retroactive move*

#### *Commenters view*

Vattenfall believes that in order to have a high level of automation, high data quality and efficiency, the opportunity to take retroactive action in system must be very restricted. It must of course be possible to correct mistakes—but only after agreement with involved actors in the market. All information about the involved market actors shall be available at start of delivery and the opportunity for cancellation shall be closed by that time.

#### *Evaluation*

This is in line with the HNR proposal; however, NordREG opens for a national decision on retroactive moves in the draft "Moving report".

### *H.2.1.10 Meter stands*

#### *Commenters view*

Vattenfall Nordic thinks that, in the already existing Swedish system for reporting meter data, there is no need for sending individual meter stands.

#### *Evaluation*

This is a question related to business processes and related business rules, hence outside the scope of the HNR project. The question is put on the list for further elaboration by NordREG or industry bodies, see appendix H.4.

### *H.2.1.11 Future changes to the Nordic energy market*

#### *Commenters view*

Elenia thinks the project should also emphasize the fact where the retail markets are going and what information are important then, such as the hourly metering and NBS.

Fortum notes that the BRS should also gain from being a "living" document, i.e. maintained by e.g. NEG also in the future to secure that there is a common standard.

EDF comments that it would be useful if the processes in the report would be put into a context of the surrounding processes. EDF also thinks it is of most importance that NordREG mandates a common model for implementation in the Nordic market, thus avoiding any national variations. A detailed and joint time frame for the implementation is needed. It is also important that suppliers of systems are involved in the process allowing future developed system to manage the suggested data and messages from the start.

### *Evaluation*

The NBS project is a separate project that is specifying its own document exchanges; however, the HNR project has aligned the BRS as far as possible with the NBS project.

When it comes to future processes, such as AMR and daily exchange of hourly meter readings for all Metering Points, it is impossible to make a detailed harmonised proposal. Future processes must be specified when the requirements are more mature. The BRS could be a basis for future Nordic documentation of data exchange processes and documents.

The HNR project was a technical project and others should specify more business related processes (business rules). For instance, the NordREG Business Process Task Force (BuP TF) Input Team made a set of UseCases, proposing business rules for the customer move process. Similar UseCase descriptions for other identified processes could be a good supplement for describing “surrounding business processes”. NordREG must decide a detailed and joint timetable for the implementation.

### H.2.2 Specific comments to the HNR BRS

#### *H.2.1.1 Missing roles*

***Commenters view***

Fortum is missing definitions of the following roles: Grid Access Provider (section 4.4), Grid Operator (section 4.4) and Meter administrator (section 4.11)

***Evaluation***

The definitions has been updated in chapter *3.1 Harmonised Nordic Retail Market Roles* in the BRS.

#### *H.2.1.2 Customer Move processes*

***Commenters view***

EDF asks rules for what happens when a new customer doesn't move in directly? EDF suggest that the Metering Point Administrator terminates the delivery at the Meter Point. Alternatively, if the delivery continues, it should be clarified that the Old Balance Supplier is responsible.

Fortum points out some items to be further elaborated:

- 6.5. Customer Move-in: Separate process diagram to be done also for the case in which the customer is contacting first the current supplier (as it most often is)
- Proxies/(permission from customers to act in their interest) that are needed, for instance when a move out is done in connection to a move in, are not mentioned clear enough. When proxies are needed needs to be defined and how those are processed. At least it should be mentioned as a pre-condition for relevant processes.
- "If there is a change of legal Customer, the Move-in process shall be used" in page 45, why is that? The Danish model seem smart, that there is a more simple process for changing customer data.
- In the Business process UseCase "Customer Move-in", Fortum would like to add a sub process to the actions. It is the process for Reconnecting an inactive MP, i.e. the MP has ben disconnected because of no customer in the MP and now a customer moves in, so the MP need to be reconnected by the DSO. This sub-process should be executed depending on the status of the MP (PhysicalStatusCode).
- 4.4.1 / 4.4.2 Missing information / recommendations of what should happen if there is a customer registered at that MP. Should customer be automatically moved out?
  This should be handled in the national legislation (third party breaking a contract), but since it is an important questions that involves legislation that is outside of the energy industry it is important to highlight.

***Evaluation***

These are good candidates for elaboration. However, the project group should handle the items.

#### *H.2.1.3 Request Customer Move-out as part of Customer Move-in*

***Commenters view***

Vattenfall Nordic thinks that other options, such as the new supplier informing the old supplier, can achieve the same and should be investigated further.

#### *Evaluation*

This is a question related to business processes and related business rules, hence outside the scope of the HNR project.

### *H.2.1.4 AMR meter reading "at the hour of the switch or move"*

#### *Commenters view*

EDF comments on Note 6, page 55:

> 6 For AMR, meter reading shall be read "at the hour of the switch or move". For profiled metered MPs, a meter reading shall be read within +/- 5 days. The switch- or move meter reading shall be estimated if not on the exact day. The meter reading must be distributed to the Balance Supplier within 9 days after the switch.
>
> For non-AMR Metering Points, the time frame for sending a switch stand can follow national rules.

We need clarification regarding the following: If the move-in and move-out isn't 00:00, two different customers can be charged for the same day. How should this be resolved and which party should resolve this?

#### *Evaluation*

How to handle a move-in and move-out that isn't at 00:00, is a new topic, newer discussed in the HNR project. A possible harmonisation of such a process must be discussed in the HNR project.

### *H.2.1.5 Timestamps and Time frames*

#### *Commenters view*

EDF suggest that timestamps (page 52) are mandatory for both sending and receiving documents.

Fortum notes that the BRS recommends some information exchange to be "immediate", while NordREG recommendation is e.g. latest one day after request received. The legislation should not define a time frame as immediate (meaning within seconds and minutes), but state the maximum time.

#### *Evaluation*

What Timestamps to use should be elaborated by the HNR project group, while what time frames to use should be proposed by the industry (such as NordREG Business Process Task Force (BuP TF) Input Team) and decided by the national regulators, hence outside the scope of the HNR project.

### *H.2.1.6 End of supply*

#### *Commenters view*

EDF thinks that customers with poor credit history might be in a situation where no supplier wants to sign the customer. Clarification is needed how this process could be resolved.

#### *Evaluation*

According to chapter 4.2.3 in the HNR BRS, these customers should be moved to the "Supplier of last resort". The HNR project has asked NordREG or the national regulators to elaborate this further.

### *H.2.1.7 Start/stop of delivery*

#### *Commenters view*

Vattenfall Nordic thinks separating messages for start/stop of delivery from master data messages will have a significant impact on Vattenfall's systems, but are considered necessary for future development.

#### *Evaluation*

This is according to the HNR proposal.

### H.2.3 Acknowledgements, means of communication, syntax and appendixes

Fortum see that it would be an advantage if the recommendations was made clearer to avoid different chosen solutions in the Nordics. In the BRS it is written that final decisions should be made on a national level - it would be advantageous, according to Fortum, if NordREG takes a more active role in that decision making process.

#### *H.2.1.1 Acknowledgements*

##### *Commenters view*

Elenia is concerned that the acknowledgement routines suggests on many occasions that acknowledgements or responses are not sent.

Fortum thinks that receipts (similar to current Swedish CONTRL/APERAK) should always be in place regardless of whether the communication is asynchronous ("SMTP") or synchronous ("Web Service"). Fortum would like to see a clarification in section 7.

Further on Fortum notes that “Free form” is not optimal when mass handling messages and in automated processes.

##### *Evaluation*

The HNR proposal related to acknowledgements is split between the case where the means of communication is a web service (WS) (Denmark) and the case where the means of communication is based on SMTP (Sweden and Norway until the Elhub is implemented) or FTP (Finland). When WS is used, a delivery notification is returned immediately and when relevant, a responding business document is received within seconds; hence a traditional acknowledgement document should not be needed. When the communication is based on SMTP or FTP, the HNR project suggest that an acknowledgement document Is returned for all processes where a responding document not is sent immediately.

A possible clarification of chapter *7, Acknowledgements* should be done in the project group.

The usage of “Free text” versus coded error codes in the acknowledgement document was discussed at several occasions in the project group. The conclusion was that too detailed error codes in the acknowledgements not will be handled automatically by the systems anyway. In addition, it is better to have good readable text, in addition to a smaller set of error codes. Note that this apply to the technical acknowledgements and not to the business response documents, where detailed error codes are proposed.

#### *H.2.1.2 Means of communication*

##### *Commenters view*

Fortum thinks that non-functional requirements might need more detailed specification. E.g. synchronous vs asynchronous communication. The first sets higher requirements on actor system availability – with exception handling needed for down times (system upgrades, incidents). For the latter - accepted time frames need to be more strictly specified.

##### *Evaluation*

The HNR project group must specify a possible elaboration of the means of communication

#### H.2.1.3 Syntax

##### Commenters view

Vattenfall Nordic thinks replacing EDIFACT with XML will have a significant impact on Vattenfall's systems, but are considered necessary for future development.

Fortum support the recommendation on using XML format and syntax, based on ebIX and ENTSO-E standards. It seems wise as a way to align with NBS and e.g. Denmark.

##### Evaluation

The comment is according to the HNR projects proposal.

#### H.2.1.4 Appendix D

##### Commenters view

EDF comments that the use cases are only described in short forms and can be interpreted differently. The uses cases should be described in more detail and be more elaborated.

Fortum notes that a similar work (making UseCases) as has been done for the move and change of supplier processes is recommended also for handling of combined invoicing (and other market processes as seen fit).

##### Evaluation

The UseCases defined by the NordREG Business Process Task Force (BuP TF) Input Team are described in detail in a separate document that was published at the NordREG web site. NordREG must decide if the UseCases should be republished.

The HNR project supports asking the industry (e.g. NordREG Business Process Task Force (BuP TF) Input Team) to make UseCases for the remaining processes. These UseCases should be maintained by the industry in a sort of business handbook, linked to the more technical BRS.

## H.3 Comments for possible further elaboration in the HNR project group

The comments listed in this chapter are candidates for further elaboration by the HNR project group. The comments are taken from appendix H.2 above.

From Fortum:

- Communication channels
  - Good that e-mail, telephone etc. are separated. Fortum see it is important that quality / format of e.g. phone numbers (+46 vs local numbers) or e-mail (always @) is verified - could suggestions about this be included to the BRS?
  - For increased clarity - if many phone numbers exist, it needs to be clear which is the main contact channel to the customer. A grid owner e.g. clearly needs to know how to contact the customer in case of power outages and/or meter maintenance. **This information needs to be mandatory.** A suggestion for improvement could be to add a field called "Communication Purpose" (e.g. Contract information, Metering Point information), which would secure customer is contacted in the right way for specific situations. This would apply both for sections 6.9.2 and 6.10.3.
- Room identification - for Sweden, it should be clarified that this points to "Lägenhetsnummer".
- Commercial terms as an info object (for ex in page 64) needs to be specified more, no business critical info should be processed/sent.
- "The notification of end of supply to the old Balance Supplier for switches and move-in in the future should be further discussed" - we see it as important that info is given to old supplier as soon as possible.
- Section 6.9.2 Why should Balance Supplier send detailed information about the metering point to the MPA when sending the "Notify update customer information"? This information is provided by the MPA (DSO). It should be sufficient that the message contains MP ID (and MGA ID) and then the customer contact information?
- Section 3.3. Missing the DSO as the "owner"/"responsible" for the Meter Point (MP). The diagram states that Balance Responsible Party *has* Metering point.
- Section 4.2 "… will be registered in the *Meter Point register* as the new supplier". What is the Metering point register? This needs to be defined. In the diagram in section 3.3, the register is something
- 6.2.3 Metering Point Characteristics. Is PhysicalStatusCode the element where a BS can see if the MP is active or disconnected?
- Change of Supplier (4.2) / Request Change of Supplier (6.3.2). We see a risk of change of supplier requests can be done without validation.
  - It is currently stated that the Upfront request for MP Characteristics (4.1.1) is an optional process.
  - A pre-condition in the Change of supplier use case (4.2) is that the Customer has a relationship with the MP
  - In section 6.3.2 Change of Supplier (Class diagram), [Person] ID or [Party] ID is not part of the request.
  - The consequence of this is that it cannot be validated at the time of change of supplier, that the customer actually has a relationship in the MP. Here we have a risk that requests with wrong MP ID can go through the process.
- 6.3.1 Change of supplier: Arrow 4 should be after arrow 5 - Notify customer information need to be done before notifying Change of Supplier to old supplier

- Will the system support transmission of information regarding balance energy for profile settled delivery points? (tase-energia)
- 6.5. Customer Move-in: Separate process diagram to be done also for the case in which the customer is contacting first the current supplier (as it most often is)
- Proxies/(permission from customers to act in their interest) that are needed, for instance when a move out is done in connection to a move in, are not mentioned clear enough. When proxies are needed needs to be defined and how those are processed. At least it should be mentioned as a pre-condition for relevant processes.
- "If there is a change of legal Customer, the Move-in process shall be used" in page 45, why is that? The Danish model seem smart, that there is a more simple process for changing customer data.
- In the Business process UseCase "Customer Move-in", Fortum would like to add a sub process to the actions. It is the process for Reconnecting an inactive MP, i.e. the MP has ben disconnected because of no customer in the MP and now a customer moves in, so the MP need to be reconnected by the DSO. This sub-process should be executed depending on the status of the MP (PhysicalStatusCode).
- 4.4.1 / 4.4.2 Missing information / recommendations of what should happen if there is a customer registered at that MP. Should customer be automatically moved out?
  This should be handled in the national legislation (third party breaking a contract), but since it is an important questions that involves legislation that is outside of the energy industry it is important to highlight.
- Clarification of chapter *7, Acknowledgements*
  - Receipts (similar to current Swedish CONTRL/APERAK) should always be in place regardless of whether the communication is asynchronous ("SMTP") or synchronous ("Web Service").
- Non-functional requirements might need more detailed specification. E.g. synchronous vs asynchronous communication. The first sets higher requirements on actor system availability – with exception handling needed for down times (system upgrades, incidents). For the latter - accepted time frames need to be more strictly specified.

From Finnish Energy Industries:

- All the class diagrams, Element definition tables and Element usage tables have to be checked and synchronised. Meaning that there might be differences in the content of the diagrams and the tables related to one message. Also the order of the attributes has to be the same in the tables and in the diagram, at the moment they are always not.
- It might make the report easier and lighter to read if all the Element definition tables would be put together as a one big Element definition table. This possibility should be further investigated because it makes the report very heavy to read when all the attributes are separately defined for each message even though the definitions are mostly the same.
- In Element usage tables there should be the multiplicity of the class (Business entity) marked as well. Now the attributes in the tables are marked with D, N, O and R letters but also the grey rows describing the name of the class should have an indicator if the class is optional or required or if there could be several of these classes (like 0, 0…1, 1, 0…* or 1…*).
- Chapters 4 and 6 could be even better linked together to make the reading easier. There are some links in the report already but the use cases in the chapter 4 should always have a link to the corresponding process/message in the chapter 6, and vice versa.
- Comments directly in the BRS, found in a separate document.

From EDF:

- Propose addition of a set of prerequisites that must be agreed before a harmonised Nordic retail market can be implemented:
  - Supplier Centric Model
  - Combined billing
  - Hourly metering for all customers
  - Harmonised tariffs
  - Remote shutdown of meters
  - One or two contracts with the customer
- Information exchange (textual information, such as information of planned outages) from the DSO to the Customer, via the electricity supplier, is a new topic newer discussed in the HNR project.
- Rules for what happens when a new customer doesn't move in directly? EDF suggest that the Metering Point Administrator terminates the delivery at the Meter Point. Alternatively, if the delivery continues, it should be clarified that the Old Balance Supplier is responsible.
- EDF comments on Note 6, page 55:

  > [6] For AMR, meter reading shall be read "at the hour of the switch or move". For profiled metered MPs, a meter reading shall be read within +/- 5 days. The switch- or move meter reading shall be estimated if not on the exact day. The meter reading must be distributed to the Balance Supplier within 9 days after the switch.
  >
  > For non-AMR Metering Points, the time frame for sending a switch stand can follow national rules.

  We need clarification regarding the following: If the move-in and move-out isn't 00:00, two different customers can be charged for the same day. How should this be resolved and which party should resolve this?
- Timestamps (page 52) should be mandatory for both sending and receiving documents.

From Elenia:

- Figure 3 (Harmonised Nordic Retail Market Role Model) should be removed from the report since it does not describe the real associations.

## H.4 Comments for further elaboration by NordREG or industry bodies

The comments listed in this chapter are related to business rules and should be further elaboration by NordREG or other industry bodies. The comments are taken from appendix H.2 above.

From Fortum:

- Information on end date of supply contract, notice period and if cancellation fee exists if breaking contract would be good for Swedish customers (document states "Not decided in Sweden"). A large share of customer complaints filed with “Konsumenternas Energimarknadsbyrå” relate to cancellation fees that were not known to the customer at the time of switching.
- Should other actors than the BS be able to request MP Characteristics (section 4.7 and 6.8.2)? For example third party actors that have a power of attorney from the customer.
- Before implementation and development of nation wise technical specifications, the national differences should be looked upon more closely by NordREG.
- The BRS recommends some information exchange to be "immediate", while NordREG recommendation is e.g. latest one day after request received. The legislation should not define a time frame as immediate (meaning within seconds and minutes), but state the maximum time.
- Similar work (making UseCases) as has been done for the move and change of supplier processes is recommended also for handling of combined invoicing (and other market processes as seen fit).

From Finnish Energy Industries:

- We wish NordREG to clearly notify what will be the status of this report and what is the role of it when the harmonised rules and procedures are implemented on national level.

From NBS Messaging Forum and Swedenergy:

- NordREG should discuss how (where) to handle the BRPs need for information and make sure that the BRPs requirement for information will be covered within the Nordic electricity market processes.

From EDF:

- How can the five-day policy for billing be met and quality assured? We suggest that hourly metering is introduced for all customers, thus allowing daily monitoring and improved quality of billing.
- Should the customer sign one contract with the supplier or also one with the DSO? We suggest that the customer should only have to sign one contract, i.e. with the supplier. The contract with the DSO could be included in the contract with the supplier. Contracts between supplier and DSOs should be regulated by the regulators to avoid time-consuming administration and to assure the neutrality of the DSOs.
- Regarding household customers, how many persons could sign and be responsible for a contract? EDF suggest that a maximum of two persons from a household should be responsible for a contract. This eases e.g. the processes of estates and divorces.

- It would be useful if the processes in the report would be put into a context of the surrounding processes. EDF also thinks it is of most importance that NordREG mandates a common model for implementation in the Nordic market, thus avoiding any national variations. A detailed and joint time frame for the implementation is needed. It is also important that suppliers of systems are involved in the process allowing future developed system to manage the suggested data and messages from the start.
- Customers with poor credit history might be in a situation where no supplier wants to sign the customer. Clarification is needed how this process could be resolved.
- The use cases are only described in short forms in Appendix D and can be interpreted differently. The uses cases should be described in more detail and be more elaborated (Can the moving UseCases from the industry be republished?).

From Vattenfall:

- In the already existing Swedish system for reporting meter data, there is no need for sending individual meter stands.
- For the “Request Customer Move-out as part of Customer Move-in process”, other options, such as the new supplier informing the old supplier, can achieve the same and should be investigated further.

## H.5 Comments from Elenia

### Elenia's comments on the report Business Requirements for a Harmonised Nordic Retail Market

The report on harmonised business requirements for harmonised Nordic retail market is an extensive package on technical details for the Nordic retail market message exchange. The proposed model would bring a lot of changes to all of the countries involved, and it would be preferable that all of the countries would implement a harmonized model. It is inconsistent that the project also made assumptions based on NordREG recommendations for billing, as it is at this point clearly open subject in some countries. Combined billing should not be a base assumption for the project.

The project had as a structure Harmonised Electricity Role Model which describes the roles and domains. The figure 3 should be removed from the report since it does not describe the real associations. Even if this is explained, it gives wrong impression on the actual roles and future roles of different actors in the future electricity retail markets. DSO connection to the customer is of an outmost importance to secure electricity supply and to ensure electricity quality.

The pre-switch process is an important part of electricity retail market. Through this the switch process is made customer friendly in case so fixed term contract. The pre-switch process should be harmonized in all of the Nordic countries and a requirement for the new supplier to check if the customer has a fixed term contract and let the customer know of the possible repercussions of breaking the contract.

One concern comes also from the acknowledgement routines from the new models. It suggests on many occasions that acknowledgements or responses are not sent. Acknowledgements are not just a technical issue, even if it helps the automatization of resending, but a business need. The response marks a clear transfer of responsibility.

Implementation of the new model can be discouraged due to the fact that the report lists so many country specific exceptions. Also the messages have huge amount of depended data to be sent, and each country and actor can choose if they send the information. Can the model truly be harmonized if all countries choose a different way to implement a common model? The project should also emphasize the fact where the retail markets are going and what information are important then. One example is the hourly metering and NBS. At the point that a new model is implemented all of the Nordic countries should be well on the way of hourly metering all of the retail customers. This will change not only the billing and balance settlement of the customers, but also whole processes within the companies. Monthly meter readings will not be necessary at that point.

**Elenia Oy**
Osoite: PL 2 33901 Tampere Finland
Käyntiosoite: Patamäenkatu 7 33900 Tampere
Puhelin: 020 586 11
www.elenia.fi

## H.6 Comments from Energidataföreningen (EDF)

### Response to public consultation on "Business requirements for a Harmonised Nordic Retail Market"

*Energidataföreningen (EDF) welcomes the opportunity to provide a response to the NEG report. EDF represents around 30 Swedish energy companies working together in a project to prepare for the implementation of the future harmonised Nordic retail market.*

### General remarks

The report is very well written and detailed. It is an elaborated report very useful for targeting a future implementation. However the time frame for providing a response has been a little too short in regards to the many details.

We see that the specified message and data formats are valid also for other processes other than those presented in the report, e.g. starting contracts and ending contracts. Therefore it would be useful if the processes in the report would be put into a context of the surrounding processes.

It is of most importance that NordREG mandates a common model for implementation in the Nordic market, thus avoiding any national variations. Regardless of where different Nordic countries are in their implementation process, we need a detailed and joint time frame for the implementation, however there are still many uncertainties concerning the time plan. It is important that suppliers of systems are involved in the process allowing future developed system to manage the suggested data and messages from the start.

### Prerequisites for the harmonised Nordic retail market

We agree that the Supplier Centric Model and combined billing must be decided before the implementation of the customer move and change of supplier. We also see other decisions which must be taken, e.g.:

1. Hourly metering for all customers.
2. Harmonised tariffs.
3. Remote shutdown of meters.
4. One or two contracts with the customer.

### Customer Move-Out

What happens when a new customer doesn't move in directly? We suggest that the Metering Point Administrator terminates the delivery at the Meter Point. Alternatively, if the delivery continues, it should be clarified that the Old Balance Supplier is responsible.

### Notification of planned outages

Who is responsible for the actual sending of customer notifications of planned outages? Although the DSO is responsible for the information content we suggest that the supplier is responsible at all times for the actual sending of the information to the customer.

### Hourly metering

How can the five day policy for billing be met and quality assured? We suggest that hourly metering is introduced for all customers, thus allowing daily monitoring and improved quality of billing.

### AMR meter reading ”at the hour of the switch or move”

Note 6, page 55 says:

6 For AMR, meter reading shall be read “at the hour of the switch or move”. For profiled metered MPs, a meter reading shall be read within +/- 5 days. The switch- or move meter reading shall be estimated if not on the exact day. The meter reading must be distributed to the Balance Supplier within 9 days after the switch.

For non-AMR Metering Points, the time frame for sending a switch stand can follow national rules.

We need clarification regarding the following: If the move-in and move-out isn’t 00:00, two different customers can be charged for the same day. How should this be resolved and which party should resolve this?

### One or two contracts with the customer

Should the customer sign one contract with the supplier or also one with the DSO? We suggest that the customer should only have to sign one contract, i.e. with the supplier. The contract with the DSO could be included in the contract with the supplier. Contracts between supplier and DSOs should be regulated by the regulators to avoid time-consuming administration and to assure the neutrality of the DSOs.

### Customer contract responsible

Regarding house-hold customers, how many persons could sign and be responsible for a contract? We suggest that a maximum of two persons from a house-hold should be responsible for a contract. This eases e.g. the processes of estates and divorces.

### Timestamps

We suggest that timestamps (page 52) are mandatory for both sending and receiving documents.

### End of supply

For customers with poor credit history there might be a situation where no supplier wants to sign the customer. Clarification is needed how this process could be resolved.

### Appendix D

The use cases are only described in short forms and can be interpreted differently. The uses cases should be described in more detail and be more elaborated.

This response has been prepared as a joint effort by Stefan Backlund, E.On Vattenkraft, chairman of EDF, Håkan Sundberg, AdviceU AB, project manager EDF Nordic Retail Market, Margaretha Hellström, Nacka Energi AB, board member of EDF, Birgitta Rasmussen, Mälarenergi AB, and Renata Micunovic, Boo Energi.

*Stefan Backlund* *Håkan Sundberg*

## H.7 Comments from Vattenfall Nordic

### Comments on NEG's Business Requirements for a Harmonised Nordic Retail Market

Vattenfall thanks for the opportunity to comment on NEG's report and is generally approving the intention and overall conclusions of the report: development for greater harmonization is important in both the individual national markets as well as in the emerging common retail market.

In this paper, we will only comment the proposed changed that imply a significant impact on our systems and processes. We divide them into positive and negative changes:

### Positive changes

The following proposals from the report will have a significant impact on Vattenfall's systems, but are considered necessary for future development:

- Replacing Edifact with XML
- Enabling connecting several customers to one connection point
- Making the GS1-format mandatory for all DSOs.
- Separating messages for start/stop of delivery from master data messages

### Negative changes

- The following proposals may bear negative consequences for the impact on system operations
- Retroactive moving processes
    - Vattenfall believes that in order to have a high level of automation, high data quality and efficiency, the opportunity to take retroactive action in system must be very restricted. It must of course be possible to correct mistakes—but only after agreement with involved actors in the market. All information about the involved market actors shall be available at start of delivery and the opportunity for cancellation shall be closed by that time.
- Introduction of requirement for sending meter value data
    - In the already existing—and well-functioning—Swedish system for reporting meter data, there is no need for sending individual meter stands. Instead, it is the consumption volume for a delivery period that is reported. This solution is better adapted to Automatic Meter Reading conditions than reporting individual meter stands.
- Message about move out sent to old supplier or to old DSO?
    - Contrary to the model corresponding to the proposal in the moving report, Vattenfall thinks that other options, such as the new supplier informing the old supplier, can achieve the same make it equally simple for the end customer and should be investigated further. Such a solution would have the benefit of keeping the interface between Suppliers and DSOs stringent and minimizes the risk of conflicts between actors in the market.

Best regards

Per Callenberg, Public and Regulatory Affairs, Vattenfall Nordic

## H.8 Comments from Svensk Energi - Swedenergy - AB

Specific comments

There are several processes that are not covered in the BRS, such as Making and ending contracts, Combined billing and National processes related to Electricity certificates.

The Balance Responsible Parties (BRP) need for information is not taken care of in any of the two ongoing Nordic projects, Nordic Balance Settlement (NBS) and Harmonised Nordic Retail Market (HRM). The BRPs have a need for data, such as metered data and Number of Metering Points, to be able to make correct bids in the power markets.

There is also a need for structuring information, such as Metring Grid Area (MGA) IDs, which MGAs that have connections, which MGAs are within which Market Balance Area (Elspot Area), etc.

In Sweden there is an existing message (S02) that includes yearly consumption divided into monthly values. This message is required to avoid unnecessary costs for hedging of fixed price contracts. As we can see, this is not mentioned in the report.

Stockholm, April 29, 2014

Gunilla Stawström

Senior advisor, Swedenergy

## H.9 Comments from Fortum

# Business Requirement Specification for a Harmonised Nordic Retail Market

**General Fortum comments to version v1r0C**

- Fortum is very positive to the work made for this Business Requirements Specification. Without having gone too far down in the details, it seems to be a good first step towards a common way of exchanging information between the electricity market actors in the Nordics.
- Fortum appreciate that ebIX standards are used - opens also for later European harmonization.
- Before implementation and development of nation wise technical specifications, the national differences should be looked upon more closely by NordREG (exceptions in the future Nordic processes). The BRS should also gain from being an "living" document, i.e. maintained by e.g. NEG also in the future to secure that there is a common standard.
- It is generally difficult to comment message content without having process descriptions and use cases. It would thus be beneficent to this project that the business processes are added and better defined in order to be able to check that the message content is correct. **A similar work as has been done for the move and change of supplier processes is recommended also for handling of combined invoicing (and other market processes as seen fit)**.
- Terminology should furthermore be harmonized with other NordReg material (Balance supplier=Supplier etc). Processes, use cases, messages and content of messages needs to be synchronized.
- DSO information
    - Currently Fortum interprets DSO:s as having roles related to metering in the role model (responsible, collector, aggregator). DSO:s also have a need of customer information for other purposes. It needs to be secured that DSO:s have good and reliable access to current customer information (from hub/metering point administrator or directly from responsible actor).
- Roles - Fortum are missing definitions of following roles
    - Grid Access Provider (section 4.4), Grid Operator (section 4.4) and Meter administrator (section 4.11)
- Timeframes
    - The BRS recommends some information exchange to be "immediate", while NordReg recommendation is e.g. latest one day after request received. All automatic processes should be built to send the messages immediate, but it is important the the legislation is not defined as immediate (meaning within seconds and minutes). The legislation should according to Fortum state the maximum time.

**Move process**

- Creation of grid contracts is excluded from this document and seen as an internal process within DSO (see exceptions in section 4.4). If Metering Point Administrator (MPA) = DSO,

then this assumption is OK, but if MPA is a hub (i.e. not DSO), then the messages between MPA and DSO should also be defined in the model. Since Sweden and Finland currently do not have a hub (or detailed plans for if/when a hub could be in place as per today), this should be included.

- 6.5. Customer Move-in: Separate process diagram to be done also for the case in which the customer is contacting first the current supplier (as it most often is)
- Proxies/(permission from customers to act in their interest) that are needed, for instance when a move out is done in connection to a move in, are not mentioned clear enough. When proxies are needed needs to be defined and how those are processed. At least it should be mentioned as a pre-condition for relevant processes.
- "If there is a change of legal Customer, the Move-in process shall be used" in page 45, why is that? The Danish model seem smart, that there is a more simple process for changing customer data.
- In the Business process UseCase "Customer Move-in", Fortum would like to add a subprocess to the actions. It is the process for Reconnecting an inactive MP, i.e. the MP has be disconnected because of no customer in the MP and now a customer moves in, so the MP need to be reconnected by the DSO. This sub-process should be executed depending on the status of the MP (PhysicalStatusCode).
- 4.4.1 / 4.4.2 Missing information / recommendations of what should happen if there is a customer registered at that MP. Should customer be automatically moved out?
  This should be handled in the national legislation (third party breaking a contract), but since it is an important questions that involves legislation that is outside of the energy industry it is important to highlight.

**Communication**

- Fortum does not have the required expertise to give detailed feedback on the recommended technical solutions. We however see that it would be an advantage if the recommendation was made clearer to avoid different chosen solutions in the Nordics. In the BRS it is written that final decisions should be made on a national level - it would be advantageous if NordREG takes a more active role in that decision making process.
- Short comments about recommendations
  - The recommendation on using XML format and syntax, based on ebIX and ENTSO-E standards seems wise as a way to align with NBS and e.g. Denmark. **Fortum support this recommendation.**
  - MADES (developed by ENTSO-E) as a general communication standard and ECP as a platform implementation (freeware owned by ENTSO-E) seem reasonable - but again, Fortum has no experience of this solution. Most important is that the solution facilitates "reliable and secure exchange of documents" as written in the BRS.
  - Receipts (similar to current Swedish contrls/aperaks) should always be in place to secure that the information has reached the recipient in a good way, and that exceptions/errors can be identified and corrected by the sender. This should apply regardless of whether the communication is asynchronous ("smtp") or synchronous ("web service"). **Fortum would like to see a clarification in section 7, where there now seems to be more detailed requirements on asyncrhonoous communication.**
  - Free form is not optimal when mass handling messages and in automated processes.

- Non-functional requirements might need more detailed specification
  - E.g synchronous vs asynchronous communication. The first sets higher requirements on actor system availability – with exception handling needed for down times (system upgrades, incidents). For the latter - accepted time frames need to be more strictly specified.

**Some details on the information objects:**

- Information on end date of supply contract, notice period and if cancellation fee exists if breaking contract would be good for Swedish customers (document states "Not decided in Sweden"). A large share of customer complaints filed with “Konsumenternas Energimarknadsbyrå” relate to cancellation fees that were not known to the customer at the time of switching.
- Communication channels
  - Good that e-mail, telephone etc are separated. Fortum see it is important that quality / format of e.g phone numbers (+46 vs local numbers) or e-mail (always @) is verified - could suggestions about this be included to the BRS?
  - For increased clarity - if many phone numbers exist, it needs to be clear which is the main contact channel to the customer. A grid owner e.g. clearly needs to know how to contact the customer in case of power outages and/or meter maintenance. **This information needs to be mandatory.** A suggestion for improvement could be to add a field called "Communication Purpose" (e.g. Contract information, Metering Point information), which would secure customer is contacted in the right way for specific situations. This would apply both for sections 6.9.2 och 6.10.3.
- Room identification - for Sweden, it should be clarified that this points to "Lägenhetsnummer".
- Commercial terms as an info object (for ex in page 64) needs to be specified more, no business critical info should be processed/sent.
- “The notification of end of supply to the old Balance Supplier for switches and move-in in the future should be further discussed” - we see it as important that info is given to old supplier as soon as possible.
- Section 6.9.2 Why should Balance Supplier send detailed information about the metering point to the MPA when sending the "Notify update customer information"? This information is provided by the MPA (DSO). It should be sufficient that the message contains MP ID (and MGA ID) and then the customer contact information?
- Section 3.3. Missing the DSO as the "owner"/"responsible" for the Meter Point (MP). The diagram states that Balance Responsible Party *has* Metering point.
- Section 4.2 "… will be registered in the *Meter Point register* as the new supplier". What is the Metering point register? This needs to be defined. In the diagram in section 3.3, the register is something
- 6.2.3 Metering Point Characteristics. Is PhysicalStatusCode the element where a BS can see if the MP is active or disconnected?
- Change of Supplier (4.2) / Request Change of Supplier (6.3.2). We see a risk of change of supplier requests can be done without validation.

  - It is currently stated that the Upfront request for MP Characteristics (4.1.1) is an optional process.
  - A pre-condition in the Change of supplier use case (4.2) is that the Customer has a relationship with the MP
  - In section 6.3.2 Change of Supplier (Class diagram), [Person] ID or [Party] ID is not part of the request.
  - The consequence of this is that it cannot be validated at the time of change of supplier, that the customer actually has a relationship in the MP. Here we have a risk that requests with wrong MP ID can go through the process.
- 6.3.1 Change of supplier: Arrow 4 should be after arrow 5 - Notify customer information need to be done before notifying Change of Supplier to old supplier
- Will the system support transmission of information regarding balance energy for profile settled delivery points? (tase-energia)
- Should other actors than the BS be able to request MP Characteristics (section 4.7 and 6.8.2)? For example third party actors that have a power of attorney from the customer.
- Other processes than move and change of supplier
  - Validated data for Billing Energy - sections as written now do not seem to be sufficient for implementation of combined invoicing in the Nordics. Balance supplier would e.g. seem to need either billing lines or information on the customer grid tariff in order to invoice the DSO part. Current BRS only seems to exchange consumption information. Further work is needed in order to enable implementation of a Supplier Centric Model.

## H.10 Comments from NBS Messaging Forum

### Comments to Business requirements for a Harmonised Nordic Retail Market

#### Introduction

NBS Messaging Forum has discussed the need for reliable data to be used by the BRPs with the objective to create good prognoses. These prognoses will form the basis for the BRPs bids in the day-ahead market and thus be the basis for the market reference price (Elspot price).

This requirement is not directly connected to the "Business requirements for a Harmonised Nordic Retail Market", since it is a requirement from the BRPs, i.e. from an actor in the wholesale market (and not the retail market). The comment is neither a part of the NBS processes, since it is related to scheduling and not a part of the settlement process. In other words, this is a requirement that falls in-between all other projects in the Nordic electricity market.

#### BRPs rights to information

It is important in this case to see the totality of information exchange in the two projects. Our initial analysis of the information that will flow to the BRP has concluded that the BRP only will have access to information provided by the Imbalance Settlement Responsible.

- At 10:00 two days after operation; Preliminary data on hourly level: consumption per Balance Supplier and MGA, production per Production Unit
- At 12:00 thirteen days after operation; Final data on hourly level: consumption per Balance Supplier and MGA, production per Production Unit

The BRPs will, according to the "Business requirements for a Harmonised Nordic Retail Market", not receive anything in the Harmonised Nordic Retail Market.

#### BRPs need for information related to consumption

Metered data will at the earliest be available two days after the operational hour. During that period of time there may be major changes to the customer base of the Balance Suppliers for which the BRP is responsible. Prognoses based on values from the imbalance settlement will not be able to incorporate these changes. When analysing the changes in volume from the imbalance settlement it will also be impossible for the BRP to determine if the changes in volume occur due to changes in the customer base or in consumption patterns.

#### BRPs need for information related to production

Changes in the Balance Suppliers customer base of production is more seldom, but the implication of this may also be high. If the BRP fail to obtain this information, the reported production plans to the System Operator will, as an example, be based on incorrect premises.

#### Conclusion

It is of great importance that the BRP receive information about the Balance Suppliers portfolio. A lack of information will put the efficiency of the market at risk. NordREG is asked to discuss the issue raised in this document, and to make sure that the BRPs requirement for information will be covered within the Nordic electricity market processes

## H.11 Comments from Finnish Energy Industries

### Finnish Energy Industries comments on NEG HNR BRS v1r0C, 29.4.2014

First of all we would like to thank NEG HNR and all the participants in the project as well as NordREG about this extensive work on harmonised Nordic message exchange processes.

General comments

- This report is a very good basis for the message exchange on Nordic electricity retail market. However, the aim of this report has been a little bit unclear during the project. We wish NordREG to clearly notify what will be the status of this report and what is the role of it when the harmonised rules and procedures are implemented on national level.
- The report is neither perfectly ready nor all-inclusive yet. The work on the business processes, message processes, technical details of communication etc. needs to go on to enable as good starting point for the harmonisation as possible. There still are many national differences described in the report that might be solved in the future if the work continues.
- Still after the final release of the report from the project group the work continues. Business processes cannot be defined final at once. The processes will develop in and there will be a need for a task force which maintains the document in the future.

Detailed comments about the spelling and format concerning the whole document

- All the class diagrams, Element definition tables and Element usage tables have to be checked and synchronised. Meaning that there might be differences in the content of the diagrams and the tables related to one message. Also the order of the attributes has to be the same in the tables and in the diagram, at the moment they are always not.
- It might make the report easier and lighter to read if all the Element definition tables would be put together as a one big Element definition table. This possibility should be further investigated because it makes the report very heavy to read when all the attributes are separately defined for each message even though the definitions are mostly the same.
- In Element usage tables there should be the multiplicity of the class (Business entity) marked as well. Now the attributes in the tables are marked with D, N, O and R letters but also the grey rows describing the name of the class should have an indicator if the class is optional or required or if there could be several of these classes (like 0, 0…1, 1, 0…* or 1…*).
- Chapters 4 and 6 could be even better linked together to make the reading easier. There are some links in the report already but the use cases in the chapter 4 should always have a link to the corresponding process/message in the chapter 6, and vice versa.

### Detailed comments

Finnish Energy Industries has also made detailed comments (comment boxes and tracked proposals for changes) to the text in the BRS. These can be found in the original answer from Finnish Energy Industries (“Finnish Energy Industries comments on BRS for HNR 20140429.pdf”). This BRS has been updated with the change proposals that are related to correction of spelling errors and addition of clarifying text. However, only when the additions or corrections not change the original intended meaning. The rest of the detailed comments are not evaluated in this document and should be taken into account if the HNR project group re-join for updating the BRS.