PD IEC/TR 62325-103:2017



BSI Standards Publication

Framework for energy market communications

Part 103: Review of information exchanges within the deregulated European style retail energy market from a CIM perspective

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

National foreword

This Published Document is the UK implementation of IEC TR 62325-103:2017.

The UK participation in its preparation was entrusted to Technical Committee PEL/57, Power systems management and associated information exchange.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2018
Published by BSI Standards Limited 2018

ISBN 978 0 580 99063 2

ICS 33.200

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 28 February 2018.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

IEC TR 62325-103

Edition 1.0 2017-12

TECHNICAL REPORT

colour inside

Framework for energy market communications – Part 103: Review of information exchanges within the deregulated European style retail energy market from a CIM perspective

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 33.200

ISBN 978-2-8322-5149-2

Warning! Make sure that you obtained this publication from an authorized distributor.

® Registered trademark of the International Electrotechnical Commission

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

CONTENTS

FOREWORD 10
INTRODUCTION 12
1 Scope 13
2 Normative references 13
3 Terms, definitions and abbreviated terms 13
3.1 Terms and definitions 13
3.2 Abbreviated terms 13
4 Overview 14
5 Use cases 15
5.1 Overview 15
5.1.1 General 15
5.1.2 The Measure process and its individual processes 15
5.1.3 The Business Areas for Measure 16
5.1.4 The Business Areas for Structure and its individual processes 17
5.2 Measure Collected Data 18
5.2.1 General 18
5.2.2 The business process Use Case for Collect 18
5.2.3 Use case for the business process Exchange Collected Data 19
5.2.4 Request Collected Data (business process use case) 21
5.3 Measure for Reconciliation 23
5.3.1 General 23
5.3.2 The business process use case for Measure for Reconciliation 23
5.3.3 Use case for the business process Exchange Validated Data for Reconciliation 24
5.4 Measure for Imbalance Settlement 25
5.4.1 General 25
5.4.2 The business process use case for Measure for Imbalance Settlement 25
5.4.3 Use case for the business process Validate for Imbalance Settlement 26
5.4.4 Use case for the business process Aggregate for Imbalance Settlement 28
5.5 Measure for Billing 31
5.5.1 General 31
5.5.2 Use case for the business process Measure for Billing 32
5.5.3 Use case for the business process Exchange Validated Data for Billing 32
5.6 Measure for Labeling 34
5.6.1 General 34
5.6.2 Use case for the business process Measure for Labeling 34
5.6.3 Use case for the business process Exchange Validated Data for Labeling 35
5.7 Measure Calorific Value 36
5.7.1 General 36
5.7.2 The business process use case for Measure Calorific Value 37
5.7.3 Use case for the business process Exchange Established Calorific Value 37
5.8 Settle for Reconciliation 39
5.8.1 General 39
5.8.2 The business process use case for Establish Profiled Volume 39

AVA Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

5.8.3 The business process use case for Reconciliation 44
5.9 Determine Meter Read 51
5.9.1 General 51
5.9.2 The business process use case for Determine Meter Read 51
5.9.3 Use case for the business process Initiate Meter Read 52
5.10 Change of supplier 53
5.10.1 General 53
5.10.2 The business process use case for Change of Supplier 53
5.10.3 Use case for the business process Make Supply Contract 55
5.10.4 Use case for the business process Request Change of Supplier 55
5.10.5 Use case for the business process Notify Change of Supplier 57
5.11 Change of Balance Responsible Party 59
5.11.1 General 59
5.11.2 The business process use case for Change of Balance Responsible Party 59
5.11.3 Use case for the business process Request Change of Balance Responsible Party 60
5.12 Align Metering Point Characteristics 63
5.12.1 General 63
5.12.2 Notify Metering Point (MP) characteristics 63
5.12.3 Use case for the Notify Metering Point (MP) characteristics 63
5.13 Alignment of Metering Configuration Characteristics 66
5.13.1 General 66
5.13.2 The business process use case Notify Metering Configuration Characteristics 66
6 Methodology used for the mapping 68
6.1 Methodology overview 68
6.2 CIM extension 69
6.3 Methodology mapping example: 69
7 Mapping of class diagrams 72
7.1 Overview 72
7.2 Measure Collected Data 73
7.2.1 Overview 73
7.2.2 Exchange Collected Data 74
7.2.3 Exchange Request Collected Data 76
7.2.4 Exchange Negative Response to Request Collected Data 78
7.3 Measure for Reconciliation 79
7.3.1 Overview 79
7.3.2 Exchange Validated Data for Reconciliation 79
7.4 Aggregated Data for Imbalance Settlement 81
7.4.1 Overview 81
7.4.2 Exchange Aggregated Data for Imbalance Settlement 81
7.4.3 Exchange Aggregated Data per neighbouring Grid 83
7.4.4 Exchange Request Aggregated Data for Imbalance Settlement 85
7.5 Measure for Billing 87
7.5.1 Overview 87
7.5.2 Exchange Validated Data for Billing Energy 88
7.6 Measure for Labeling 89
7.6.1 Overview 89

AVA Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

7.7 Measure Calorific Value 92
7.7.1 Overview 92
7.7.2 Exchange Established Calorific Value 93
7.8 Settle for Reconciliation 94
7.8.1 Overview 94
7.8.2 Exchange Residual Volume 95
7.8.3 Exchange Aggregated Profiled Consumption 97
7.8.4 Exchange Reconciled Volumes 99
7.8.5 Exchange Prices for Reconciliation 101
7.8.6 Exchange Price-Volume Combination for Reconciliation 103
7.9 Measure for Determine meter read 104
7.9.1 Overview 104
7.9.2 Exchange Notification Need for Meter Read 105
7.10 Change of Supplier 106
7.10.1 Overview 106
7.10.2 Exchange Request Change of Supplier 107
7.10.3 Exchange Notify Change of Supplier to New Affected Role 109
7.11 Change of balance responsible party 111
7.11.1 Overview 111
7.11.2 Exchange Request Change of Balance Responsible Party 112
7.11.3 Exchange Reject Change of Balance Responsible Party 114
7.11.4 Exchange Confirm Change of Balance Responsible Party 115
7.12 Notify MP (Metering Point) characteristics 115
7.12.1 Overview 115
7.12.2 Exchange Notify MP characteristics 116
7.13 Notify Metering configuration characteristics 118
7.13.1 Overview 118
7.13.2 Exchange Notify Metering configuration characteristics 118
7.14 Reasons behind the mappings 119
7.14.1 General 119
7.14.2 MarketEvaluationPoint 119
7.14.3 How to handle registers and meters 121
7.14.4 MktActivityRecord 121
8 Proposed changes to CIM 122
8.1 General 122
8.2 Extension to MarketEvaluationPoint 122
8.2.1 Overview 122
8.2.2 Addition of attributes to MarketEvaluationPoint 123
8.3 Extension of MktActivityRecord 124
8.4 Linking meters, registers, readings and time series together 125
8.5 Update of class UsagePoint 126
8.6 Update of class TimeSeries 126
8.6.1 Overview 126
8.6.2 The need for a reference to a request 127
8.7 Additions to be able to specify aggregation criteria 128
8.8 Addition in order to handle Meter time frames for quantities and prices 129
8.9 Additions related to addresses 130
8.9.1 Overview 130
8.9.2 Addition in order to handle different languages of an address 131

AVA Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

8.9.3 Addition in order to handle floors in a building 131
8.10 Additions of Enumeration/CodeList Classes 131
8.11 A summary of the suggested updates in CIM 131
8.11.1 Overview 131
8.11.2 In the IEC 62325 package 131
8.11.3 In the IEC 61968 package 135
9 Next steps 136
Bibliography 137

Figure 1 – Business domain use cases within the European Energy Market 15
Figure 2 – The Measure process and its use cases within the European Energy Market 16
Figure 3 – The business areas for Measure within the European Energy Market 17
Figure 4 – The business areas for Structure within the European Energy Market 17
Figure 5 – The Metering Point administration process and its use cases within the European Energy Market 18
Figure 6 – The business process use case for Collect 19
Figure 7 – Use case for the business process Exchange Collected Data 20
Figure 8 – Activity diagram for the business process Exchange Collected Data 20
Figure 9 – Class diagram for Collected Data 21
Figure 10 – Use case for the business process Request Collected Data 21
Figure 11 – Activity diagram for the business process Request Collected Data 22
Figure 12 – Class diagram for Request Collected Data 22
Figure 13 – Class diagram for Negative Response to Request Collected Data 23
Figure 14 – Business process use case for Measure for Reconciliation 23
Figure 15 – Use case for the business process Exchange Validated Data for Reconciliation 24
Figure 16 – Activity diagram for the business process Exchange Validated Data for Reconciliation 25
Figure 17 – Class diagram for Exchange Validated Data for Reconciliation 25
Figure 18 – Business process use case for Measure for Imbalance Settlement 26
Figure 19 – Use case for the business process Validate for Imbalance Settlement 27
Figure 20 – Activity diagram for the business process Exchange Validated Data for Imbalance Settlement 27
Figure 21 – Class diagram for Validated Data for Imbalance Settlement to Aggregator 28
Figure 22 – Class diagram for Validated Data for Imbalance Settlement to Balance Responsible 28
Figure 23 – Use case for the business process Aggregate for Imbalance Settlement 29
Figure 24 – Activity diagram for the business process Aggregate for Imbalance Settlement 29
Figure 25 – Class diagram within Imbalance Settlement for Aggregated Data per Metering Grid Area to Balance Responsible 30
Figure 26 – Class diagram within Imbalance Settlement for Aggregated Data per Metering Grid Area to Settlement Responsible 30
Figure 27 – Class diagram within Imbalance Settlement for Aggregated Data per neighbouring Grid to neighbouring aggregator and to settlement responsible 31
Figure 28 – Class diagram within Imbalance Settlement for Request Aggregated Data for Imbalance Settlement 31

AVA Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

Figure 29 – Use case for the business process Measure for Billing 32
Figure 30 – Use case for the business process Exchange Validated Data for Billing 33
Figure 31 – Activity diagram for the business process Exchange Validated Data for Billing 33
Figure 32 – Class diagram for Validated Data for Billing Energy 34
Figure 33 – Use case for the business process Measure for Labeling 34
Figure 34 – Use case for the business process Exchange Validated Data for Labeling 35
Figure 35 – Activity diagram for the business process Exchange Validated Data for Labeling 36
Figure 36 – Class diagram for Validated Data for Labeling 36
Figure 37 – Business process use case for Recalculate Calorific Value 37
Figure 38 – Use case for the business process Exchange Established Calorific Value 38
Figure 39 – Activity diagram for the business process Exchange Established Calorific Value 38
Figure 40 – Class diagram for Exchange Established Calorific Value 39
Figure 41 – Business process use case for Settle 39
Figure 42 – Business process use case for Establish Profiled Volume 40
Figure 43 – Use case for the business process Use of Analytic Profiles 41
Figure 44 – Use case for the business process Use of Synthetic Profiles 41
Figure 45 – Activity diagram for the business process Use of Synthetic Profiles 42
Figure 46 – Use case for the business process Exchange residual volume 42
Figure 47 – Class diagram for Exchange residual volume 43
Figure 48 – Use case for the business process Exchange Aggregated Profiled Consumption 43
Figure 49 – Class diagram for Exchange Aggregated Profiled Consumption 44
Figure 50 – Business process use case for Reconciliation 44
Figure 51 – Use case for the business process Reconcile Volumes 45
Figure 52 – Use case for the business process Exchange Reconciled Volumes 46
Figure 53 – Activity diagram for the business process Exchange Reconciled Volumes 46
Figure 54 – Class diagram for Exchange Reconciled Volumes 47
Figure 55 – Use case for the business process Determine Price for Reconciliation 47
Figure 56 – Use case for the business process Exchange Price for Reconciliation 48
Figure 57 – Activity diagram for the business process Exchange Price for Reconciliation 48
Figure 58 – Class diagram for Exchange Price for Reconciliation 49
Figure 59 – Use case for the business process Prepare Billing for Reconciliation 49
Figure 60 – Use case for the business process Exchange Price-Volume Combination 50
Figure 61 – Activity diagram for the business process Exchange Price-Volume Combination for Reconciliation 50
Figure 62 – Class diagram for Exchange Price-Volume Combination for Reconciliation 51
Figure 63 – The business process use case for Determine Meter Read 51
Figure 64 – Use case for the business process Initiate Meter Read 52
Figure 65 – Use case for the business process Notify Need for Meter Read within the use case Initiate Meter Read 53
Figure 66 – Class diagram for Notification Need for Meter Read 53

AVA Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

Figure 67 – Business process use case for Change of Supplier 54
Figure 68 – Use case for the business process Make Supply Contract 55
Figure 69 – Use case for the business process Request Change of Supplier 55
Figure 70 – Activity diagram for the business process Request Change of Supplier 56
Figure 71 – Class diagram for Request Change of Supplier 56
Figure 72 – Class diagram for Confirm Change of Supplier 57
Figure 73 – Class diagram for Reject Change of Supplier 57
Figure 74 – Use case for the business process Notify Change of Supplier 58
Figure 75 – Activity diagram for the business process Notify Change of Supplier 58
Figure 76 – Class diagram for Notify Change of Supplier to New affected role 59
Figure 77 – Business process use case for Change of Balance Responsible Party 60
Figure 78 – Use case for the business process Request Change of Balance Responsible Party 60
Figure 79 – Activity diagram for the business process Request Change of Balance Responsible Party 61
Figure 80 – Class diagram for Request Change of Balance Responsible Party 61
Figure 81 – Class diagram for Confirm Change of Balance Responsible Party 62
Figure 82 – Class diagram for Reject Change of Balance Responsible Party 62
Figure 83 – Business process use case for Align Metering Point Characteristics 63
Figure 84 – Use case for the business process Notify MP characteristics 64
Figure 85 – Activity diagram for the business process Notify MP characteristics 64
Figure 86 – Class diagram for Notify MP characteristics 65
Figure 87 – Use case for the business process Notify Metering Configuration Characteristics 66
Figure 88 – Activity diagram for the business process Notify metering configuration characteristics 67
Figure 89 – Class diagram for Metering Configuration Characteristics 68
Figure 90 – Extract from class diagram Exchange Request Change of Balance Responsible Party 69
Figure 91 – Mapping of Request Change of Balance Responsible Party 70
Figure 92 – Extending MktActivityRecord 71
Figure 93 – Mapping of Metering Point, part 1 71
Figure 94 – Mapping of Metering Point, part 2 71
Figure 95 – Result of the mapping of Metering Point within Request Change of Balance Responsible Party 72
Figure 96 – Mapping of Exchange Collected data 75
Figure 97 – Mapping of Request Collected data 77
Figure 98 – Mapping of Negative Response to Request Collected data 78
Figure 99 – Mapping of Exchange Validated Data for Reconciliation 80
Figure 100 – Mapping of Exchange Aggregated Data for Imbalance Settlement 82
Figure 101 – Mapping of Exchange Aggregated Data per neighbouring Grid 84
Figure 102 – Mapping of Exchange Request Aggregated Data for Imbalance Settlement 86
Figure 103 – Mapping of Exchange Validated Data for Billing Energy 89
Figure 104 – Mapping of Exchange Validated Data for Labeling for Certificate Issue 91

AVA Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

Figure 105 – Mapping of Exchange Established Calorific Value 94
Figure 106 – Mapping of Exchange Residual Volume 96
Figure 107 – Mapping of Exchange Aggregated Profiled Consumption 98
Figure 108 – Mapping of Exchange Reconciled Volumes 100
Figure 109 – Mapping of Exchange Prices for Reconciliation 102
Figure 110 – Mapping of Exchange Price-Volume Combination for Reconciliation 104
Figure 111 – Mapping of Notification Need for Meter Read 106
Figure 112 – Exchange Request Change of Supplier 108
Figure 113 – Exchange Notify Change of Supplier to New Affected Role 110
Figure 114 – Exchange Request Change of Balance Responsible Party 113
Figure 115 – Mapping of Exchange Reject Change of Balance Responsible Party 115
Figure 116 – Exchange Notify MP characteristics 117
Figure 117 – Exchange Notify Metering configuration characteristics 119
Figure 118 – Class diagram MeteringMeterReadings from CIM 120
Figure 119 – Representation of registers and meters for different purposes 121
Figure 120 – MarketEvaluationPoint, suggested association extension to CIM 122
Figure 121 – Addition of Characteristics not found within CIM associated with MarketEvaluationPoint, suggestions for update of CIM 123
Figure 122 – MktActivityRecord, suggested extensions in CIM 124
Figure 123 – Associating Reading and Register with MarketEvaluationPoint, suggestions for update of CIM 125
Figure 124 – BaseReading, suggested extensions to CIM 126
Figure 125 – UsagePoint, suggested extensions to CIM 126
Figure 126 – TimeSeries, suggested extensions to CIM 127
Figure 127 – TimeSeries, addition of Series with a self-association, alternative suggested extensions to CIM 128
Figure 128 – Summary of additions related to TimeSeries, MarketEvaluationPoint, MktActivityRecord and MarketEvaluationPoint, suggestions for update of CIM 129
Figure 129 – Addition of attribute meterTimeFrame to the classes Quantity and Price, suggestions for update of CIM 130
Figure 130 – Addition of attributes to class StreetAddress and class StreetDetail, suggestions for update of CIM 130
Figure 131 – Examples of enumeration/codelists used in the suggested extensions to CIM 131

Table 1 – Mapping of Exchange Collected data 74
Table 2 – Mapping of Request Collected data 76
Table 3 – Mapping of Negative Response to Request Collected data 78
Table 4 – Mapping of Exchange Validated Data for Reconciliation 79
Table 5 – Mapping of Exchange Aggregated Data for Imbalance Settlement 81
Table 6 – Mapping of Exchange Aggregated Data per neighbouring Grid 83
Table 7 – Mapping of Exchange Request Aggregated Data for Imbalance Settlement 85
Table 8 – Mapping of Exchange Validated Data for Billing Energy 88
Table 9 – Mapping of Exchange Validated Data for Labeling for Certificate Issuer 90
Table 10 – Mapping of Exchange Established Calorific Value 93

AVA Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

Table 11 – Mapping of Exchange Residual Volume 95
Table 12 – Mapping of Exchange Aggregated Profiled Consumption 97
Table 13 – Mapping of Exchange Reconciled Volumes 99
Table 14 – Mapping of Exchange Prices for Reconciliation 101
Table 15 – Mapping of Exchange Price-Volume Combination for Reconciliation 103
Table 16 – Mapping of Notification Need for Meter Read 105
Table 17 – Mapping of Exchange Request Change of Supplier 107
Table 18 – Mapping of Notify Change of Supplier to New Affected Role 109
Table 19 – Mapping of Exchange Request Change of Balance Responsible Party 112
Table 20 – Mapping of Exchange Reject Change of Balance Responsible Party 114
Table 21 – Mapping of Exchange Notify MP characteristics 116
Table 22 – Mapping of Exchange Notify MP characteristics 118

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

Part 103: Review of information exchanges within the deregulated European style retail energy market from a CIM perspective

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC TR 62325-103, which is a technical report, has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
57/1896/DTR	57/1932/RVDTR

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

AVA Documents Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts of the IEC 62325 series, under the general title: *Framework for energy market communications*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

INTRODUCTION

This part of IEC 62325, which is a Technical Report, is part of the IEC 62325 series for deregulated energy market communications.

The common information model (CIM), i.e. the IEC 62325-301, IEC 61970-301 and IEC 61968-11 standard series, specifies the basis for the semantics for message exchange.

In this document it is investigated how CIM can be used and updated to include most parts of the information exchanges within the deregulated European style retail energy market.

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

Part 103: Review of information exchanges within the deregulated European style retail energy market from a CIM perspective

1 Scope

ebIX®[1] (the European forum for energy Business Information eXchange) is a group representing a significant number of European countries. ebIX® defines harmonised information exchanges for the deregulated European style retail energy market. ebIX® will follow the rules of the European Union where applicable. This part of IEC 62325, which is a Technical report, provides information about how the ebIX® information model can be mapped to CIM. In addition, this document shows what may be needed to be added or changed within CIM in order to cover the specific set of information exchange within the deregulated European style retail energy market. The scope is to study the exchange of market information between the actors in the energy market.

2 Normative references

There are no normative references in this document.

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.2 Abbreviated terms

3.2.1
BIM
Business Information Model

3.2.2
BRS
Business Requirement Specification

3.2.3
CIM
Common information model

[1] This information is given for the convenience of users of this document and does not constitute an endorsement.

Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

3.2.4
DSO
Distribution System Operator

3.2.5
MP
Metering Point

3.2.6
TSO
Transmission System Operator

4 Overview

The principal objective of the IEC 62325 series of standards is to produce standards which facilitate the integration of market application software developed independently by different vendors into a market management system, between market management systems and market participant systems. This is accomplished by defining message exchanges to enable these applications or systems access to public data and exchange information independent of how such information is represented internally.

IEC 62325-301 is the part of CIM that contains market extensions required for market management systems and for market operation systems, see [27][2].

This document gives an indication of the feasibility of mapping deregulated European style retail energy market information to CIM and what may be needed to be added or changed within CIM in order to cover that specific set of information exchange within the deregulated European style retail energy market.

In order to describe the roles and domains in the European energy market, the harmonised electricity role model from ENTSO-E, EFET and ebIX® is used, see [3].

The liaison organization ebIX® has adopted UN/CEFACT's Modelling Methodology (UMM) as the standard for its modelling of information exchange processes and the information exchanged. Based on UMM ebIX® has made business requirement specifications (BRS's), business information models (BIM's) for information exchanges needed for the deregulated European style retail energy market. This document uses data from most of these business requirement specifications, see [4] to [23], to see how they can be mapped onto CIM.

UN/CEFACT's Modelling Methodology (UMM) is a UML modelling approach to design the business services that each partner must provide in order to collaborate, see [2] . The Business Operations View (BOV) in Open-edi is defined as "a perspective of business transactions limited to those aspects regarding the making of business decisions and commitments among organizations", and as such comparable to business requirement specifications (BRS's) as used by ebIX®.

NOTE UN/CEFACT's Modeling Methodology (UMM) is a UML modeling 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 have to be realized in a service-oriented architecture implementing the business collaboration. This approach provides insurance against technical obsolescence.

The UMM is the formal description technique for describing any Open-edi scenario as defined in ISO/IEC 14662 Open-edi reference model. An Open-edi scenario is a formal means to specify a class of business transactions

2 Numbers in square brackets refer to the bibliography.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

having the same business goal, such as, purchasing or inventory management. The primary scope of UMM is the Business Operations View (BOV) and not the Functional Service View (FSV) as defined in ISO/IEC IS 14662. The BOV is defined as “a perspective of business transactions limited to those aspects regarding the making of business decisions and commitments among organizations”, while the FSV is focused on implementation specific, technological aspects of Open-edi. The commitments of the BOV layer are reflected in the choreography of the inter-organizational business process and its information exchanges. At the FSV layer this choreography shall be implemented by a set of composite services. It follows, that UMM on the BOV layer defines what the business is about and technologies on the FSV layer define how to implement the business by a service-oriented architecture.

[SOURCE: UN/CEFACT, [2], [24]

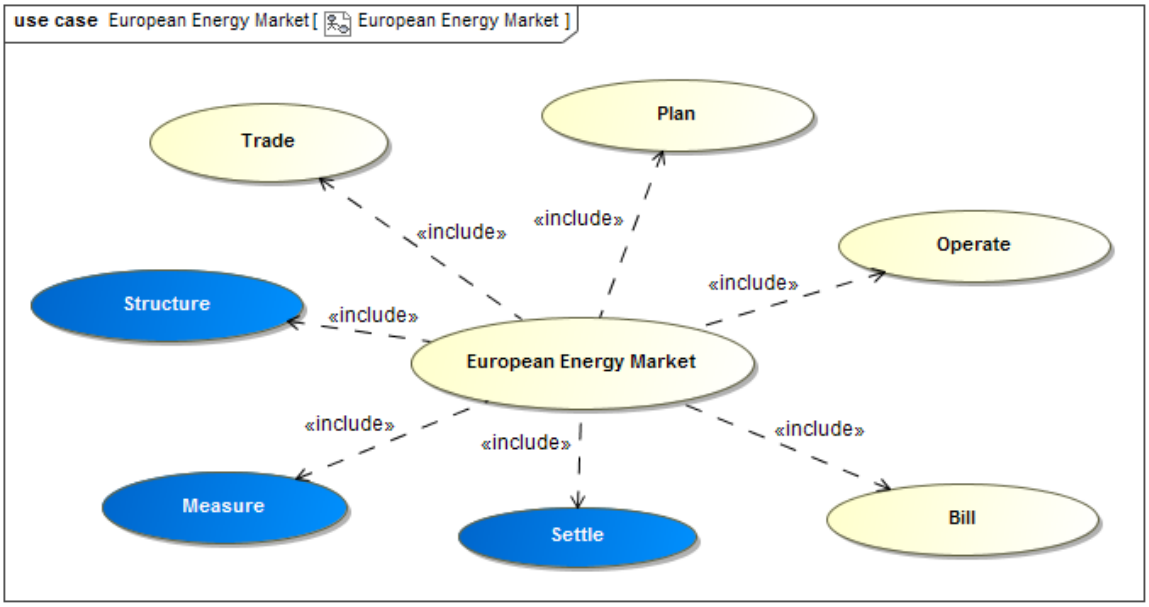
5 Use cases

5.1 Overview

5.1.1 General

In this clause processes and use cases from the deregulated European Energy market are described, as can further be studied in documents from ebIX®, see [1].

Figure 1 shows the different use cases within the deregulated European Energy market. Here Measure, Settle and Structure are selected and further detailed in the next subclauses. Roles used in the use cases are having the stereotype <<Harmonized Role>>. These roles are further described in the Harmonised electricity role model from ENTSO-E, EFET and ebIX®, see [3].



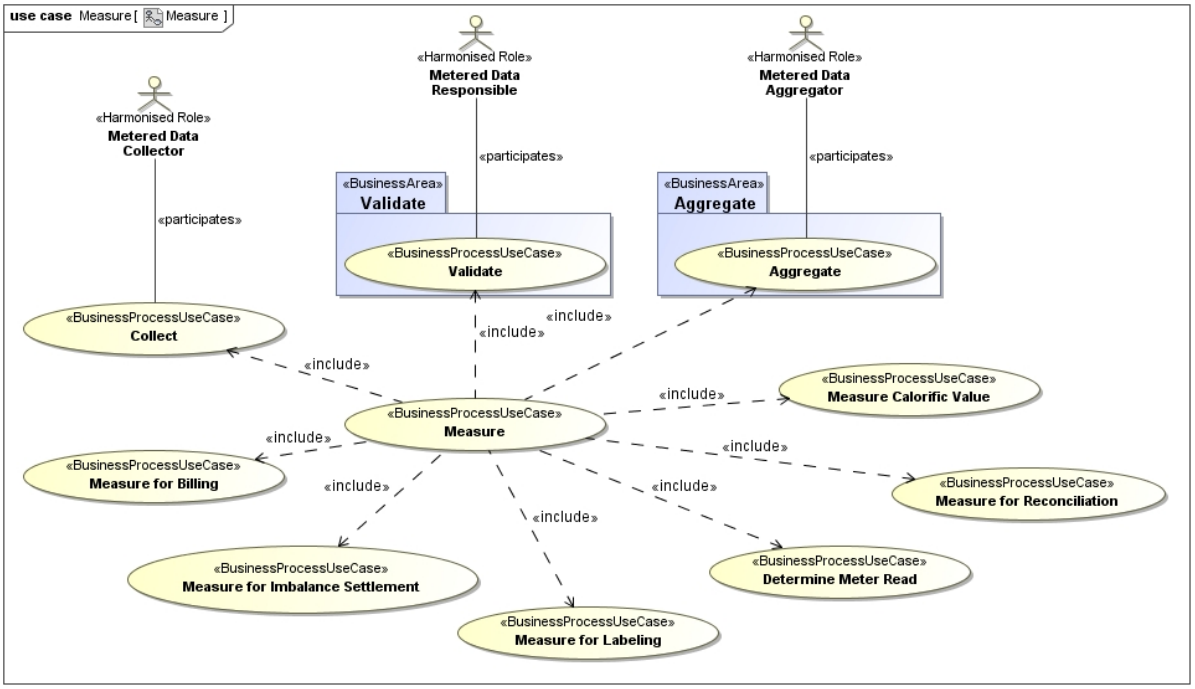
IEC

Figure 1 – Business domain use cases within the European Energy Market

5.1.2 The Measure process and its individual processes

Each of the processes above can be broken down into individual processes. As an example, the Measure process can be described with the use cases in Figure 2.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 2 – The Measure process and its use cases within the European Energy Market

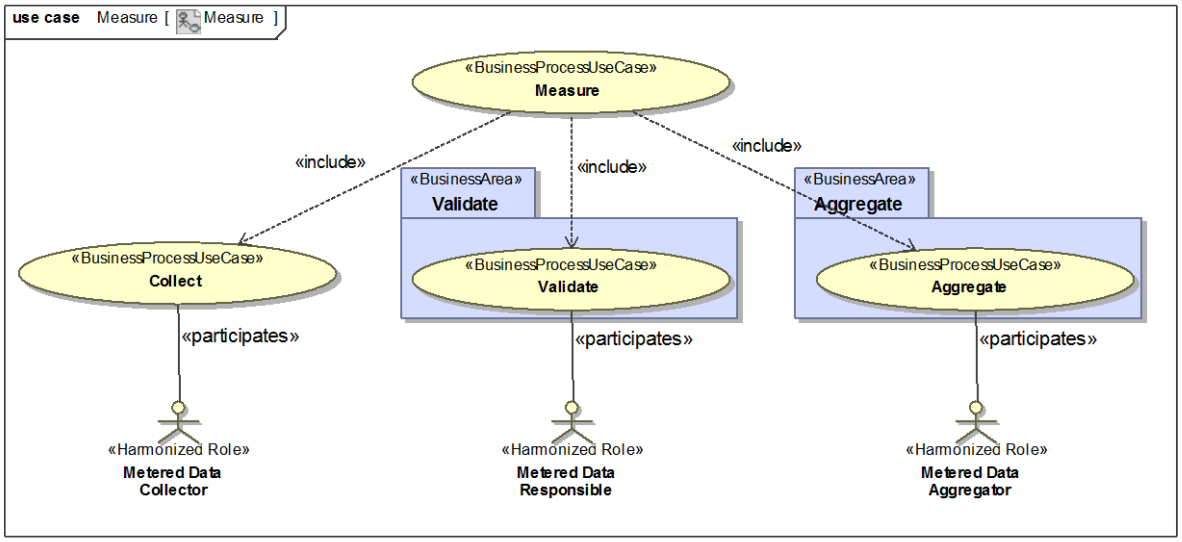
The above use cases are further detailed in Subclauses 5.2 to 5.7 and 5.9.

5.1.3 The Business Areas for Measure

Another way of describing the Measure process is to break it down into different Business areas. According to UMM-2: “A business area usually corresponds to a division of an enterprise. Business areas might be structured recursively. A business area is a category of decomposable business areas or process areas (on the lowest UN/CEFACT – UMM … level of business area hierarchy). This means that a business area collates either other business areas, process areas or business process use case”, see [2].

In the model for Measure the business areas contain business processes as clustered around the responsible role. In this way Collect is clustered around the role *Metered Data Collector*, Validate is clustered around the role *Metered Data Responsible* and Aggregate is clustered around the role *Metered Data Aggregator*. See Figure 3.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



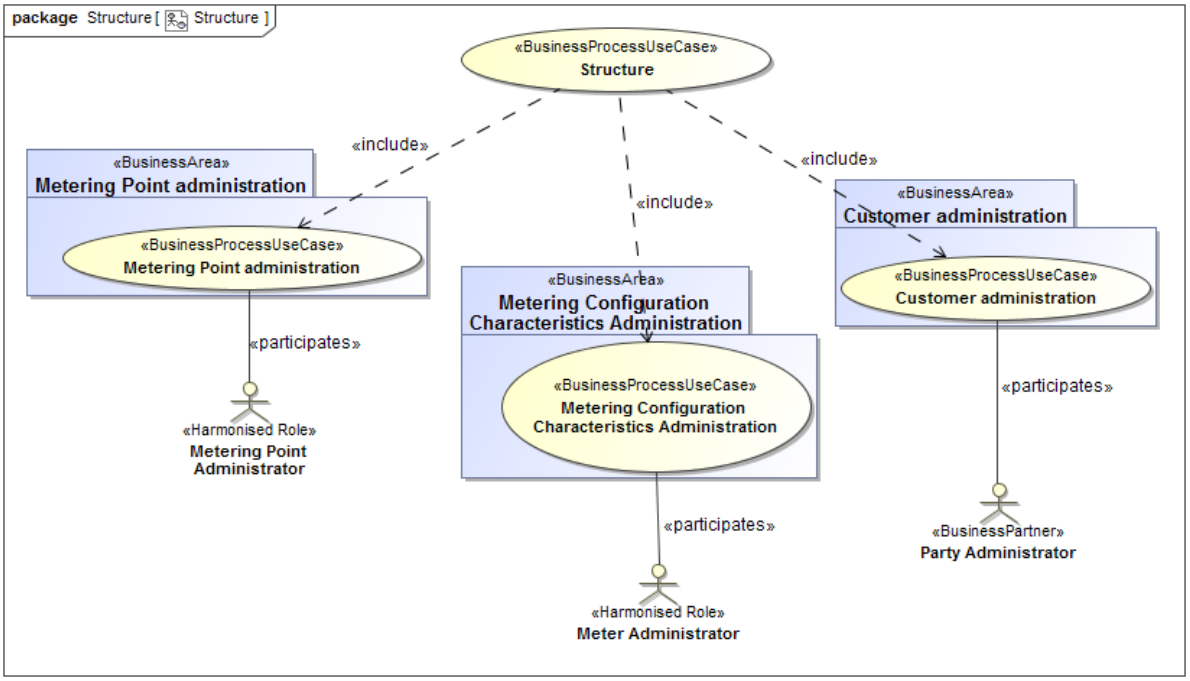
IEC

Figure 3 – The business areas for Measure within the European Energy Market

The Business process use case for “Collect” is regarded to represent just one business process, in contrast to “Validate” and “Aggregate” which do not represent one business process in itself. These are in contrast clusters of different (sub-)processes belonging to different business processes but having the responsible <<Harmonized Role>> role in common. Regarding harmonised roles, see [3].

5.1.4 The Business Areas for Structure and its individual processes

The Structure use case is split into the Business Areas “Metering Point Administration”, “Metering Configuration Characteristics Administration” and “Customer administration”, each having different responsible roles, see Figure 4. Regarding Customer administration – for which the use cases are not further detailed in this document – the Party Administrator, in a supply centric model, is mapped to the Harmonised role Balance supplier. Regarding harmonised roles, see [3].



IEC

Figure 4 – The business areas for Structure within the European Energy Market

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

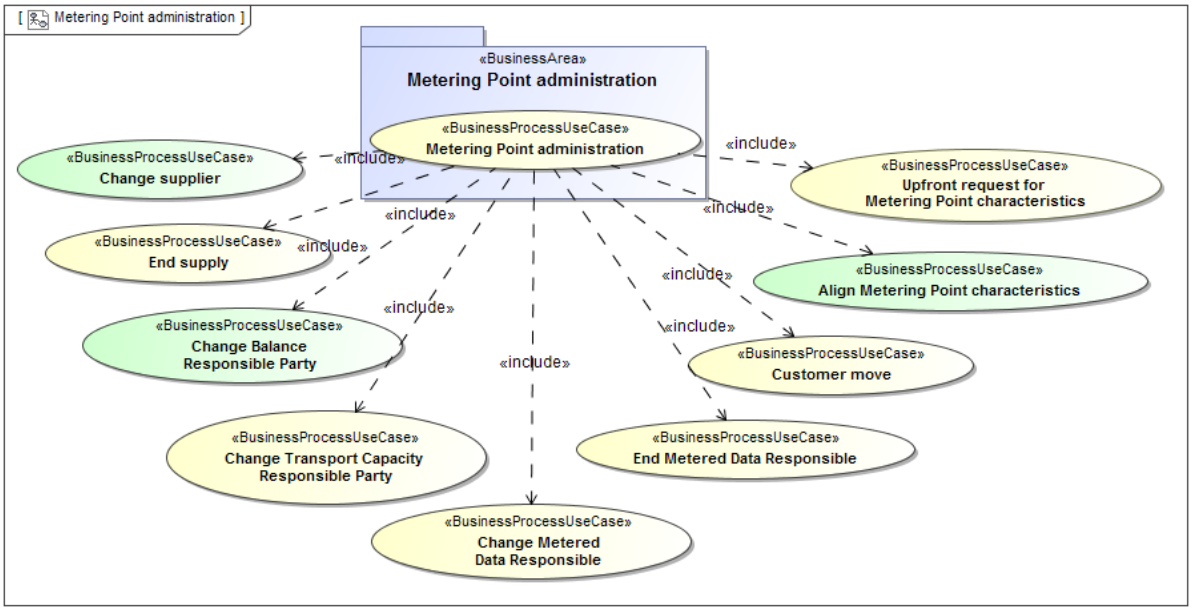


Figure 5 – The Metering Point administration process and its use cases within the European Energy Market

From the Metering Point administration process, see Figure 5, the use cases Change of Supplier, Change of Balance Responsible Party and Align Metering Point Characteristics are selected and further detailed in Subclauses 5.10 to 5.12.

Within Metering Configuration Characteristics Administration (see Figure 4) only the use case Align Metering Configuration Characteristics, is further detailed in 5.13.

5.2 Measure Collected Data

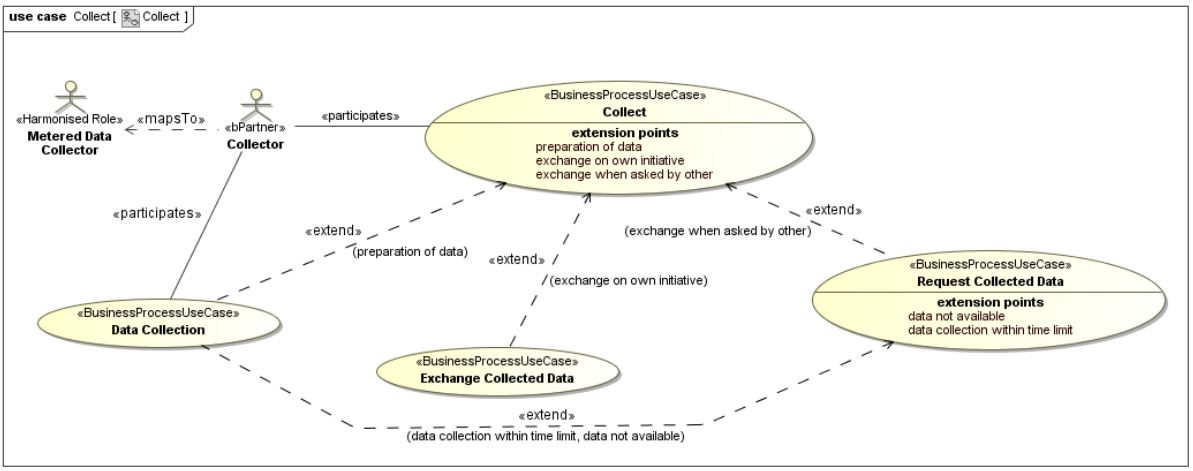
5.2.1 General

The process provides collected data between commercial actors, i.e. by a Collector to other partners in the energy sector. Note that the process does not include the collection of data from the meter itself. See further [4].

5.2.2 The business process Use Case for Collect

Figure 6 shows the business process use case for *Collect* from the business area shown in Figure 3.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 6 – The business process use case for Collect

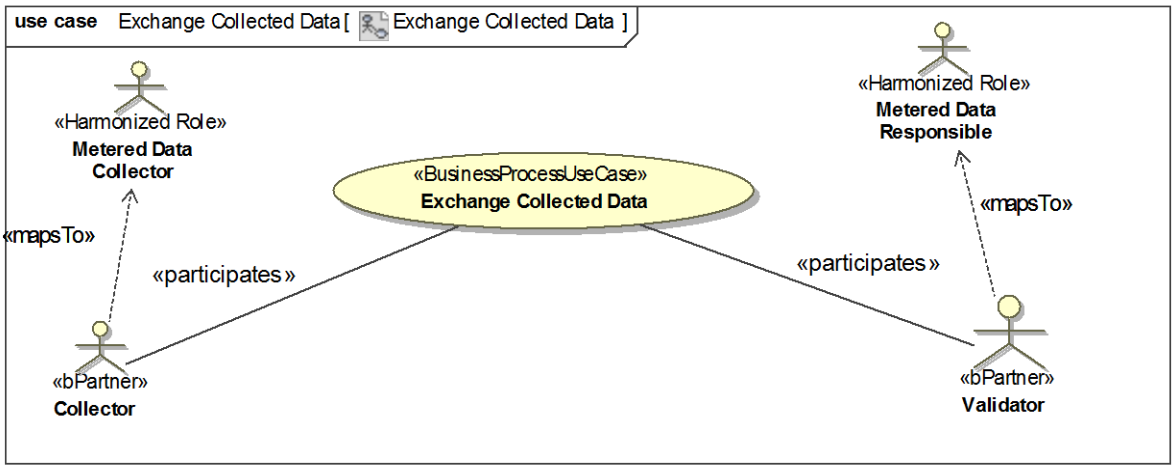
Description

UseCase description: Collect	
Definition	Providing collected data by a Collector to other partners in the energy sector.
beginsWhen	The Collector decides to or is requested to.
Precondition	Collector should know which register to read and therefore have access to relevant master data
endsWhen	– Data collection has been ended successfully (no need for exchange) or – The distribution of the Collected Data has been accomplished or – the request for collected data has been (positively or negatively) answered.
postCondition	– Collected are available for the register or – Collected data have been exchanged or – The request is rejected.
Exceptions	– No data available within time limit – Collected data delivered to the wrong addressee

5.2.3 Use case for the business process Exchange Collected Data

Figure 7 shows the business process use case for Exchange Collected Data from the business processes shown in Figure 6.

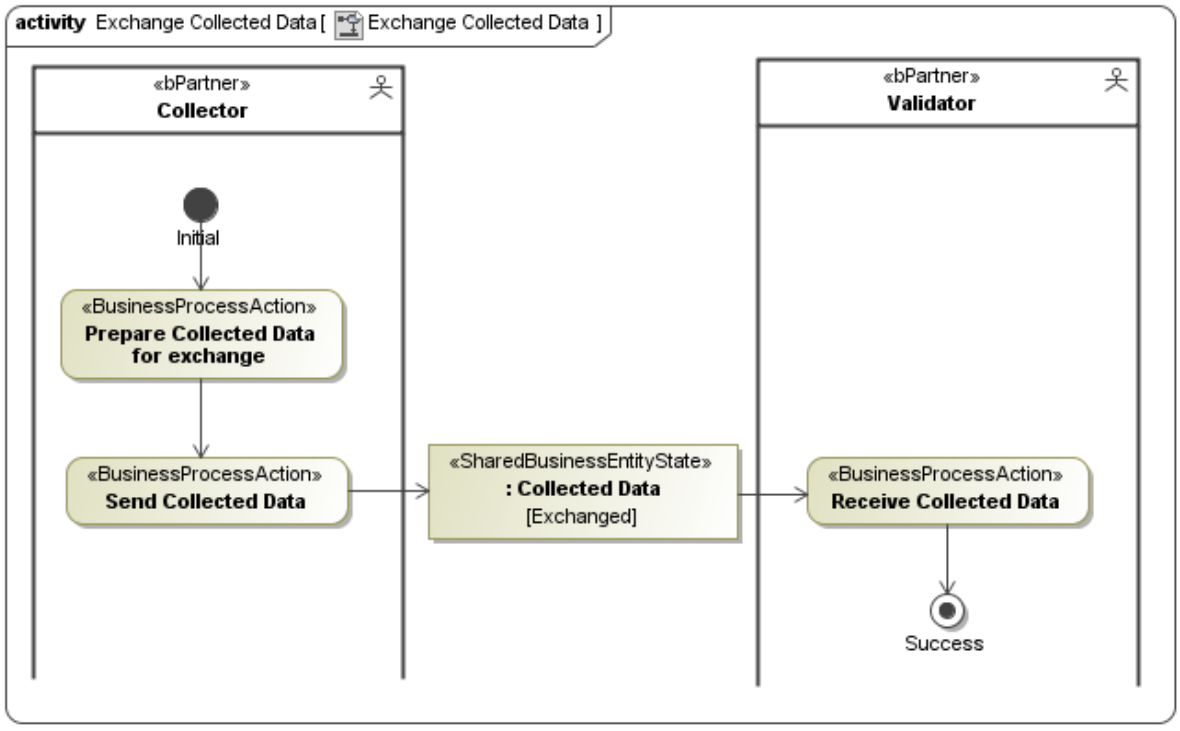
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 7 – Use case for the business process Exchange Collected Data

Figure 8 shows the activity diagram for the use case Exchange Collected Data shown in Figure 7.



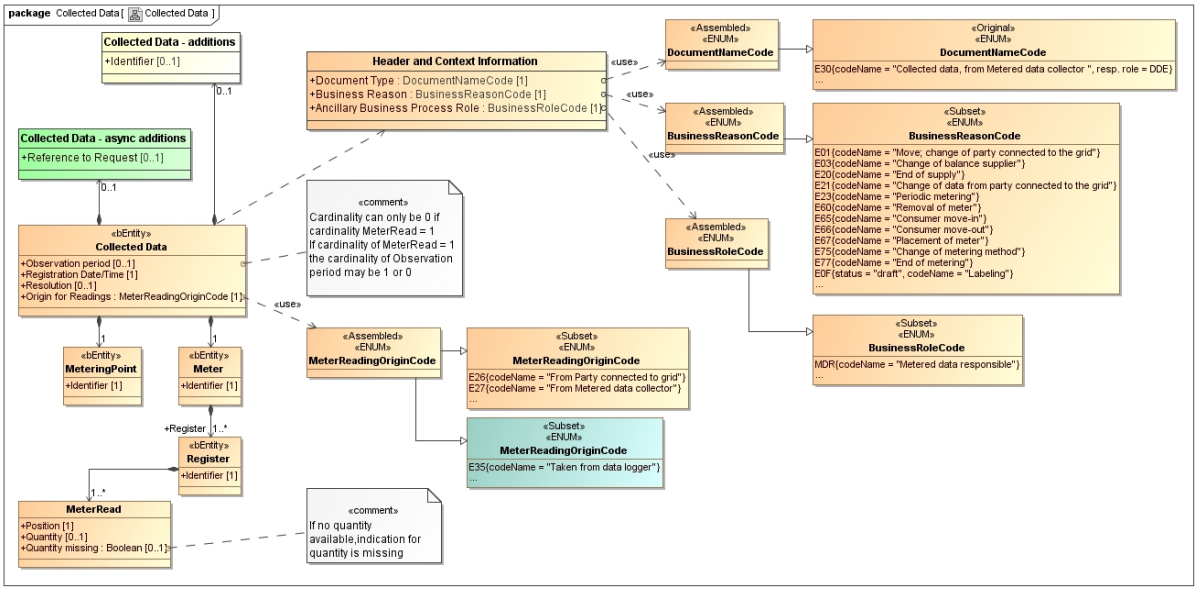
IEC

Figure 8 – Activity diagram for the business process Exchange Collected Data

Figure 9 shows the class diagram for the exchanged Collected Data as shown in Figure 8.

AVA Documents
Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

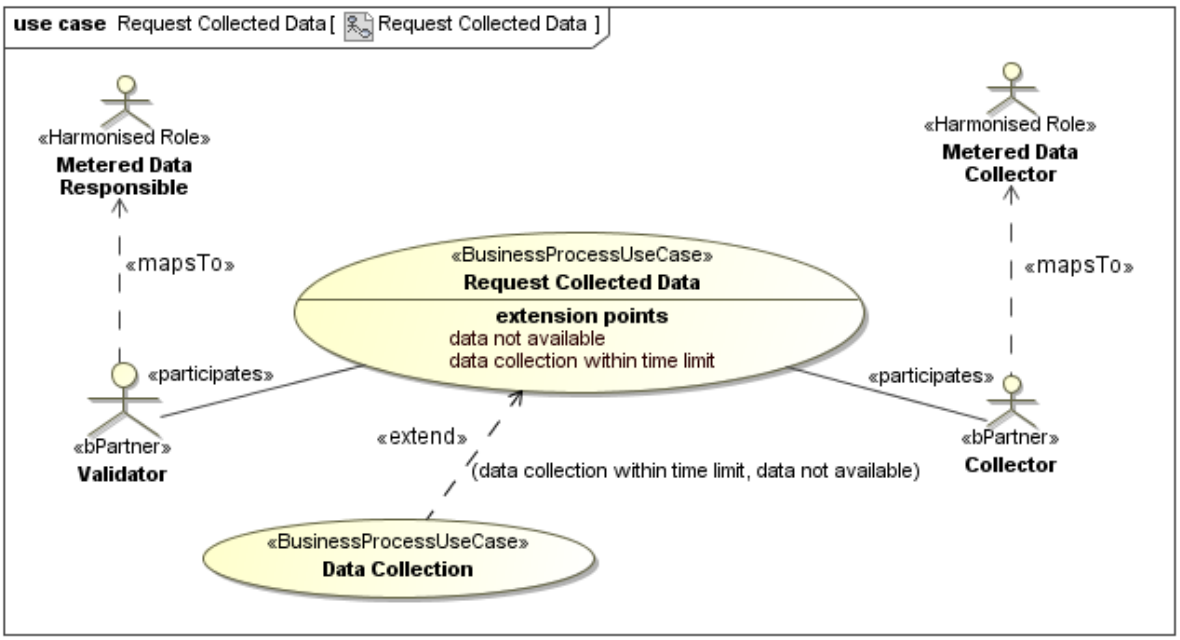


IEC

Figure 9 – Class diagram for Collected Data

5.2.4 Request Collected Data (business process use case)

Figure 10 shows the business process use case for Request Collected Data from the business processes shown in Figure 6.

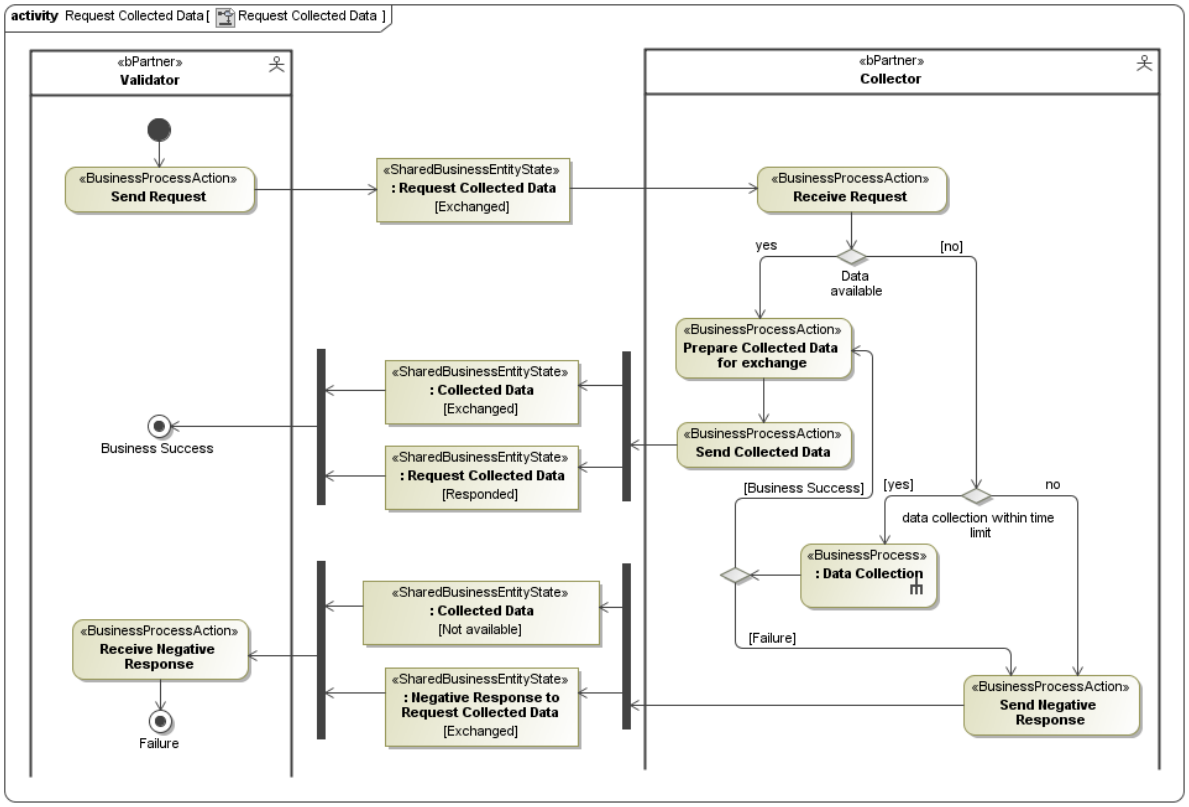


IEC

Figure 10 – Use case for the business process Request Collected Data

Figure 11 shows the activity diagram for the use case Request Collected Data shown in Figure 10.

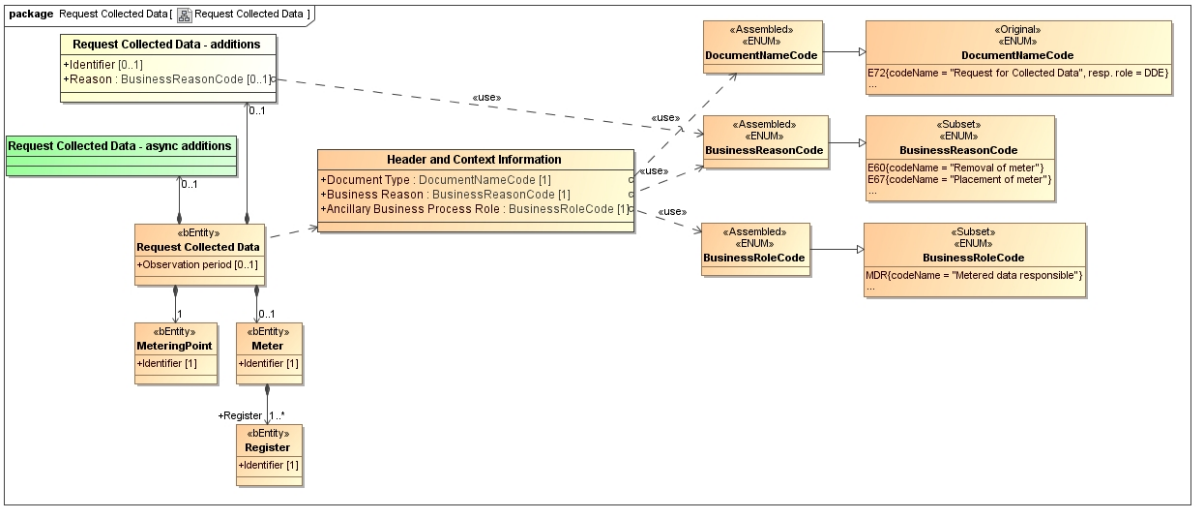
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 11 – Activity diagram for the business process Request Collected Data

Figure 12 shows the class diagram for the response Request Collected Data as shown in Figure 11.

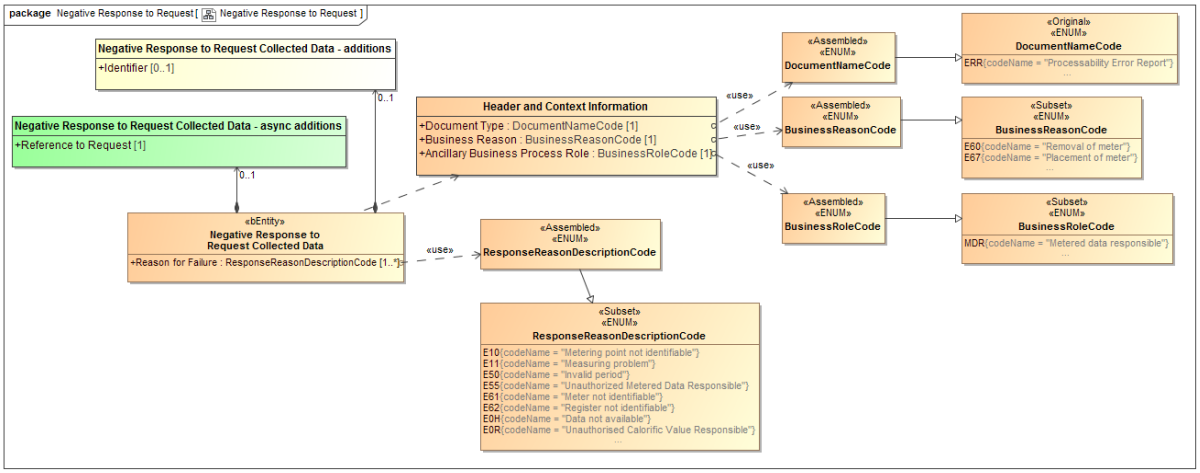


IEC

Figure 12 – Class diagram for Request Collected Data

Figure 13 shows the class diagram for the exchanged Negative Response to Request Collected Data as shown in Figure 11.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 13 – Class diagram for Negative Response to Request Collected Data

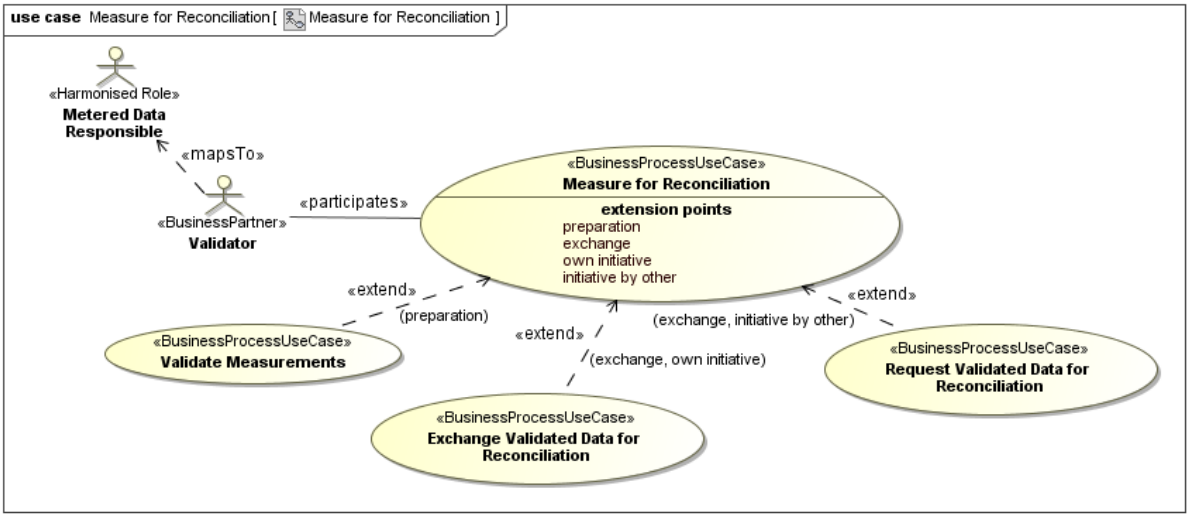
5.3 Measure for Reconciliation

5.3.1 General

Within the Measure process, the sub process Measure for Reconciliation is one of the simplest with regard to exchange of validated measured data. The process provides validated data for use in the reconciliation process to partners involved in this process. See further [5]. For the Business Process Settle for Reconciliation, see 5.6.

5.3.2 The business process use case for Measure for Reconciliation

Figure 14 shows the business process use case for Measure for Reconciliation from the use cases shown in Figure 2.



IEC

Figure 14 – Business process use case for Measure for Reconciliation

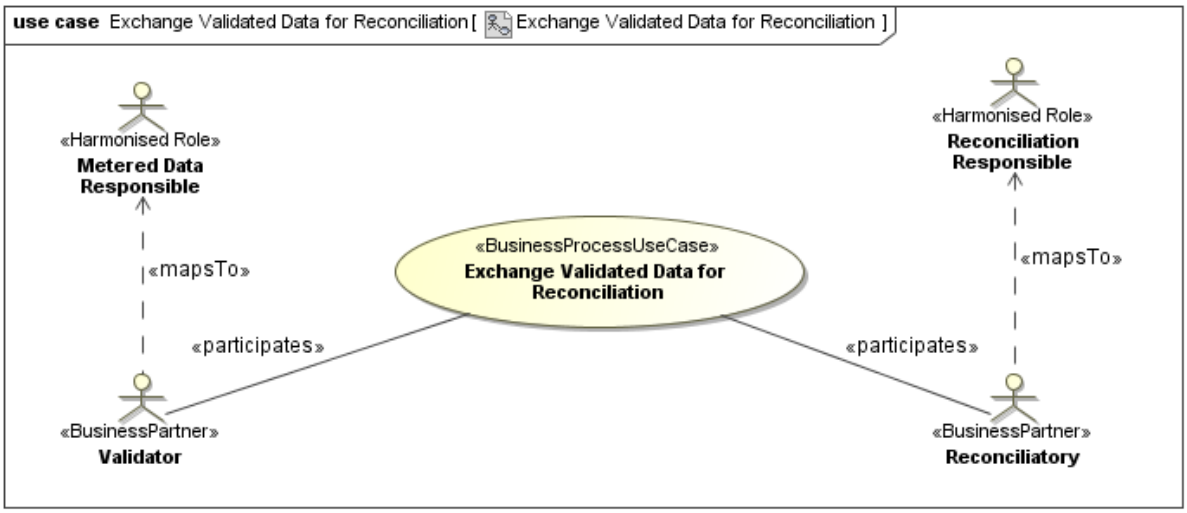
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

Description

UseCase description: Measure for Reconciliation	
Definition	Provides validated data for use in the reconciliation process to partners involved in this process.
beginsWhen	The timing of the various processes is guided by a time schedule (nationally defined). As a general rule can be stated, that the processes are executed on a monthly basis.
precondition	Partners responsible for the execution of the processes should have access to relevant master data.
endsWhen	All processes included in the time schedule have been executed.
postCondition	All validated data are available at the partners so that the reconciliation process can be executed and the results can be verified.
Exceptions	No data available

5.3.3 Use case for the business process Exchange Validated Data for Reconciliation

Figure 15 shows the business process use case for Exchange Validated Data for Reconciliation from the business processes shown in Figure 14.

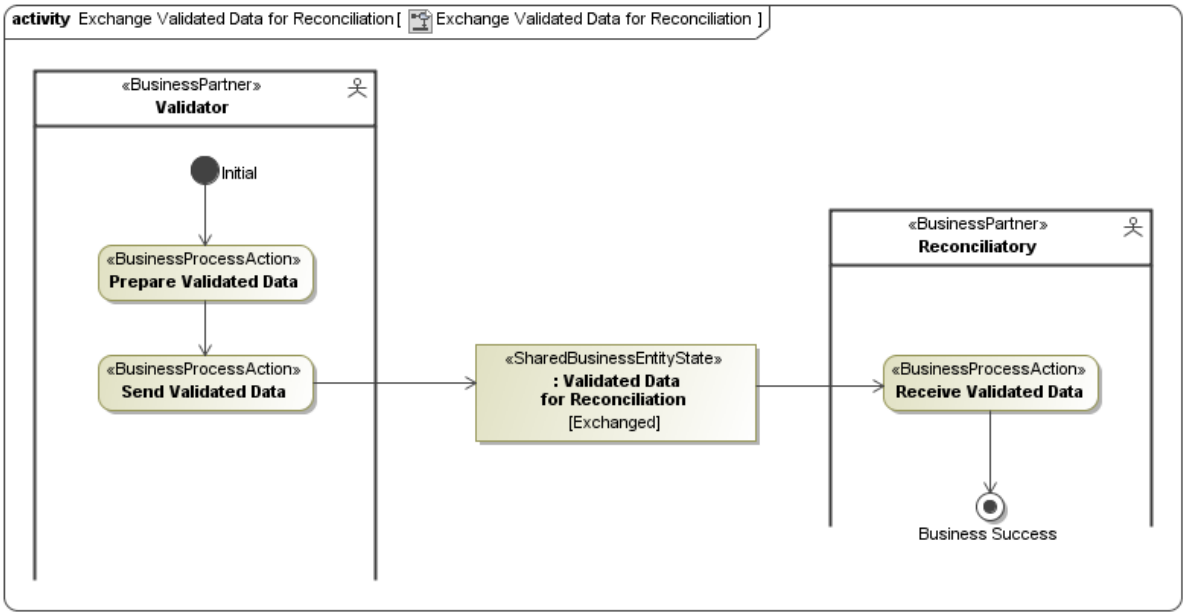


IEC

Figure 15 – Use case for the business process Exchange Validated Data for Reconciliation

Figure 16 shows the activity diagram for the use case Exchange Validated Data for Reconciliation shown in Figure 15.

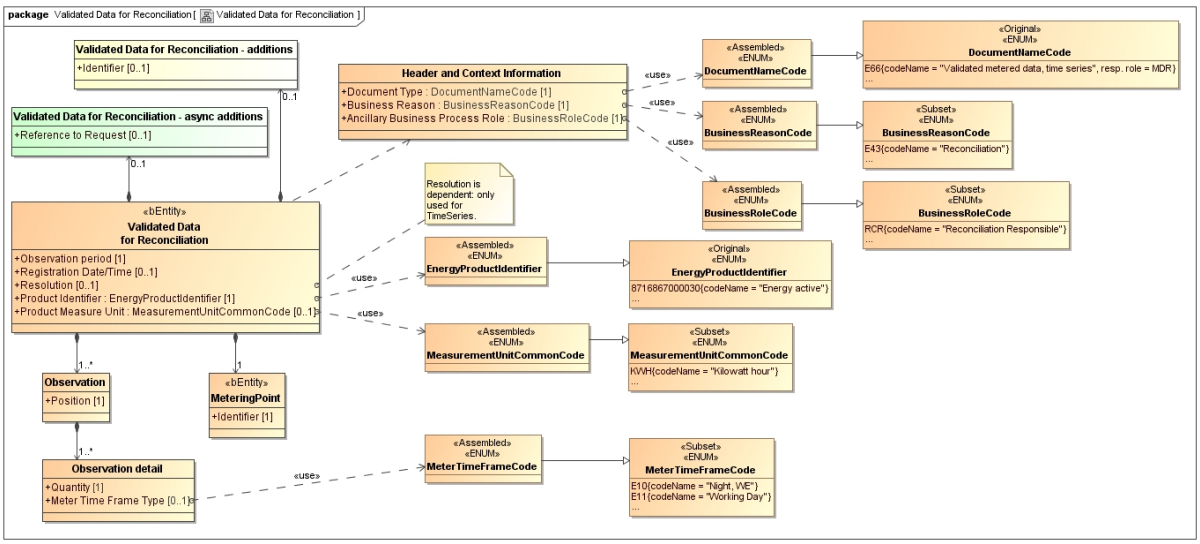
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 16 – Activity diagram for the business process Exchange Validated Data for Reconciliation

Figure 17 shows the class diagram for the exchanged Validated Data for Reconciliation as shown in Figure 16.



IEC

Figure 17 – Class diagram for Exchange Validated Data for Reconciliation

5.4 Measure for Imbalance Settlement

5.4.1 General

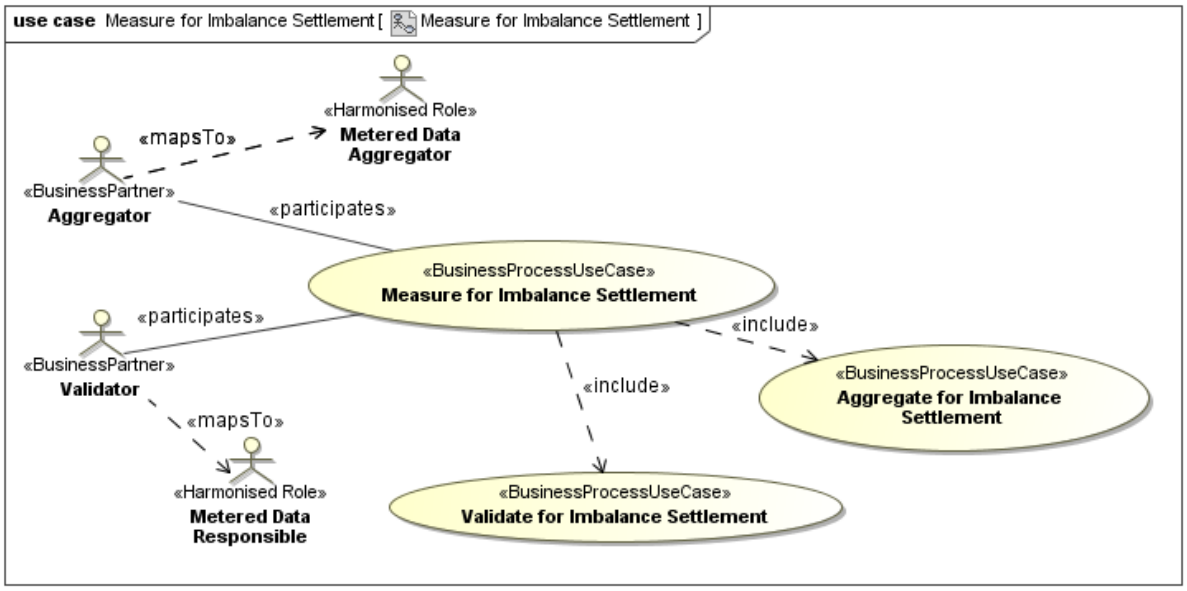
Within the Measure process, the sub process Measure for Imbalance Settlement includes the validation and aggregation of measured data including the exchange, to be used in the imbalance settlement process. For the latter see IEC 62325-451-4. See further [6].

5.4.2 The business process use case for Measure for Imbalance Settlement

Figure 18 shows the business process use case for Measure for Imbalance Settlement from the use cases shown in Figure 2.

AVA Documents Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 18 – Business process use case for Measure for Imbalance Settlement

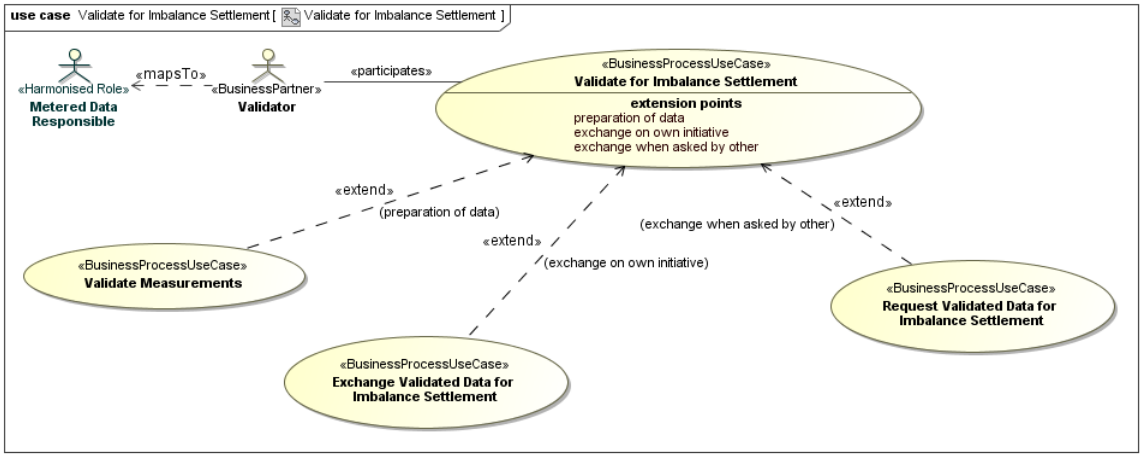
Description

UseCase description: Measure for Imbalance Settlement	
Definition	Provides validated and aggregated data for use in the imbalance settlement process to partners involved in this process.
beginsWhen	The timing of the various processes is guided by a time schedule (nationally defined). As a general rule can be stated, that the processes are executed on a daily basis.
preCondition	Business partners responsible for the execution of the processes should have access to relevant master data. Collected data are available
endsWhen	All processes included in the time schedule have been executed.
postCondition	All validated and aggregated measured data are available at the business partners so that the imbalance settlement process can be executed and the results can be verified.
Exceptions	No data available

5.4.3 Use case for the business process Validate for Imbalance Settlement

Figure 19 shows the business process use case for Validate for Imbalance Settlement from the business processes shown in Figure 18.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

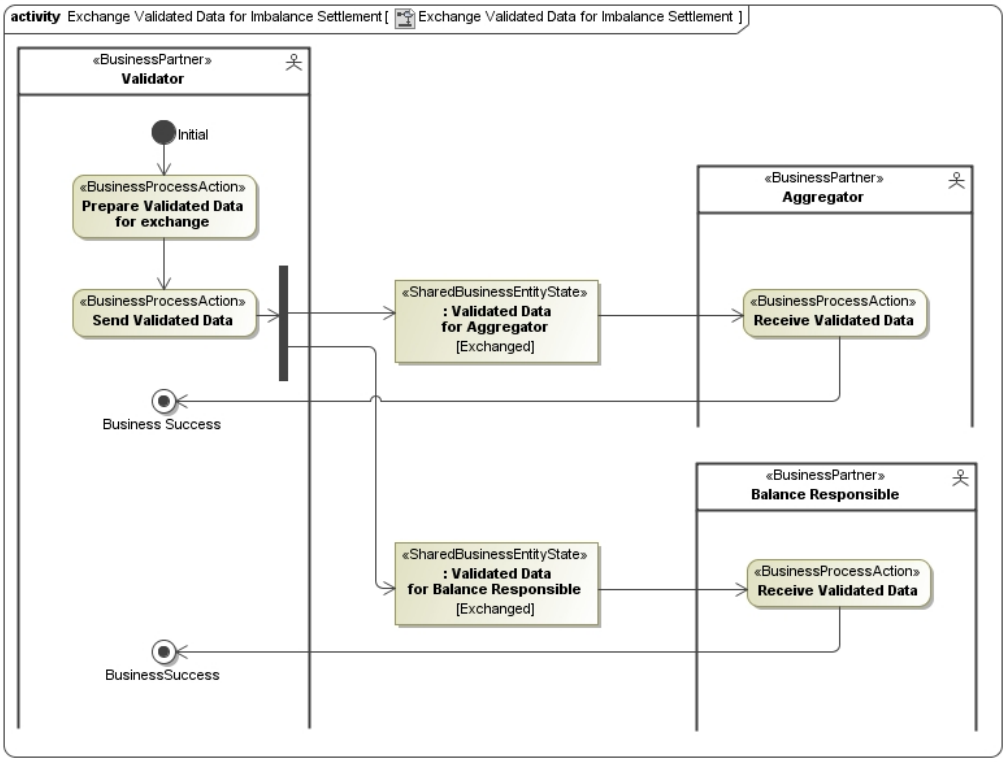


IEC

Figure 19 – Use case for the business process Validate for Imbalance Settlement

In Figure 20 to Figure 22 the business process Request Validated Data for Imbalance Settlement is not further elaborated.

Figure 20 shows the activity diagram for the use case Exchange Validated Data for Imbalance Settlement shown in Figure 19.



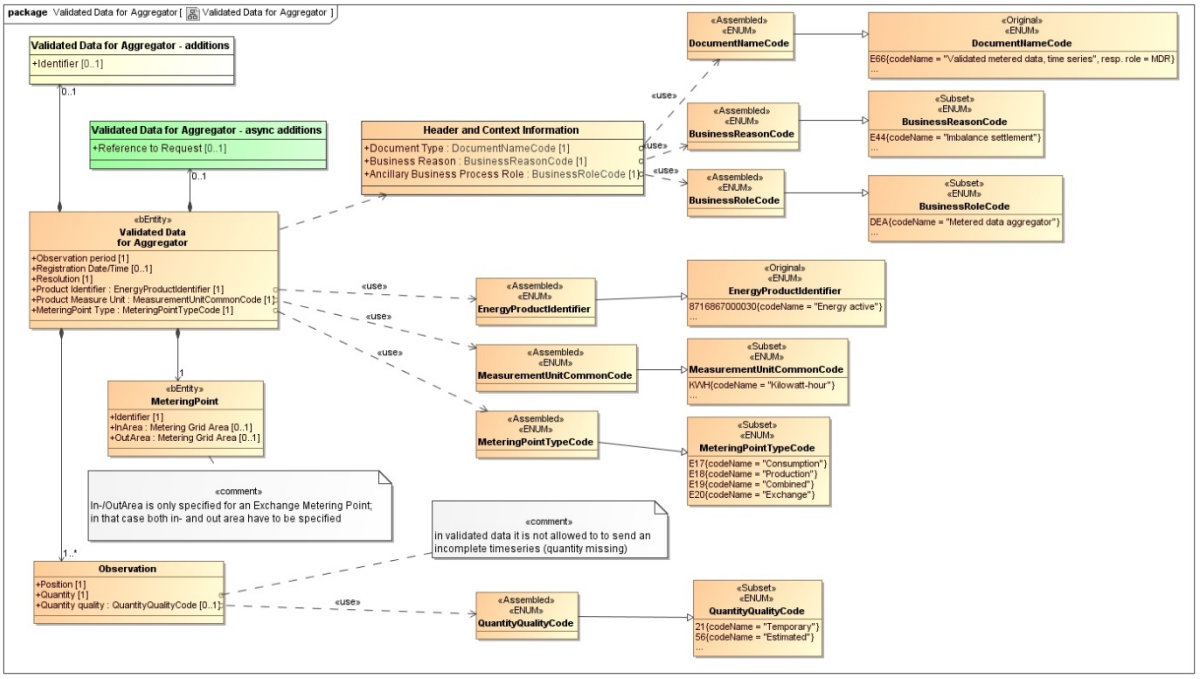
IEC

Figure 20 – Activity diagram for the business process Exchange Validated Data for Imbalance Settlement

Figure 21 shows the class diagram for the exchanged Validated Data for Aggregator as shown in Figure 20.

AVA Documents Document Sharing Hub

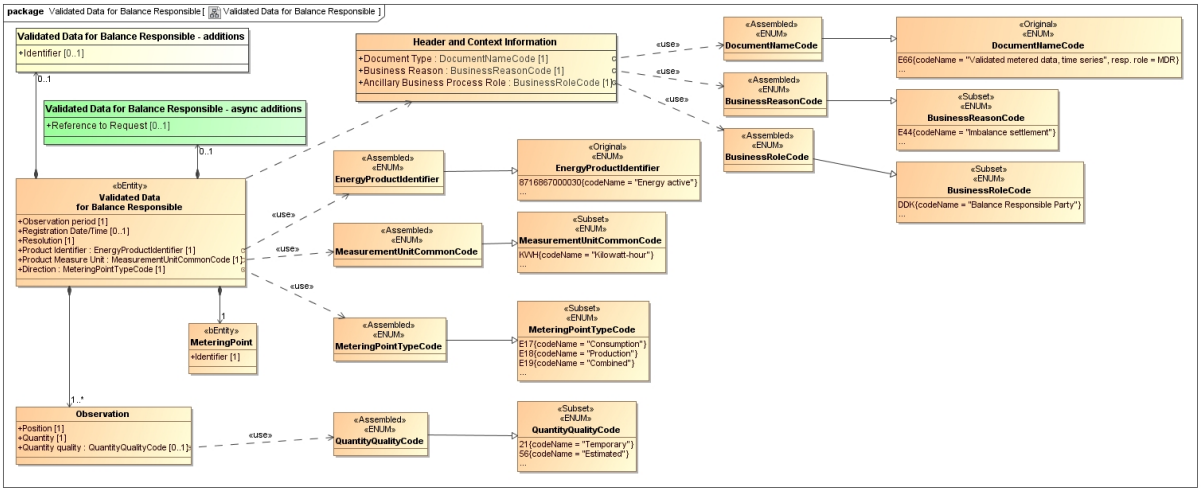
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 21 – Class diagram for Validated Data for Imbalance Settlement to Aggregator

Figure 22 shows the class diagram for the exchanged Validated Data for Balance Responsible as shown in Figure 20.



IEC

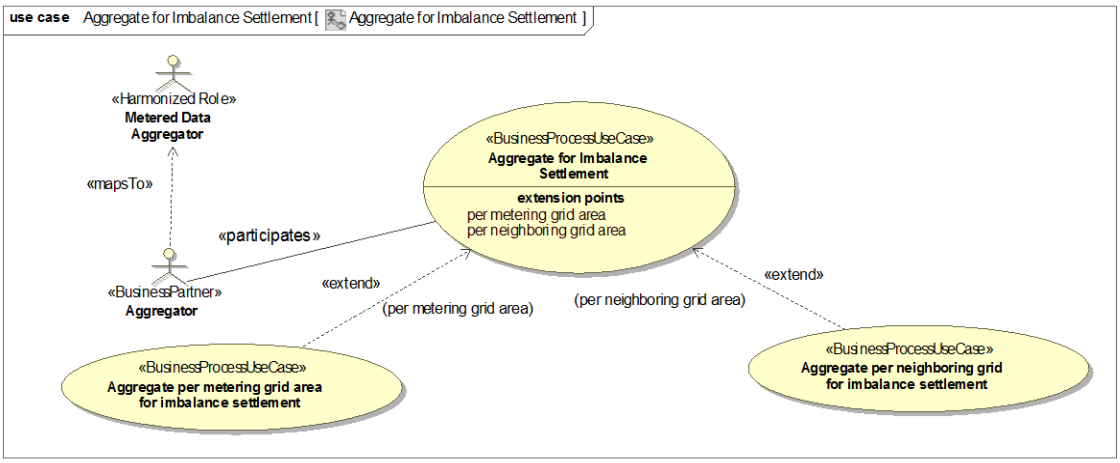
Figure 22 – Class diagram for Validated Data for Imbalance Settlement to Balance Responsible

5.4.4 Use case for the business process Aggregate for Imbalance Settlement

The business process Aggregate for Imbalance Settlement is described in two sub processes, see Figure 23 and Figure 24, but the details are not included here.

Figure 23 shows the business process use case for Aggregate for Imbalance Settlement from the business processes shown in Figure 18.

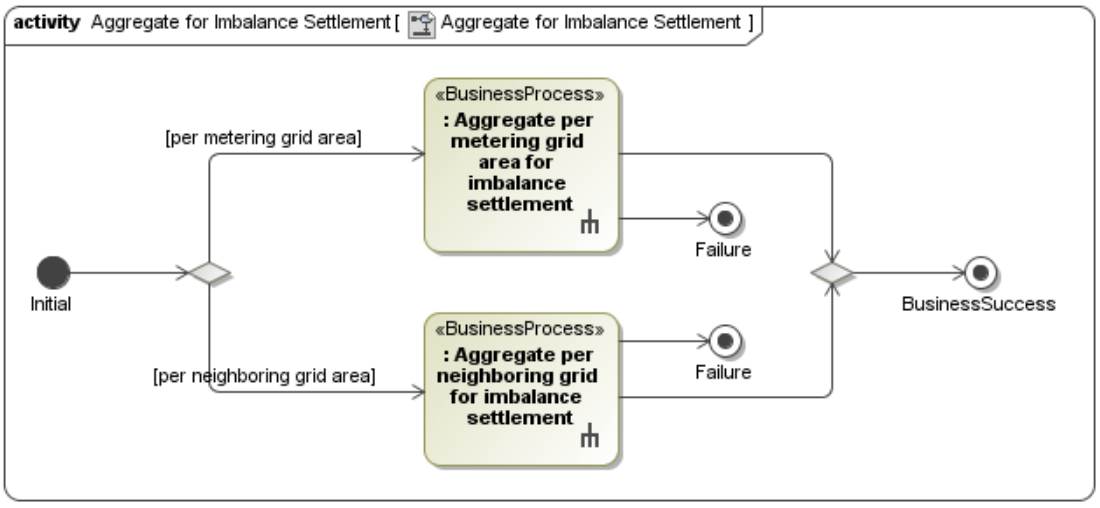
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 23 – Use case for the business process Aggregate for Imbalance Settlement

Figure 24 shows the activity diagram for the use case Aggregate for Imbalance settlement shown in Figure 23.

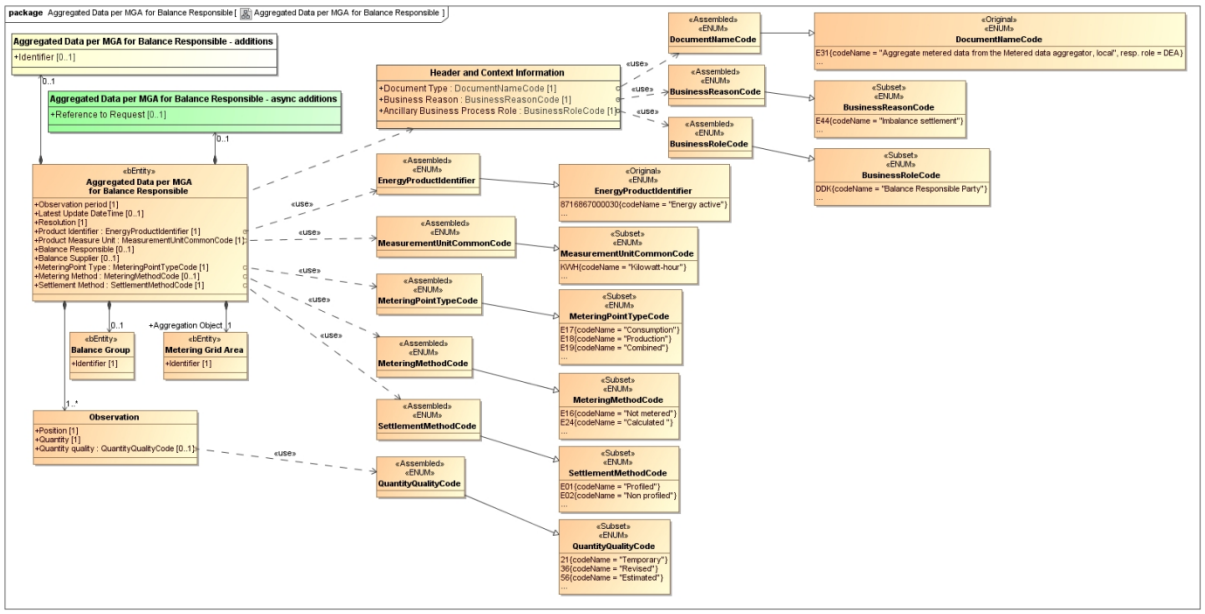


IEC

Figure 24 – Activity diagram for the business process Aggregate for Imbalance Settlement

Figure 25 shows the class diagram for the exchanged Aggregated Data per Metering Grid Area when sent to Balance Responsible.

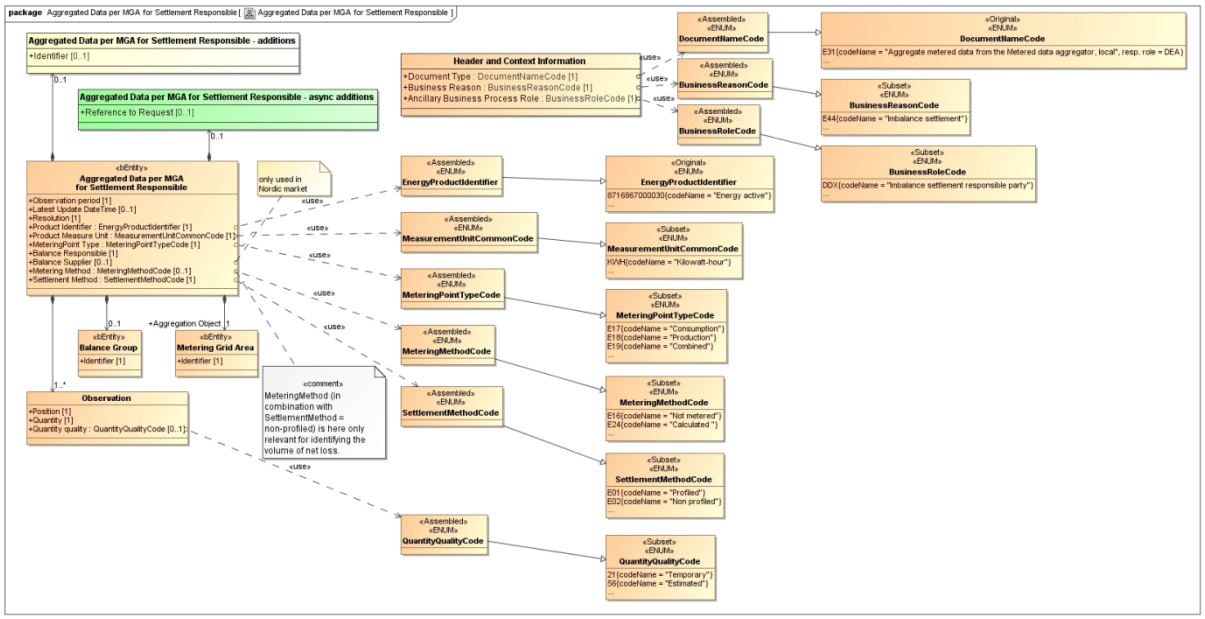
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 25 – Class diagram within Imbalance Settlement for Aggregated Data per Metering Grid Area to Balance Responsible

Figure 26 shows the class diagram for the exchanged Aggregated Data per Metering Grid Area when sent to Settlement Responsible.

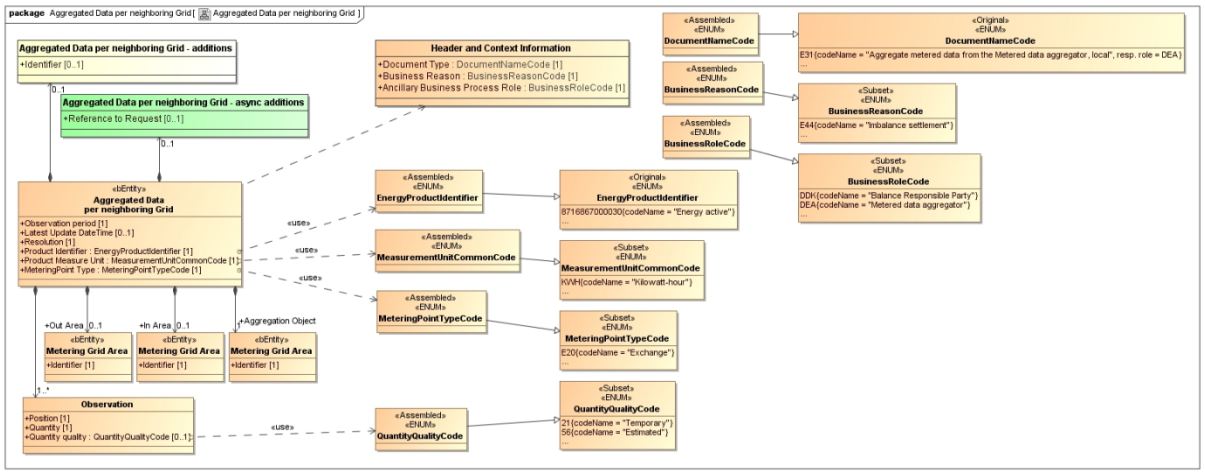


IEC

Figure 26 – Class diagram within Imbalance Settlement for Aggregated Data per Metering Grid Area to Settlement Responsible

Figure 27 shows the class diagram for the exchanged Aggregated Data per neighbouring Grid when sent to neighbouring aggregator and to settlement responsible.

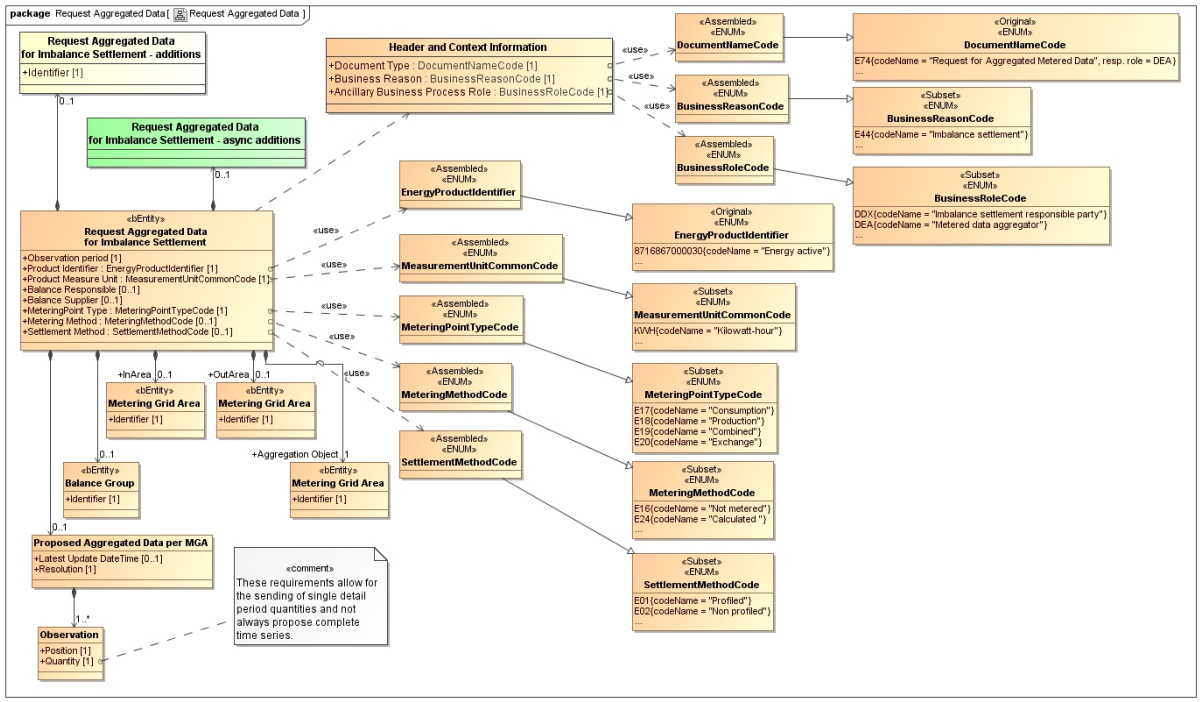
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 27 – Class diagram within Imbalance Settlement for Aggregated Data per neighbouring Grid to neighbouring aggregator and to settlement responsible

There are two business processes for Request Aggregate for Imbalance Settlement, one for Aggregated Data per Metering Grid Area, another for Aggregated Data per neighbouring grid. The details are not shown here, only the resulting class diagram that is common for both business processes, see Figure 28.



IEC

Figure 28 – Class diagram within Imbalance Settlement for Request Aggregated Data for Imbalance Settlement

5.5 Measure for Billing

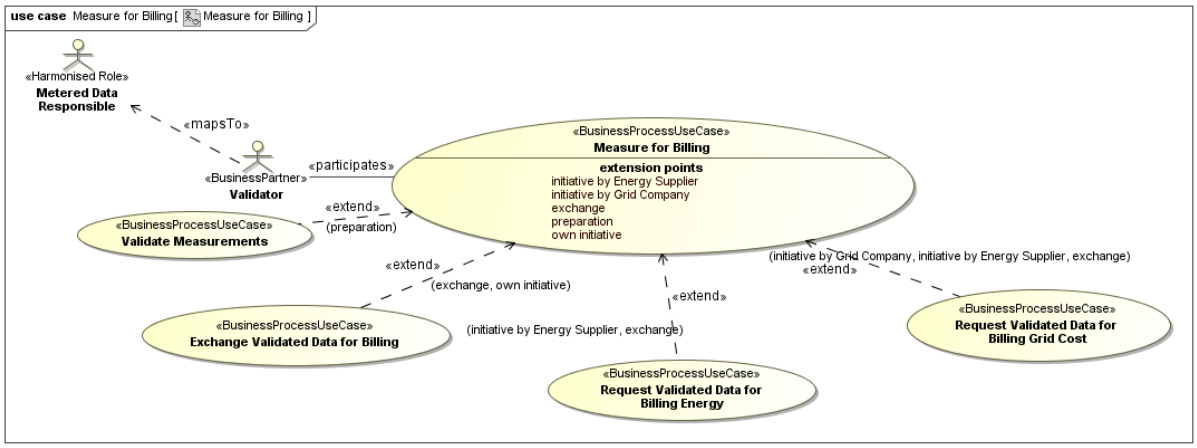
5.5.1 General

Within the Measure process, the sub process Measure for Billing includes the validation and exchange of validated data, including the meter readings, to the Energy supplier and/or the Grid Company in order for them to bill the Customer. This process also includes the exchange of validated data including the meter readings to the Customer. See further [7].

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

5.5.2 Use case for the business process Measure for Billing

Figure 29 shows the business process use case for Measure for Billing from the use cases shown in Figure 2.



IEC

Figure 29 – Use case for the business process Measure for Billing

Description

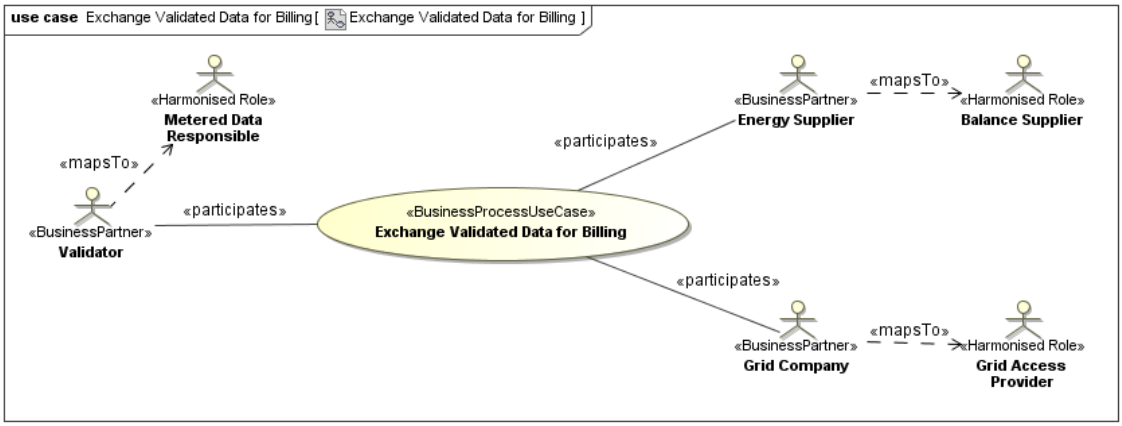
UseCase description: Measure for Billing	
Definition	Provides validated metered data for the processes of billing energy and billing grid cost.
beginsWhen	The Validator decides to.
precondition	Collected Data are available for the Validator Partners responsible for the execution of the processes should have access to relevant master data.
endsWhen	The validated data has been made available to the Energy Supplier and/or the Grid Company and/or the Customer.
postCondition	Energy Supplier and/or the Grid Company have received the metered data required for billing their respective products and services. The Customer may have received the validated metered data and the accompanying meter readings from which these data have been derived.
Exceptions	None

Only the use case Exchange Validated Data for Billing is described in 5.5.3. For more details see [7].

5.5.3 Use case for the business process Exchange Validated Data for Billing

Figure 30 shows the business process use case for Exchange Validate Data for Billing from the business processes shown in Figure 29.

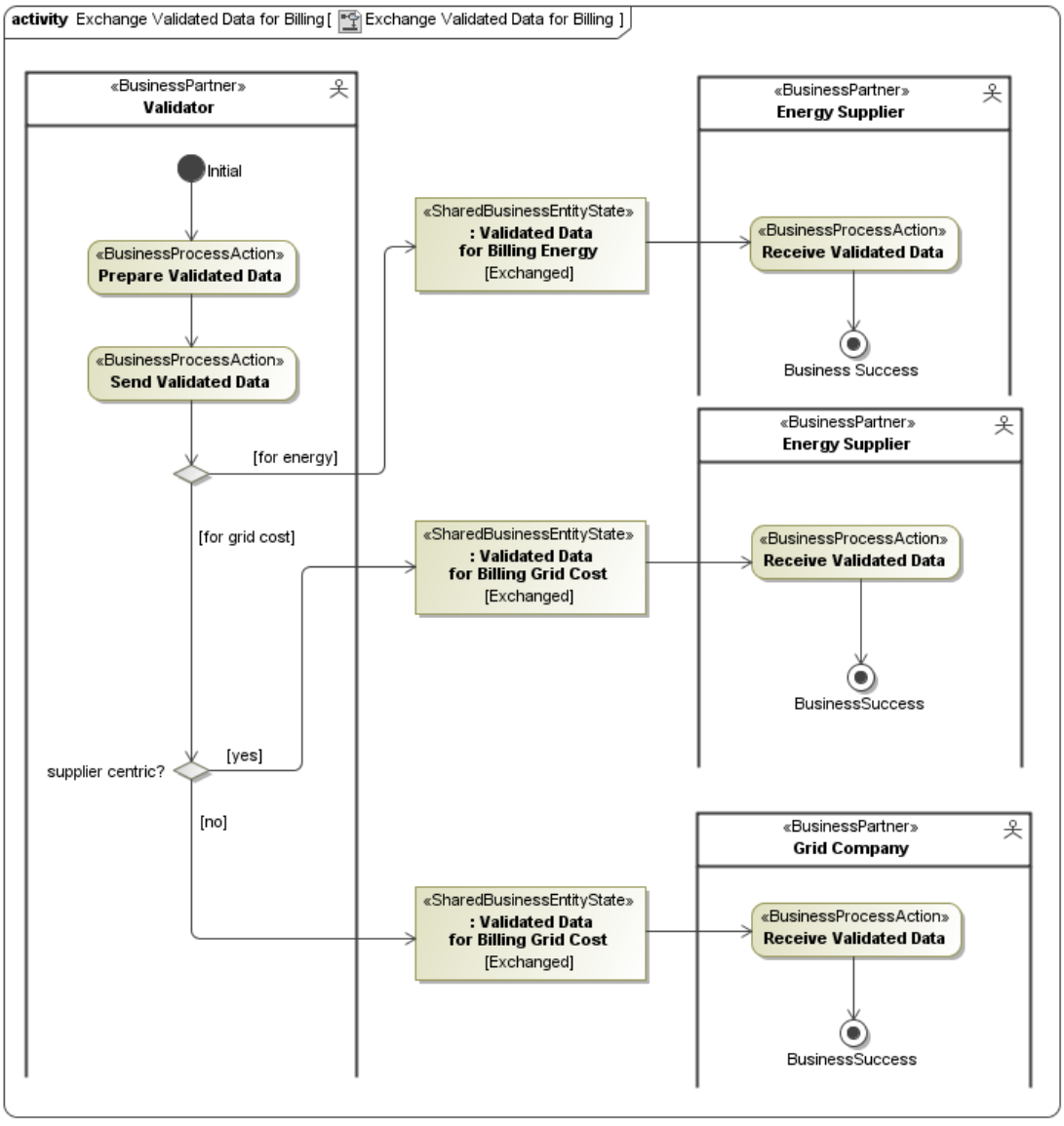
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 30 – Use case for the business process Exchange Validated Data for Billing

Figure 31 shows the activity diagram for the use case Exchange Validated Data for Billing shown in Figure 30.



IEC

Figure 31 – Activity diagram for the business process Exchange Validated Data for Billing

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017

Figure 32 shows the class diagram for the exchanged Validated Data for Billing Energy as shown in Figure 31.

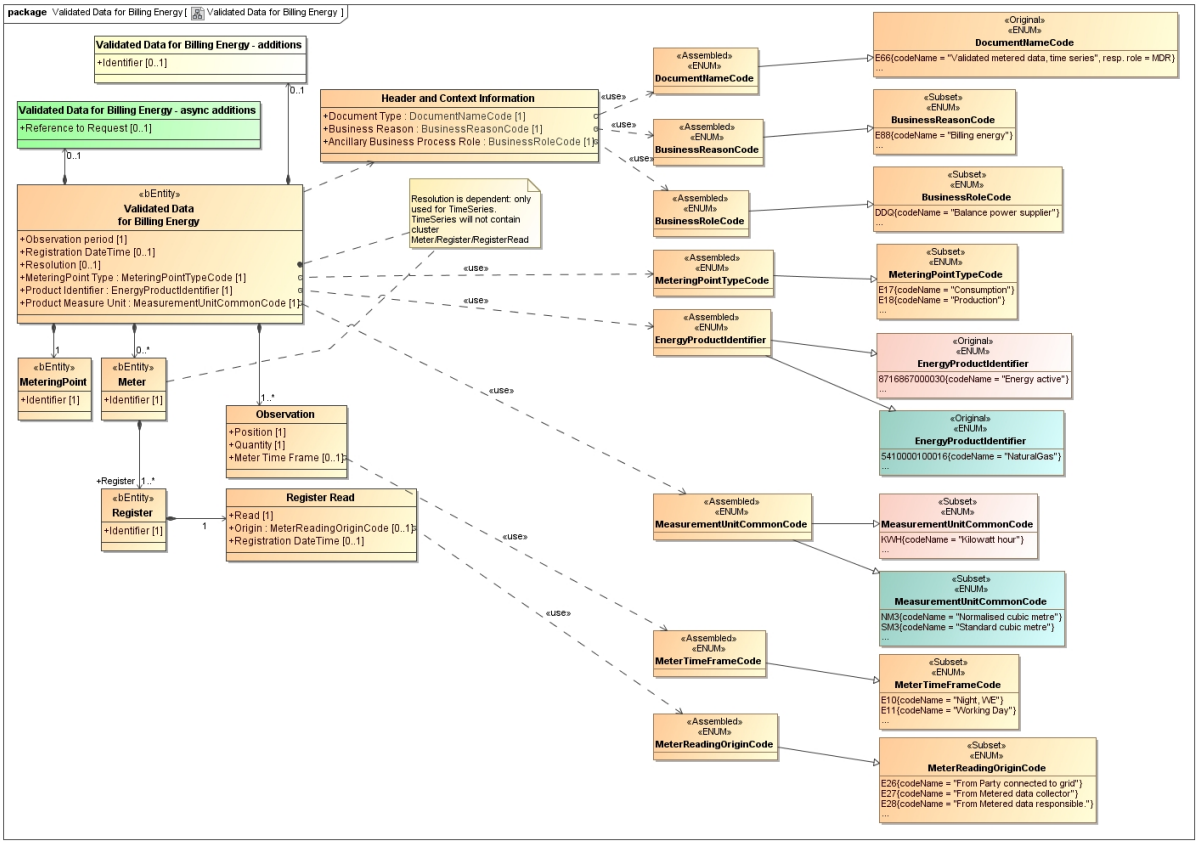


Figure 32 – Class diagram for Validated Data for Billing Energy

5.6 Measure for Labeling

5.6.1 General

Within the Measure process, the sub process Measure for Labeling includes validation and exchange of validated data for the purpose of the creation of green certificates. See further [8].

5.6.2 Use case for the business process Measure for Labeling

Figure 33 shows the business process use case for Measure for Labeling from the use cases shown in Figure 2.

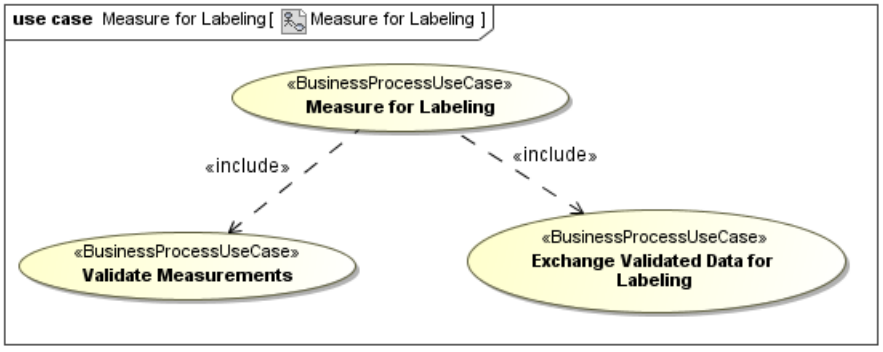


Figure 33 – Use case for the business process Measure for Labeling

AVA Documents Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

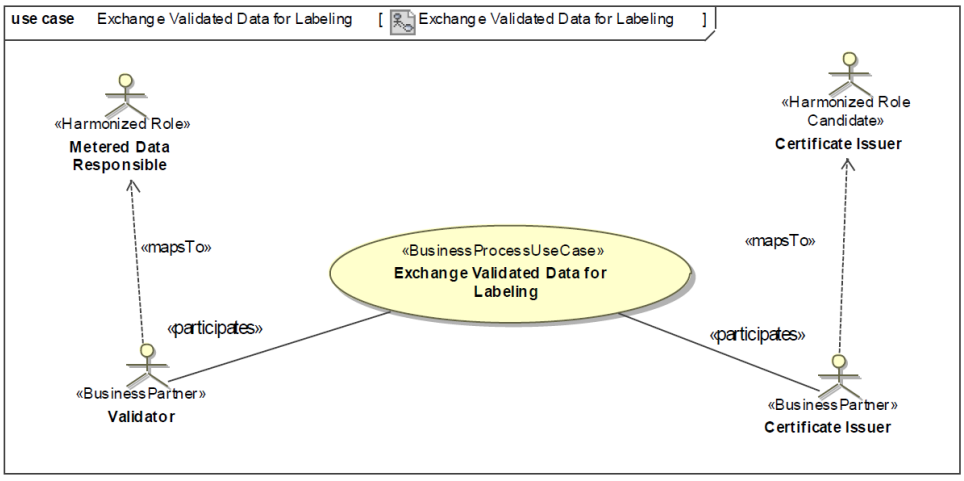
Description

UseCase description: Measure for Labeling	
Definition	Provides validated data for use in the labeling process to partners involved in this process.
beginsWhen	The timing of the various processes is guided by a time schedule (nationally defined). As a general rule can be stated, that the processes are executed on a monthly basis.
precondition	Collected Data are available. Partners responsible for the execution of the processes should have access to relevant master data.
endsWhen	All processes included in the time schedule have been executed.
postCondition	All validated metered data are available at the partners so that the labeling process can be executed and the results can be verified.
Exceptions	– No master data available – Production device is not qualified

Only the use case Exchange Validated Data for Labeling is described in 5.6.3. For more details see [8].

5.6.3 Use case for the business process Exchange Validated Data for Labeling

Figure 34 shows the business process use case Exchange Validate Data for Labeling from the business processes shown in Figure 33.

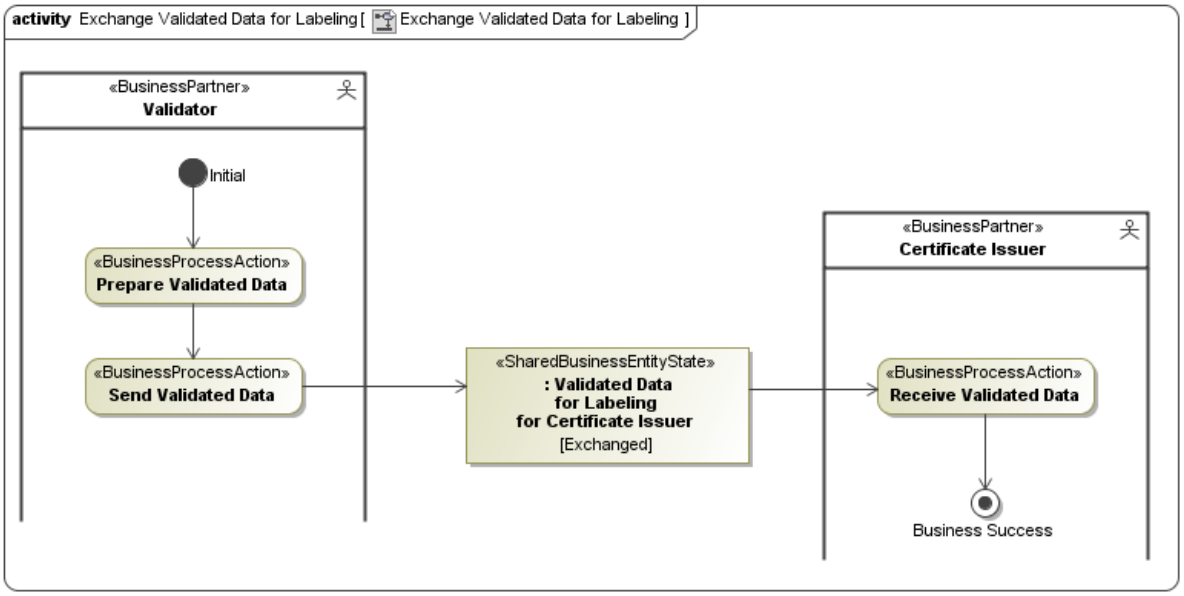


IEC

Figure 34 – Use case for the business process Exchange Validated Data for Labeling

Figure 35 shows the activity diagram for the use case Exchange Validated Data for Labeling shown in Figure 34.

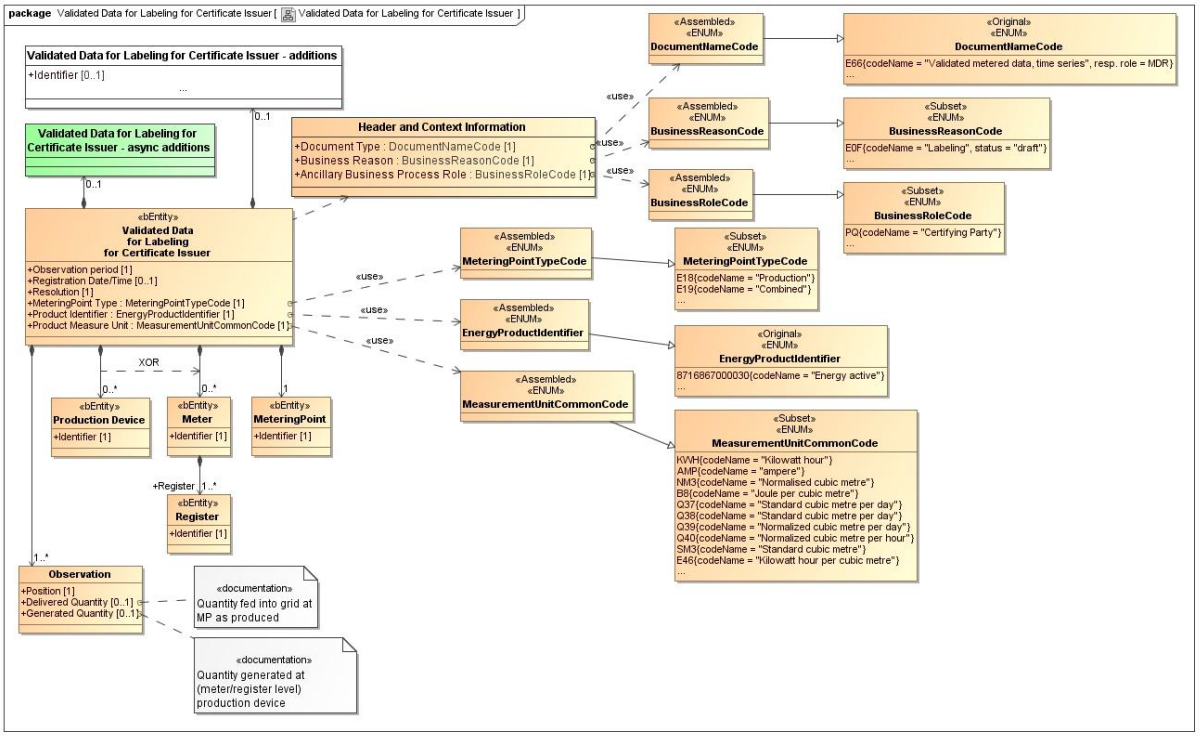
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 35 – Activity diagram for the business process Exchange Validated Data for Labeling

Figure 36 shows the class diagram for the exchanged *V*alidated Data for Labeling for Certificate Issuer as shown in Figure 35.



IEC

Figure 36 – Class diagram for Validated Data for Labeling

5.7 Measure Calorific Value

5.7.1 General

Within the Measure process, the sub process Measure Calorific Value includes the recalculation and exchange of calorific value. The established calorific value is sent to the Energy supplier and/or the Grid Company. A calorific value is established by means of a gas

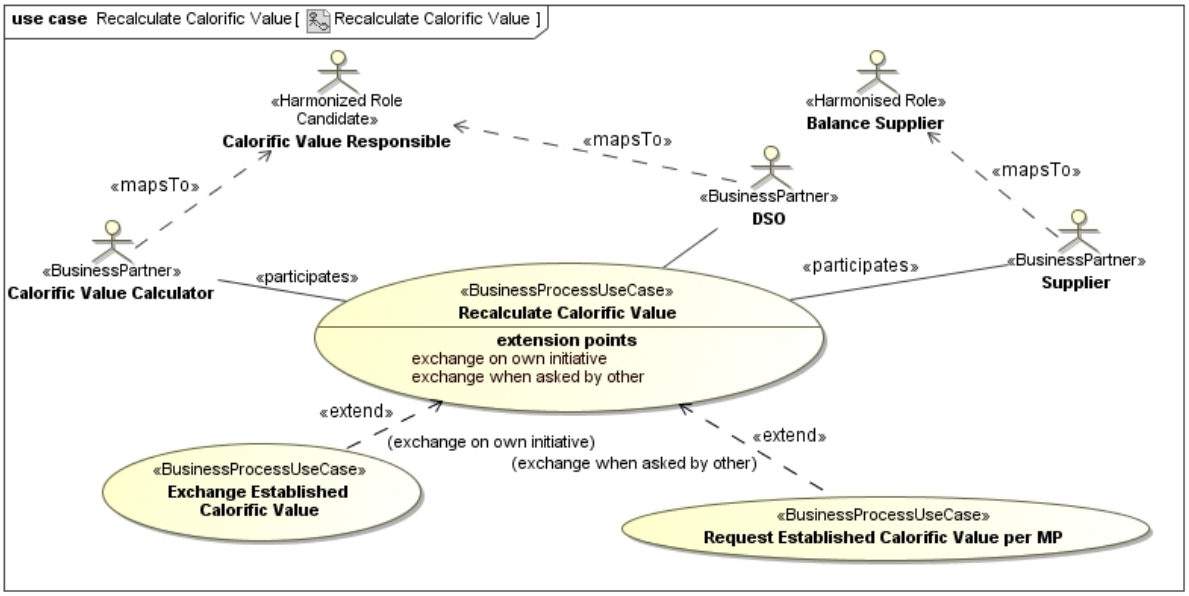
AVA Documents Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017

chromatograph at a Reception Station and the value is exchanged per Aggregated Reception Station (which is an administrative entity consisting of one or more Reception Stations) or per Calorific Value Area (depending on national rules). See further [9].

5.7.2 The business process use case for Measure Calorific Value

The business process Measure Calorific Value, see Figure 2, contains the sub business process Recalculate Calorific Value that is described in Figure 37.



IEC

Figure 37 – Business process use case for Recalculate Calorific Value

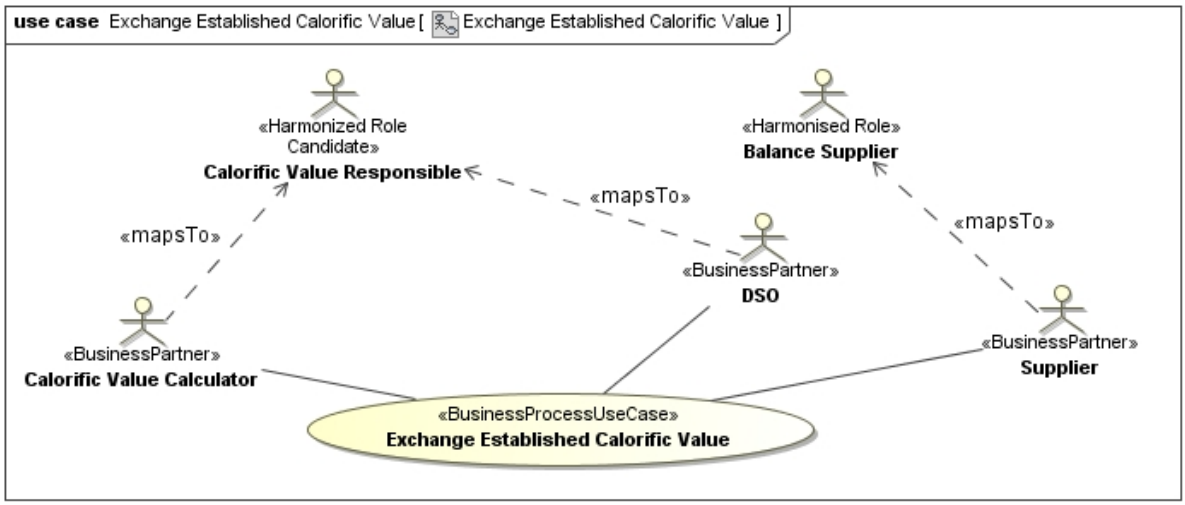
Description

UseCase description: Recalculate Calorific Value	
definition	Providing established calorific value by a Calorific Value Calculator (which often is the TSO or DSO) to a Supplier or DSO (in its capacity of Calorific Value Calculator) in the gas sector. The Calorific Value is established in a series of (re-)calculations.
beginsWhen	The Calorific Value Calculator decides to or when requested.
preCondition	Input data for calorific value from the TSO are made available to the Calorific Value Calculator for (re-)calculation. The procedure for (re-)calculation follows national rules. Partners responsible for the execution of the processes should have access to relevant master data.
endsWhen	The established calorific value has been made available to the Energy Supplier or DSO.
postCondition	Supplier or DSO has received the established calorific value.
Exceptions	None.

5.7.3 Use case for the business process Exchange Established Calorific Value

Figure 38 shows the business process use case for Exchange Established Calorific Value from the business processes shown in Figure 37.

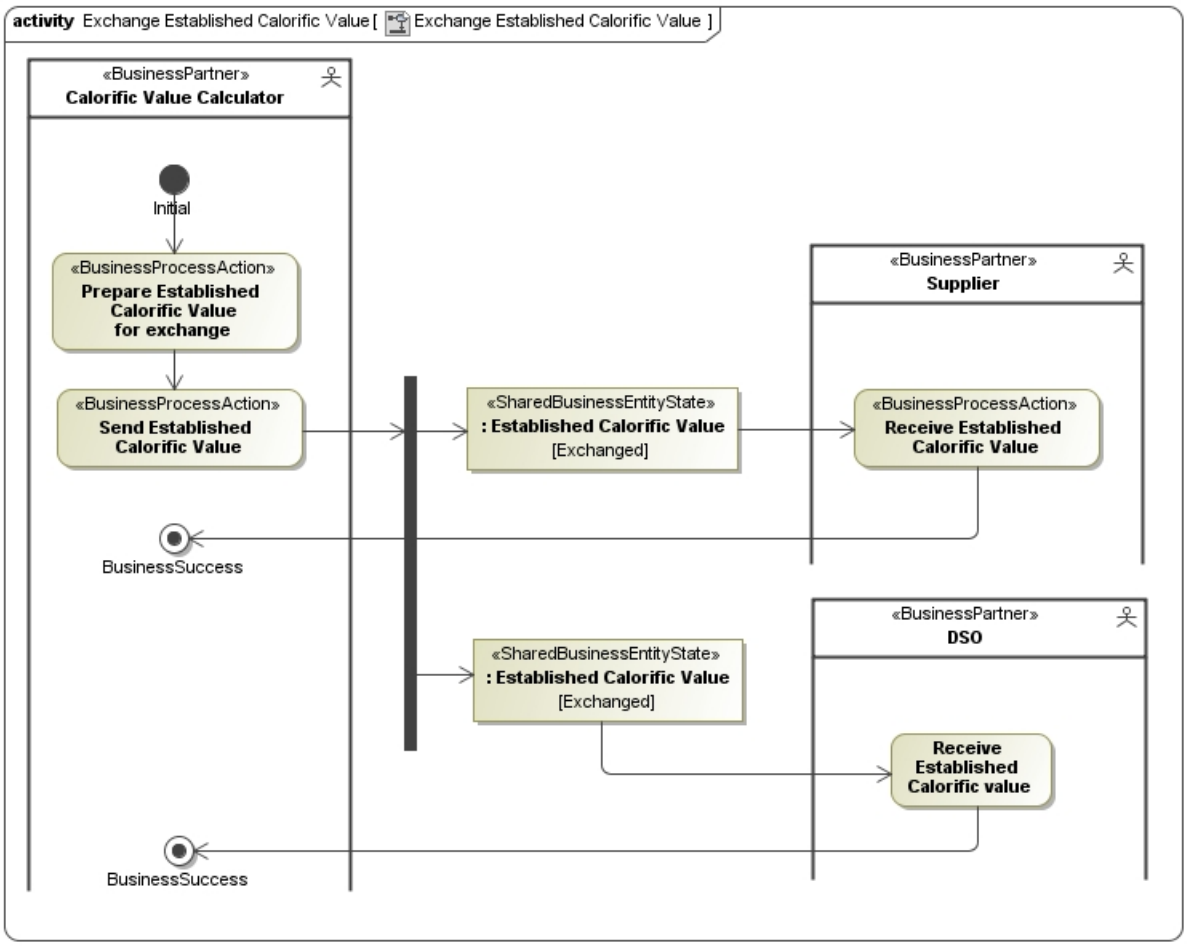
Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 38 – Use case for the business process Exchange Established Calorific Value

Figure 39 shows the activity diagram for the use case Exchange Established Calorific Value shown in Figure 38.



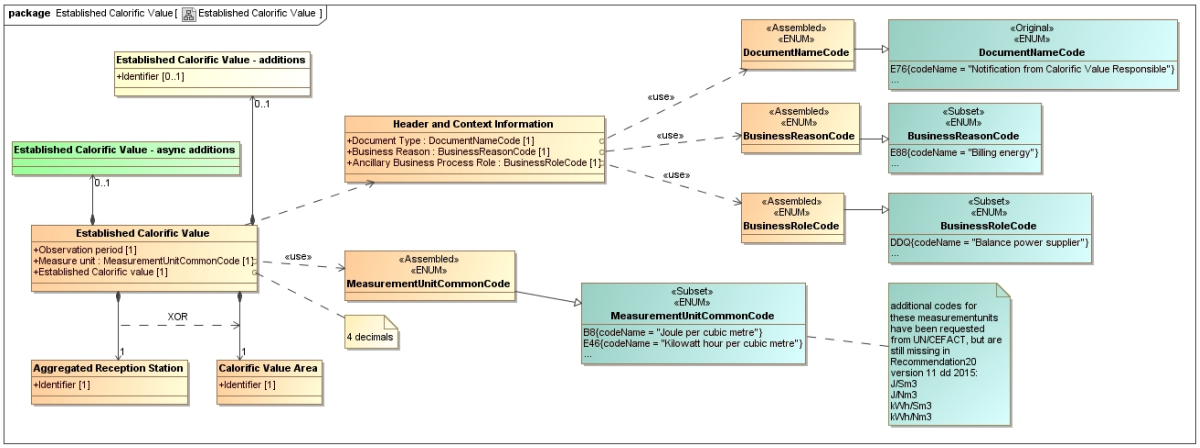
IEC

Figure 39 – Activity diagram for the business process Exchange Established Calorific Value

Figure 40 shows the class diagram for the exchanged Established Calorific Value for Supplier and DSO as shown in Figure 39.

AVA Documents Document Sharing Hub

Full document details: PD IEC/TR 62325-103:2017



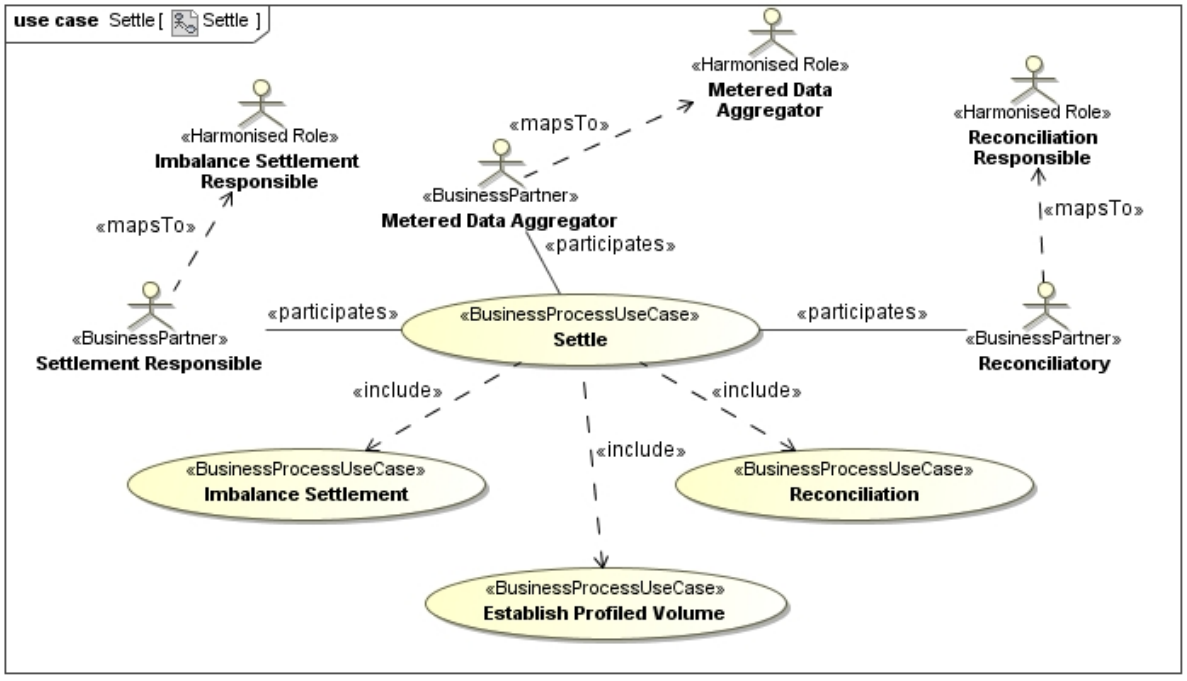
IEC

Figure 40 – Class diagram for Exchange Established Calorific Value

5.8 Settle for Reconciliation

5.8.1 General

Within the Settle process, see Figure 41, the Imbalance settlement process is described in IEC 62325-451-4, reference [6]. The sub-process Establish Profiled Volume describes the use of master and/or measured data for the planning, settlement and reconciliation of consumption at profiled Metering points. The sub-process Reconciliation handles the final settlement for profiled Metering points.



IEC

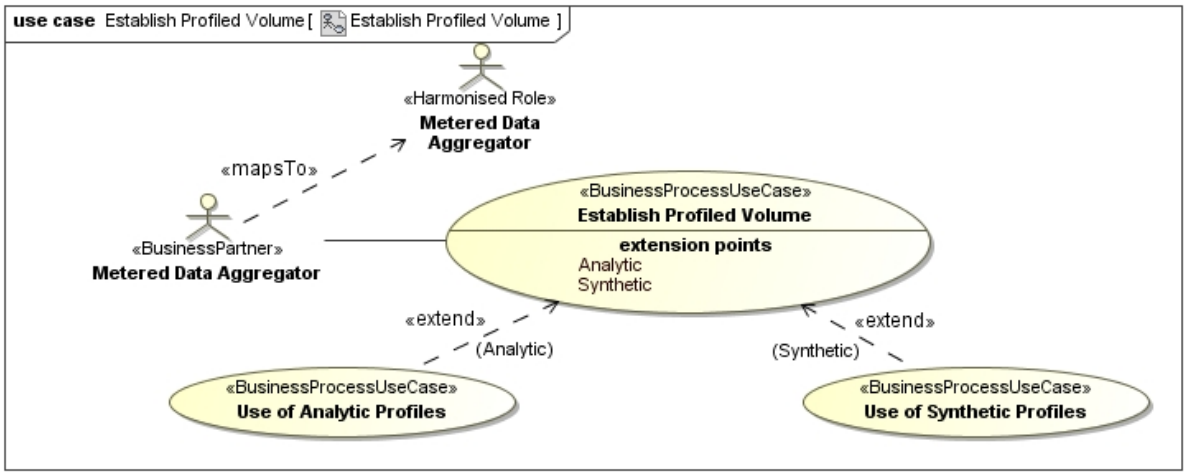
Figure 41 – Business process use case for Settle

5.8.2 The business process use case for Establish Profiled Volume

5.8.2.1 General

Figure 42 shows the business process use case for Establish Profiled Volume from the use cases shown in Figure 41.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



IEC

Figure 42 – Business process use case for Establish Profiled Volume

Description

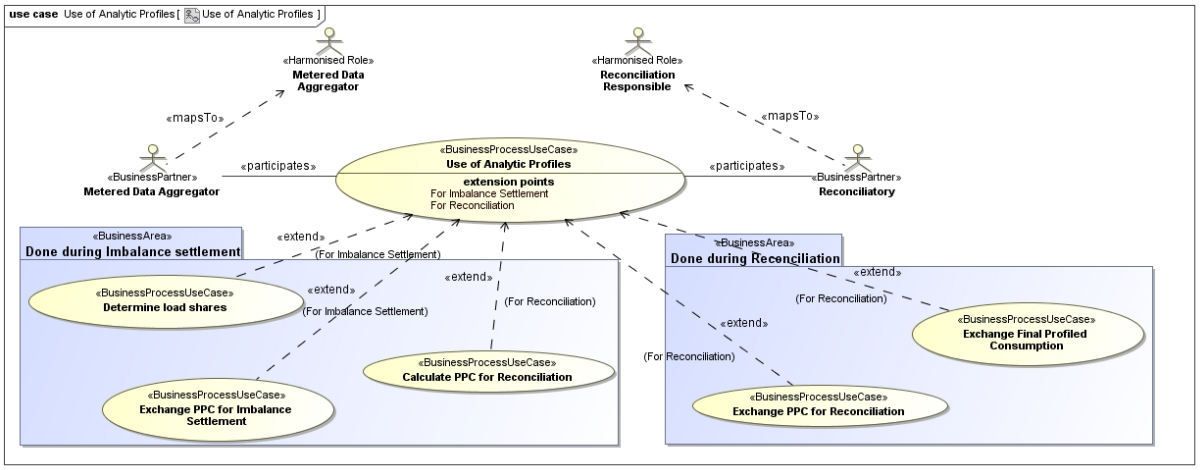
UseCase description: Establish Profiled Volume	
Definition	The use of master and/or measured data for the planning, settlement and reconciliation of consumption at profiled MeteringPoints.
beginsWhen	The timing of the various processes is guided by a time schedule (nationally defined). As a general rule can be stated, that the Imbalance Settlement processes is executed on a daily basis where the Reconciliation process is executed on a monthly basis.
precondition	Partners responsible for the execution of the processes should have access to relevant master data and input data for the process should be available.
endsWhen	All processes included in the time schedule have been executed according to the national rules and deadlines.
postCondition	The profile information is available for the calculation of volumes for either the scheduling and imbalance settlement processes or for the reconciliation process.
Exceptions	None

5.8.2.2 Use case for the business process Use of Analytic Profiles

This use case describes the use of historic measured data for the scheduling, settlement and reconciliation of profiled Metering Points. The use case is, beside Figure 43, not further elaborated in this document, see further [10].

NOTE PPC means “Preliminary Profiled Consumption”.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017



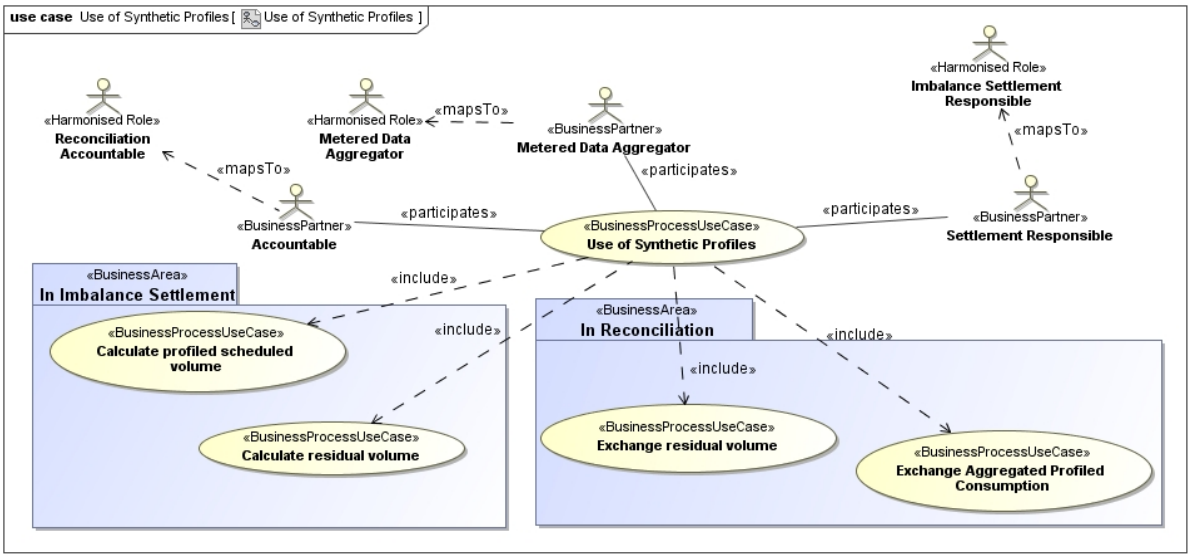
IEC

Figure 43 – Use case for the business process Use of Analytic Profiles

5.8.2.3 Use case for the business process Use of Synthetic Profiles

5.8.2.3.1 General

Figure 44 shows the business process use case for Use of Synthetic Profiles from the use cases shown in Figure 41.



IEC

Figure 44 – Use case for the business process Use of Synthetic Profiles

Figure 45 shows the activity diagram for the use case Use of Synthetic Profiles shown in Figure 44.

Documents
Document Sharing Hub
Full document details: PD IEC/TR 62325-103:2017