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Entwurf

**Kommunikation im Energiemarkt –
Teil 451-1: Geschäftsprozessnachweis und kontextbezogenes
CIM-Modell für den europäischen Markt
(IEC 57/1267/CDV:2012);
Englische Fassung FprEN 62325-451-1:2012**

Framework for energy market communications –
Part 451-1: Acknowledgement business process and contextual model for CIM European
market
(IEC 57/1267/CDV:2012);
English version FprEN 62325-451-1:2012

Cadre pour les communications pour le marché de l'énergie –
Partie 451-1: Processus métier d'accusé de réception et modèle contextuel pour le
marché européen
(CEI 57/1267/CDV:2012);
Version anglaise FprEN 62325-451-1:2012

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Gesamtumfang 72 Seiten

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Nationales Vorwort

Die Englische Fassung des europäischen Dokuments FprEN 62325-451-1:2012 „Kommunikation im Energiemarkt – Teil 451-1: Geschäftsprozessnachweis und kontextbezogenes CIM-Modell für den europäischen Markt“ (Entwurf in der Umfrage) ist unverändert in diesen Norm-Entwurf übernommen worden.

Die Internationale Elektrotechnische Kommission (IEC) und das Europäische Komitee für Elektrotechnische Normung (CENELEC) haben vereinbart, dass ein auf IEC-Ebene erarbeiteter Entwurf für eine Internationale Norm zeitgleich (parallel) bei IEC und CENELEC zur Umfrage (CDV-Stadium) und Abstimmung als FDIS (en: Final Draft International Standard) bzw. Schluss-Entwurf für eine Europäische Norm gestellt wird, um eine Beschleunigung und Straffung der Normungsarbeit zu erreichen. Dem entsprechend ist das internationale Dokument IEC 57/1267/CDV:2012 „Framework for energy market communications – Part 451-1: Acknowledgement business process and contextual model for CIM European market“ unverändert in den Entwurf Englische Fassung FprEN 62325-451-1:2012 übernommen worden.

Das internationale Dokument wurde vom TC 57 „Power systems management and associated information exchange“ der Internationalen Elektrotechnischen Kommission (IEC) erarbeitet.

Bei der Abstimmung zu dem Europäischen Schluss-Entwurf bei CENELEC und dem Internationalen Schluss-Entwurf bei IEC [Final Draft International Standard (FDIS)] sind jeweils nur „JA/NEIN“-Entscheidungen möglich, wobei „NEIN“-Entscheidungen fundiert begründet werden müssen. Dokumente, die bei CENELEC als Europäische Norm angenommen und ratifiziert werden, sind unverändert als Deutsche Normen zu übernehmen.

Für dieses Dokument ist das nationale Arbeitsgremium K 952 „Netzleittechnik“ der DKE Deutsche Kommission Elektrotechnik Elektronik Informationstechnik im DIN und VDE (www.dke.de) zuständig.

Für den Fall einer undatierten Verweisung im normativen Text (Verweisung auf eine Norm ohne Angabe des Ausgabedatums und ohne Hinweis auf eine Abschnittsnummer, eine Tabelle, ein Bild usw.) bezieht sich die Verweisung auf die jeweils neueste gültige Ausgabe der in Bezug genommenen Norm.

Für den Fall einer datierten Verweisung im normativen Text bezieht sich die Verweisung immer auf die in Bezug genommene Ausgabe der Norm.

Der Zusammenhang der zitierten Normen mit den entsprechenden Deutschen Normen ergibt sich, soweit ein Zusammenhang besteht, grundsätzlich über die Nummer der entsprechenden IEC-Publikation. Beispiel: IEC 60068 ist als EN 60068 als Europäische Norm durch CENELEC übernommen und als DIN EN 60068 ins Deutsche Normenwerk aufgenommen.

Da sich die Benutzer des vorliegenden Normentwurfs der englischen Sprache als Fachsprache bedienen, wird die Englische Fassung der EN 62325-451-1 veröffentlicht. Zu deren Abschnitt 3, der die Begriffe festlegt, wurde eine Übersetzung angefertigt und als informativer Nationaler Anhang NA des vorliegenden Normentwurfs hinzugefügt. Für viele der verwendeten Begriffe existieren keine gebräuchlichen deutschen Benennungen, da sich die deutschen Anwender in der Regel ebenfalls der englischen Benennungen bedienen. Dieser Normentwurf steht nicht in unmittelbarem Zusammenhang mit Rechtsvorschriften und ist nicht als Sicherheitsnorm anzusehen.

Es ist vorgesehen, auch bei der entsprechenden zukünftigen Deutschen Norm auf die deutsche Sprachfassung zu verzichten und diese in der englischsprachigen Fassung zu veröffentlichen.

Nationaler Anhang NA (informativ)

3 Begriffe

Für die Anwendung dieses Dokuments gelten die Begriffe nach IEC 61970-2 festgelegten und die folgenden Begriffe.

ANMERKUNG Für allgemeine Glossardefinitionen siehe das Internationale Elektrotechnische Wörterbuch IEC 60050.

3.1

aggregierte Geschäfts-Informationseinheit

(en: **aggregate business information entity – ABIE**)

für ein bestimmtes Geschäftsfeld wiederverwendete aggregierte Kernkomponente (ACC) (ISO 15000-5)

3.2

aggregierte Kernkomponente

(en: **aggregate core component – ACC**)

Anhäufung zusammengehöriger Geschäftsinformationsteile, die unabhängig von einem bestimmten Geschäftskontext zusammen eine gesonderte Bedeutung für das Geschäft haben. Als Terme bei der Modellierung stellen diese unabhängig von einem bestimmten Geschäftskontext eine Objektklasse dar (ISO 15000-5)

3.3

Anwendungsprogramm-Schnittstelle

(en: **application program interface – API**)

Menge von öffentlichen Funktionen, die von einer ausführbaren Komponente zum Aufruf durch andere Anwendungskomponenten zur Verfügung gestellt wird

3.4

Einbindungsmodell

(en: **assembly Model**)

Modell, das Informationen in einem Geschäftskontext für die Einbindung in elektronische Dokumente für den Datenaustausch aufbereitet

3.5

basiert auf oder IsBasedOn

(en: **based on or IsBasedOn**)

Einsetzen eines Artefakts, das Einschränkungen besitzt, die nach den Anforderungen eines bestimmten Geschäftskontextes vorgenommen wurden (IEC 62325-450)

3.6

Geschäftskontext

(en: **business context**)

formale Beschreibung einer speziellen Geschäftssituation, die aus den Werten einer Gruppe von Kontextkategorien bestimmt wurde und es ermöglicht, unterschiedliche Geschäftssituationen eindeutig voneinander zu trennen (UN/CEFACT)

3.7

Profil des Europäischen Marktes

(en: **European style market profile – ESMP**)

Art des Elektrizitätsmarktes, für die diese Internationale Norm gilt

3.8**Informationsmodell****(en: information model)**

Repräsentation von Konzeptionen, Beziehungen, Beschränkungen, Regeln und Operationen zur Festlegung von Datensemantiken für ein ausgewähltes Diskursuniversum. Es kann gemeinsam anwendbare, feste und geordnete Datenstrukturanforderungen an den Domänenkontext enthalten

3.9**Marktmanagementsystem****(en: market management system – MMS)**

Computersystem, das eine Softwareplattform für die grundlegenden Supportdienstleistungen und eine Reihe von Anwendungen mit der Funktionalität beinhaltet, die für das effiziente Management des Elektrizitätsmarktes notwendig ist. Diese Softwaresysteme für einen Elektrizitätsmarkt können eine Unterstützung bei der Kapazitätsaufteilung, der Energieplanung, Hilfs- oder anderen Diensten, Echtzeit-Abläufen und Abrechnungen einschließen

3.10**Geschäfts-Informationseinheiten-Nachrichten****(en: message business information entity – MBIE)**

Zusammenfassung einer Gruppe von ABIEs, die eine definierte Menge von Einbindungsvorschriften berücksichtigt

3.11**Profil****(en: profile)**

grundlegender Strukturrahmen aller Daten, die erforderlich sind, um für eine spezielle Umgebung geeignet zu sein

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**Framework for energy market communications –
Part 451-1: Acknowledgement business process and contextual model for
CIM European market**

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.
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International Standard IEC 62325-451-1 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this standard is based on the following documents:

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

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

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

- reconfirmed,

- 166 • withdrawn,
167 • replaced by a revised edition, or
168 • amended.
169

170 The National Committees are requested to note that for this publication the stability
171 date is

172 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL
173 BE DELETED AT THE PUBLICATION STAGE.

174

INTRODUCTION

175 This International Standard is one of the IEC 62325 part 451-n series for deregulated
176 energy market data exchanges based on the European style market profile. This
177 standard, IEC 62325-451-1, defines the document contextual model, the message
178 assembly model as well as the XML schema to be used for the acknowledgement
179 process.

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

187 The common information model (CIM), i.e. IEC 62325-301, IEC 61970-301 and IEC
188 61968-11 standards, specifies the basis for the semantics for message exchange.

189 This European style market profile is based on different parts of the CIM IEC standard
190 and specifies the content of the messages exchanged.

191 This document provides for the European style market profile the generic technical
192 and application acknowledgement document that can be used in all European style
193 market processes. These market processes are based on the European regulations,
194 and on the concepts of third party access and zonal market. This standard was
195 originally based upon the work of the European Transmission System Operators
196 (ETSO) Task Force EDI (Electronic Data Interchange) and then on the work of the
197 European Network of Transmission System Operators (ENTSO-E) Working Group
198 EDI.

199 ISO (www.iso.org/patents) and IEC (http://www.iec.ch/tctools/patent_decl.htm) maintain on-
200 line data bases of patents relevant to their standards. Users are encouraged to consult the
201 data bases for the most up to date information concerning patents.

**Framework for energy market communications –
Part 451-1: Acknowledgement business process and contextual model for
CIM European market**

1 Scope

This International Standard is one of the IEC 62325 part 451-n series for deregulated energy market data exchanges and is applicable to European style electricity markets.

Based on the European style market contextual model (IEC 62325 part 351), this particular International Standard specifies a UML package for the acknowledgment business process and its associated document contextual model, assembly model and XML schema for use within the European style electricity markets.

The relevant aggregate core components (ACCs) defined in IEC 62325 part 351 have been contextualised into aggregated business information entities (ABIEs) to satisfy the requirements of the European style market acknowledgment business process.

The contextualised ABIEs have been assembled into the acknowledgment document contextual model.

A related assembly model and an XML schema for the exchange of acknowledgement information between market participants is automatically generated from the Assembled document contextual model.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 62325-301, *Framework for energy market communications Common information model (CIM) Extensions for markets*.

IEC 62325-351, *Framework for energy market communications CIM European market model exchange profile*

IEC 62325-450, *Profile and context modeling rules*.

IEC 62361 part 100, *Naming and design rules for CIM profiles to XML schema mapping*.

3 Terms and definitions

For the purposes of this document, the terms and definitions of IEC 61970-2 apply, as well as the following.

NOTE Refer to International Electrotechnical Vocabulary, IEC 60050, for general glossary definitions.

3.1

Aggregate business information entity - ABIE

An aggregate business information entity is a re-use of an aggregate core component (ACC) in a specified business (ISO 15000-5).

3.2

Aggregate core component – ACC

A collection of related pieces of business information that together convey a distinct business meaning, independent of any specific business context. Expressed in modelling terms, it is the representation of an object class, independent of any specific business context (ISO 15000-5).

245 **3.3**246 **Application program interface - API**

247 The set of public functions provided by an executable application component for use
248 by other executable application components.

249 **3.4**250 **Assembly model**

251 An assembly model is a model that prepares information in a business context for
252 assembly into electronic documents for data interchange.

253 **3.5**254 **Based on or IsBasedOn**

255 The use of an artefact that has been restricted according to the requirements of a
256 specific business context (IEC 62325 part 450).

257 **3.6**258 **Business Context**

259 The formal description of a specific business circumstance as identified by the values
260 of a set of context categories, allowing different business circumstances to be
261 uniquely distinguished" (UN/Cefact).

262 **3.7**263 **European style market profile - ESMP**

264 The European style market profile, this International Standard applies to these kind of
265 electricity markets.

266 **3.8**267 **Information model**

268 An information model is a representation of concepts, relationships, constraints, rules,
269 and operations to specify data semantics for a chosen domain of discourse. It can
270 provide shareable, stable, and organized structure of information requirements for the
271 domain context.

272 **3.9**273 **Market management system - MMS**

274 A computer system comprised of a software platform providing basic support services
275 and a set of applications providing the functionality needed for the effective
276 management of the electricity market. These software systems in an electricity market
277 may include support for capacity allocation, scheduling energy, ancillary or other
278 services, real-time operations and settlements.

279 **3.10**280 **Message business information entity – MBIE**

281 A message business information entity represents the aggregation of a set of ABIEs
282 that respects a define set of assembly rules.

283 **3.11**284 **Profile**

285 The basic outline of all the information that is required to satisfy a specific
286 environment.

287 **4 Document contextual model and message assembly model basic concepts**288 **4.1 Overview**

289 IEC 62325-450 defines a set of CIM profiles that follows a layered modelling
290 framework as outlined in Figure 1 going from the common information model (CIM), to
291 different regional contextual models and their subsequent contextualized documents
292 for information exchange; the final step being the message specifications for
293 information interchange.

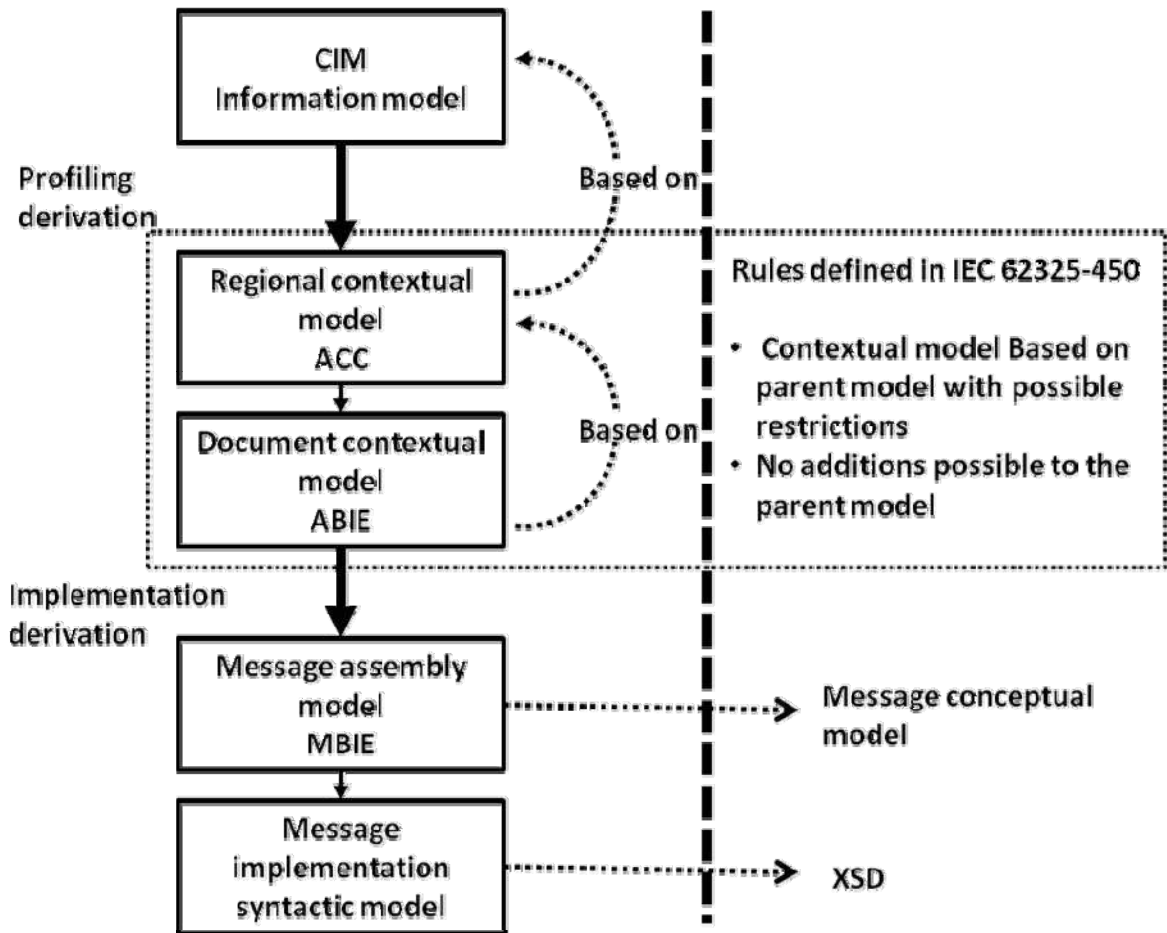


Figure 1 - IEC 62325-450 modelling framework

The regional contextual models are the basic components that are necessary to build electronic documents for information interchange. The European style market contextual model (IEC 62325 part 351) is, as an example, a regional contextual model. The components are also termed aggregate core components (ACCs).

A document contextual model is based upon a specific business requirements specification and is constructed from the contextualisation of the ACCs that can be found in the European style market contextual model. The contextualised ACCs at this stage are termed aggregate business Information entities (ABIEs). These ABIEs are the constructs that are assembled together into a specific electronic document to satisfy the information requirements outlined in the business requirements specification. The transformation from an ACC to an ABIE must respect the rules defined in IEC 62325 part 450, "Profile and context modeling rules".

Once a document contextual model has been built, that satisfactorily meets the business requirements, a message assembly model can be automatically generated from it. The automatic generation respects the rules defined in IEC 62361 part 100, "Naming and design rules for CIM profiles to XML schema mapping".

XML schema then may be automatically generated from the message assembly model. If necessary specific mapping can take place at this stage to transform the CIM class and attribute names into more market resilient names.

4.2 European style market package structure

The main package structure of the European style market profile is described in Figure 2.

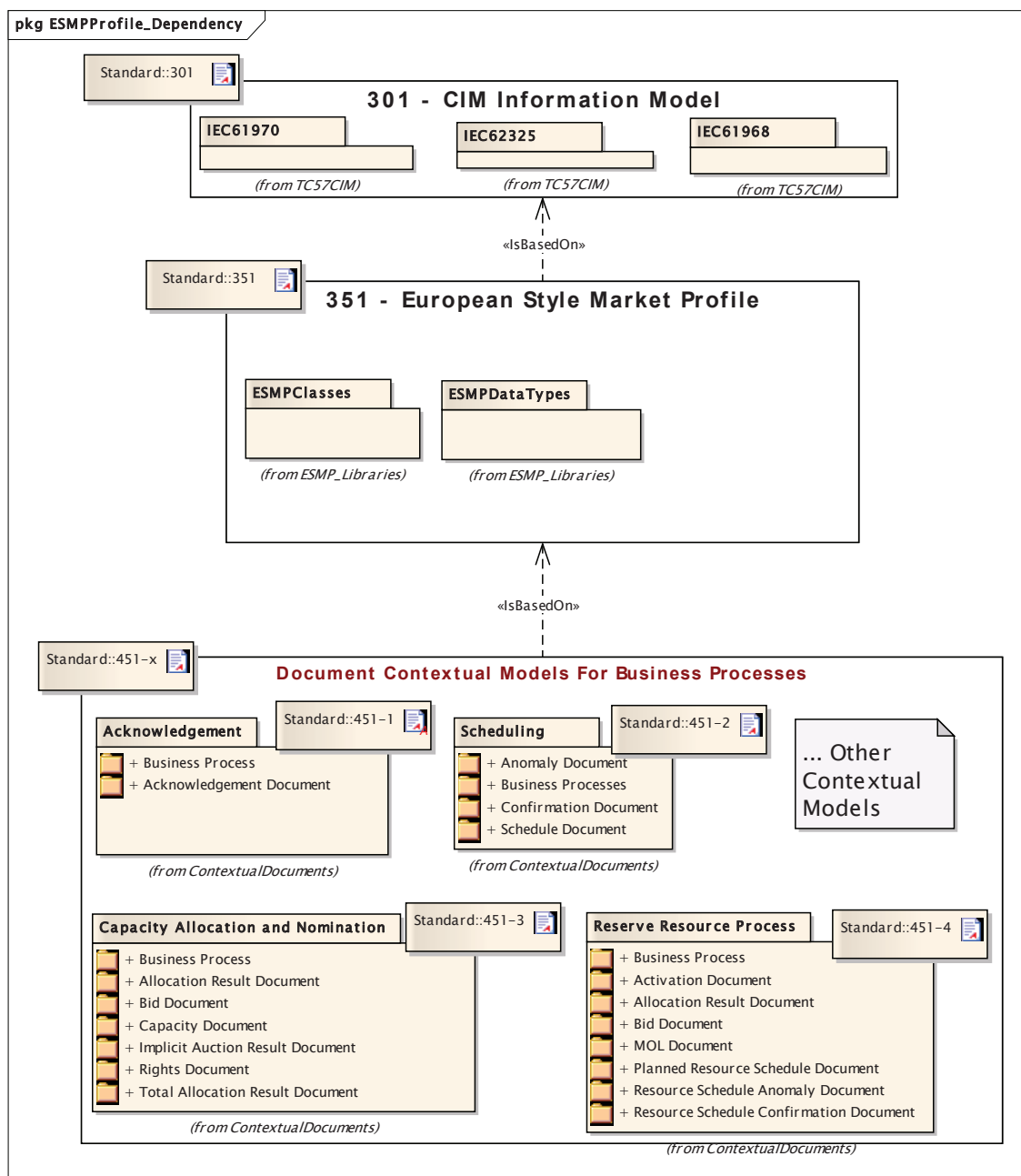


Figure 2 - Overview of European style market profile dependency

For each business process, a business process package is described in an IEC 62325 part 451-n (n from 1 to i) standard.

A business process package contains:

- The document contextual model (ABIE) and the automatically generated message assembly model (MBIE) for each electronic document required to enable the completion of the business process. Each document is a sub contextual model derived by restriction from the European style market profile.

- The XML schema of the business document that is automatically generated from the message assembly model.

The European style market profile (ESMP), as defined in the IEC 62325 part 351, provides the core components permitted for use in an IEC 62325 part 451-n standard. All ABIEs must be “based on” the IEC 62325 part 351 core components:

- ESMPClasses: Defining all the semi-contextual classes of the European style market profile derived by restriction from the CIM information model.
- ESMPDataTypes: Defining all the core Datatypes used within the ESMP classes.

All the core components that are used in every electronic document structure have been harmonized and centralized in the European style market profile.

4.3 From the European style market profile to the document contextual model

The document contextual model for a given business process is constructed by an information analyst who identifies all the information requirements necessary to satisfy the business process.

Once the information requirements have been identified, the information analyst identifies the related ACCs that are available in the European style market profile and contextualises them to meet the information requirements. This contextualisation step creates a set of aggregate business Information entities (ABIEs).

In a final step the information analyst assembles together into a specific document contextual model package the ABIEs to form a document model satisfying the business requirements.

All document contextual models share the same core components and core datatypes. These are defined in the European style market profile (IEC 62325-351) and are contextualised and refined in all document contextual models (IEC 62325-451-x series) respecting the rules as described in IEC 62325-450.

4.4 From the document contextual model to the message assembly model

Once the document contextual model has been finalised, the message assembly model may be automatically generated.

All document contextual models share the same core components and core datatypes. These are defined in the European style market profile (IEC 62325-351) and are contextualised and refined in all document contextual models (IEC 62325-451-n series) respecting the rules as described in IEC 62325-450.

To enable this automatic generation a series of principles have been elaborated based on the underlying structures defined in the European style market profile.

The message assembly model is generated into a separate package and respects the following basic criteria:

- 1) There shall be one class that is not dependent through a relationship on another class. This class shall be deemed the Root class
- 2) When there is a dependant class, that has a [0..1] or [1..1] multiplicity in all the dependent class association ends, then if it is a leaf class, the leaf class attributes shall be integrated into the parent class.
- 3) The multiplicity of the integrated attributes shall correspond to the multiplicity of the association end related to the dependent class. However, if an attribute has a multiplicity of [0..1] then this multiplicity shall become the multiplicity of the integrated attribute. For example, in Figure 3, the MarketParticipant class has a [1 1] relationship with the parent

Acknowledgement_MarketDocument and its "aliasName" has a [1..1] multiplicity, thus the resulting combination is a [1..1] multiplicity. Consequently the "aliasname" attribute is moved to the parent class for each relation respecting the [1 1] multiplicity.

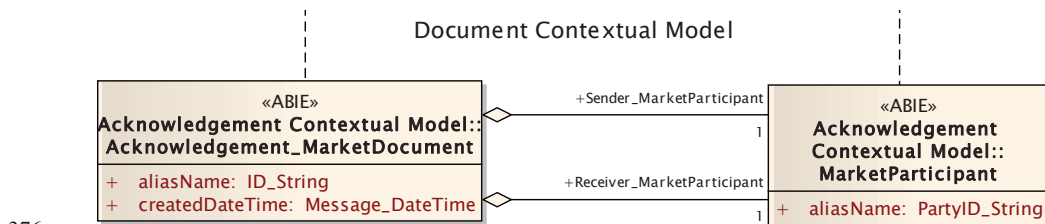


Figure 3 - Message assembly criteria

Note in the above example the dependant class «MarketParticipant» is associated twice to the parent class Acknowledgement_MarketDocument all with a multiplicity of [1..1]. Its attributes shall be integrated into the parent class differentiated by the association rolename.

- 4) The name of the integrated attribute in the integrating class shall be the concatenation of the association end role name and the name of the attribute of the original class. For example, in Figure 3, there are two specific end role names, "Sender_MarketParticipant" and "Receiver_MarketParticipant". Consequently the "aliasName" attribute to be integrated into the parent class shall be "Sender_MarketParticipant.aliasName" and "Receiver_MarketParticipant.aliasName".
- 5) The attributes that are integrated into a class shall maintain the same datatypes as defined in the dependant class.
- 6) The parent class could have associations with more than one leaf class. The integration rule is applied for each leaf class that fulfil the association requirement of 0..1 or 1..1
- 7) In the case where there is a hierarchy of dependant classes, the integration process is iterative starting from the leaf classes
- 8) Attributes and Associations are ordered.

The resulting message assembly model shall be the model used for the creation of technological implementations such as XML schema.

4.5 From the assembly model to the XML schema

The final modelling step applies a standardized set of criteria in order to generate a uniform XML schema from the assembly model. This transformation process respects the rules defined in IEC 62361 part 100, "Naming and design rules for CIM profiles to XML schema mapping".

5 The acknowledgment business process (Informative)

5.1 Business process definition

The acknowledgment business process is generic and can be used in all the electricity market business processes at two levels:

- System level: To detect syntax errors (XML parsing errors, etc.);
- Application level: To detect semantic errors (invalid data, wrong process, etc.).

If there is a problem encountered at the first level, then a technical acknowledgement may be sent to inform the originator of the problem.

If errors are encountered at the second level or if the application can successfully process the information, then an application acknowledgement may be sent to inform the originator of the situation.

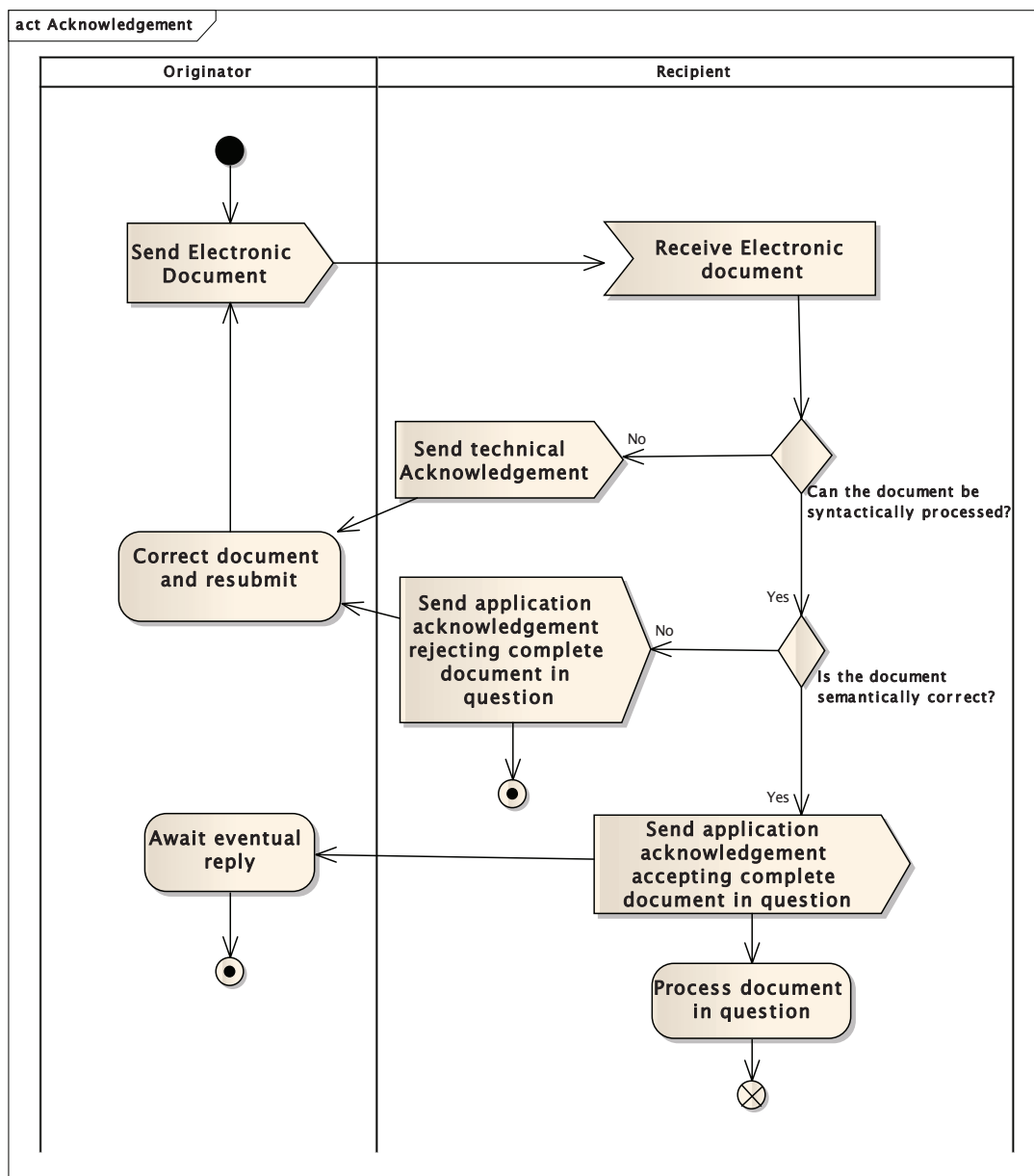


Figure 4 – Acknowledgement process

414 5.1.1 Technical acknowledgment

415 A technical acknowledgement occurs when an XML document is received that cannot
416 be correctly processed for submission to the application. Such an error could occur
417 for example whenever the XML parser cannot correctly parse the incoming document.
418 Other instances could be the incapacity to correctly identify the originator of the
419 document in relation to the process requested.

420 In such a case a technical acknowledgement can be sent to the document originator
421 providing the information that the XML document in question cannot be correctly
422 processed by the system.

423 5.1.2 Application acknowledgment

424 Within each business process of European style markets, business rules are to define
425 stating whether or not an application acknowledgment is to be sent upon reception of
426 an electronic document.

427 In particular, where the originator is in an “operator” type role (system operator,
428 market operator, interconnection capacity allocator, etc.) and the recipient is in a
429 “market participant” type role, all electronic documents sent by entities in the role of
430 an operator shall be considered as received and correct, and the acknowledgement
431 process is not required unless an acknowledgment document is required by a specific
432 process.

433 Otherwise, upon reception, checks are to be carried out at the application level to
434 assess that the received document can be correctly processed by the application. The
435 originator is informed that:

- 436 • Its document, that is stated as valid after this verification, is ready to be
437 processed by the reception of an acknowledgement document accepting the
438 complete document in question;
- 439 • Its document is rejected for processing by the reception of an
440 acknowledgement document rejecting the complete document in question with
441 details on the level of errors.

6 Acknowledgement document contextual model (Normative)

6.1 IsBasedOn relationships from the European style market profile

This section provides the dependency of acknowledgement document classes toward their “IsBasedOn” European style market profile class, see Figure 5.

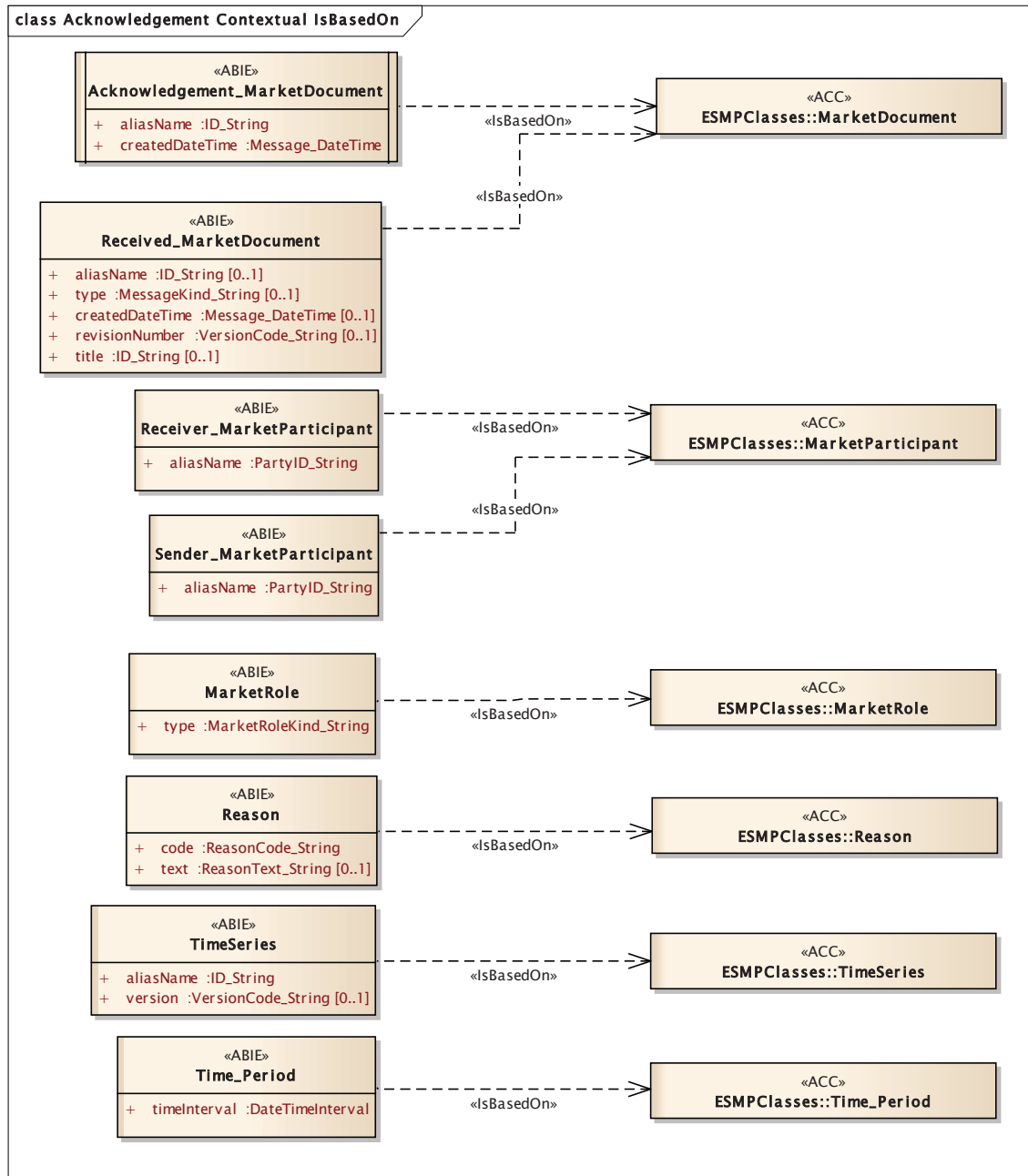


Figure 5 - IsBasedOn relations with ESMP

6.2 Overview of the acknowledgement document contextual model

The Figure 6 shows the acknowledgement document contextual model.

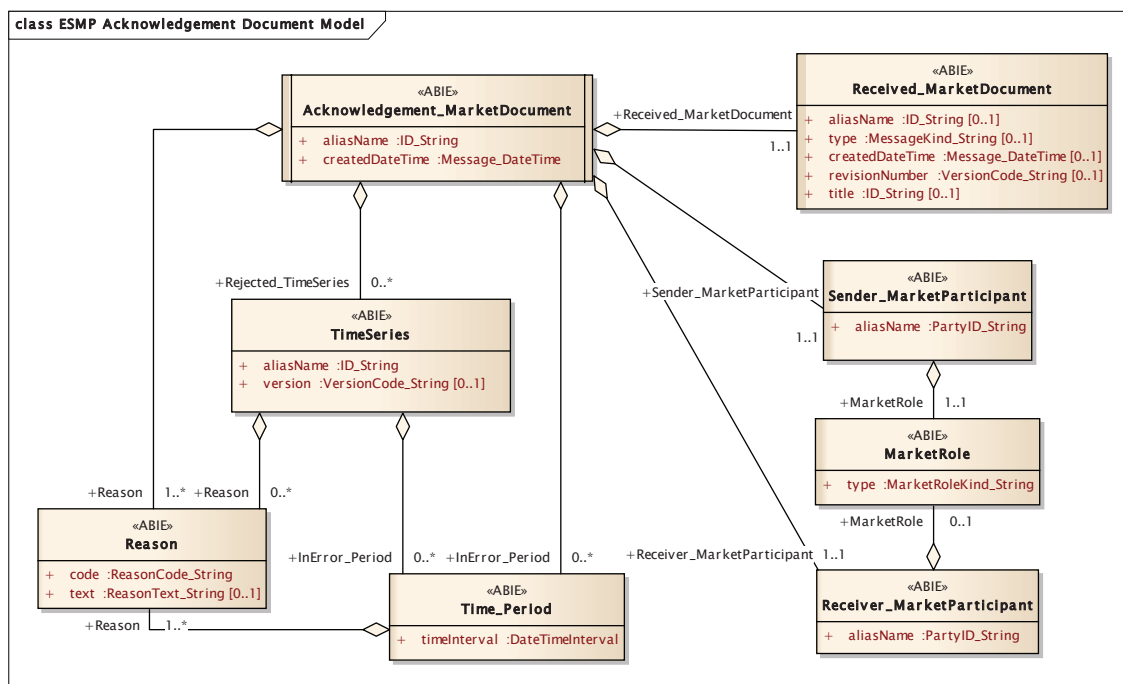


Figure 6 – Acknowledgement document contextual model

6.3 Business rules for the acknowledgment document

The following business rules applied to the acknowledgment document.

6.3.1 Document identification and Version

Within the European style market profile, documents are generally identified by three characteristics:

- The identification of the document;
- The version of the document;
- The identification of the emitter of the document.

The following basic rules are to be applied:

- Each MarketDocument shall be identified by the sender in a unique way.
- For a MarketDocument, the revisionNumber value shall be a positive integer and leading zeros shall be suppressed.
- For the first version of a MarketDocument, the revisionNumber value shall be equal to 1. If the MarketDocument refers to a specific instance of another MarketDocument a revisionNumber is not required.
- For the succeeding versions of a MarketDocument, the revisionNumber value shall be superior to the previous revisionNumber.

6.3.2 Time

- All the times within the MarketDocument shall be expressed in coordinated universal time (UTC) in compliance with ISO 8601.

- 472 ▪ For all time intervals, the start date and time is included in the scope of the
473 interval whereas the end date and time is excluded from the scope of the
474 interval, i.e. [start date and time, end date and time].

475 **6.3.3 Coding scheme identification**

- 476 ▪ Whenever a coded value within a MarketDocument is associated with a coding
477 scheme, the coding scheme shall always be identified. The coding scheme is
478 an independent facet of an attribute with a size of 3 alphanumeric characters.

479 **6.3.4 Reason**

480 There shall be at least one Reason class at the document header level that provides
481 the information to either accept or reject the complete document.

482 If there are errors at the TimeSeries level as many Reason classes as necessary may
483 be used to provide the details of the error. Specifically it shall be used:

- 484 ▪ To identify a TimeSeries which has been completely rejected;
485 ▪ To identify a TimeSeries where there are selective errors at the Time_Period
486 level.

487 A timeInterval that is in error shall be identified in relation to its position in the
488 incoming document.

489 If there are errors at the Time_Period level as many Reason classes as necessary
490 shall be used to identify the error.

491 **6.3.4.1 Reason code examples**

492 The following tables provide examples of the possible combinations of the use of
493 reason codes:

494 **Table 1 - Codes used at the document header level**

Code	Reason
A01	Message fully accepted
A02	Message fully rejected
A03	Message contains errors at the Time series level
A51	Message identification or version conflict
A52	TimeSeries missing from new version of message
A53	Receiving party incorrect
A94	Document cannot be processed by receiving system

495 **Table 2 – Codes used at the TimeSeries level when there is a Reason code of**
496 **A03 at the document header level**

Code	Reason
A20	TimeSeries fully accepted
A21	Time Series Accepted with specific time interval errors
A41	Resolution inconsistency
A50	Senders TimeSeries version conflict
A54	Global position not in balance
A55	TimeSeries identification conflict
A56	Corresponding TimeSeries not netted
A57	Deadline limit exceeded
A59	Not compliant with local market rules

Table 3 – Codes used at the Period level when there is a Reason code A03 at the document header level and a code A21 at the TimeSeries level

Code	Reason
A42	Quantity inconsistency
A46	Quantities must not be signed values
A49	Position inconsistency
A59	Not compliant with local market rules

6.4 Detailed acknowledgment document contextual model description

6.4.1 Acknowledgement_MarketDocument root class

An electronic document that is used to acknowledge the reception of a document and to provide information concerning its basic validity.

IsBasedOn: ESMPClasses::MarketDocument

Table 4 shows all attributes of Acknowledgement_MarketDocument.

Table 4 – Attributes of Acknowledgement Contextual Model::Acknowledgement_MarketDocument

mult.	Attribute name	Attribute type	Description
[1..1]	aliasName	ID_String	Unique identification of the document being exchanged within a business process flow.
[1..1]	createdDateTime	Message_DateTime	Identification of the date and time of the creation of the document.

Table 5 shows all association ends of Acknowledgement_MarketDocument with other classes.

Table 5 – Association ends of Acknowledgement Contextual Model::Acknowledgement_MarketDocument with other classes

mult.	Role	Class type name	Description
[1..*]	Reason	Reason	The Reason associated with the electronic document header providing different motivations for the creation of the document. Association Based On : ESMPClasses::MarketDocument.[] ----- ESMPClasses::Reason.Reason[0..*]
[0..*]	InError_Period	Time_Period	The time interval that is associated with the received document and which is valid for the whole document. Association Based On : ESMPClasses::MarketDocument.[] ----- ESMPClasses::Time_Period.Period[0..*]
[0..*]	Rejected_TimeSeries	TimeSeries	The time series in the received document that has been rejected during the initial validation process.. Association Based On : ESMPClasses::MarketDocument.[] ----- ESMPClasses::TimeSeries.TimeSeries[0..*]
[1..1]	Received_MarketDocument	Received_MarketDocument	The identification of the electronic document that is being acknowledged. Association Based On : ESMPClasses::MarketDocument.[] ----- ESMPClasses::MarketDocument.MarketDocument[0..*]