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**Framework for energy market communications –
Part 451-5: Problem statement and status request business processes,
contextual and assembly models for European market**

**Cadre pour les communications pour le marché de l'énergie –
Partie 451-5: Processus métier d'énoncé de problème et de demande de
position, modèles contextuels et modèles d'assemblage pour le marché
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CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	10
4 Document contextual model and message assembly model basic concepts	11
4.1 Overview.....	11
4.2 European style market package structure	12
4.3 From the European style market profile to the document contextual model	14
4.4 From the document contextual model to the message assembly model.....	14
4.5 From the assembly model to the XML schema	14
5 The problem statement and status request business process	14
5.1 Business context for the problem statement process.....	14
5.2 Business context for the status request process.....	15
5.2.1 Overview of the status request process	15
5.2.2 Use case for the status request process	15
5.2.3 Sequence diagrams for the status request process.....	16
5.3 Business rules	18
5.3.1 General	18
5.3.2 Business rules for the problem statement process	18
5.3.3 Business rules for the status request process	18
6 Contextual and assembly models.....	18
6.1 Problem statement contextual model.....	18
6.1.1 Overview of the model	18
6.1.2 IsBasedOn relationships from the European style market profile.....	19
6.1.3 Detailed Problem statement contextual model	19
6.2 Problem statement assembly model.....	25
6.2.1 Overview of the model	25
6.2.2 IsBasedOn relationships from the European style market profile.....	25
6.2.3 Detailed Problem statement assembly model.....	25
6.2.4 Datatypes	28
6.2.5 Enumerations	32
6.3 Status request contextual model	32
6.3.1 Overview of the model	32
6.3.2 IsBasedOn relationships from the European style market profile.....	33
6.3.3 Detailed Status request contextual model	33
6.4 Status request assembly model	36
6.4.1 Overview of the model	36
6.4.2 IsBasedOn relationships from the European style market profile.....	36
6.4.3 Detailed Status request assembly model	36
6.4.4 Datatypes	38
6.4.5 Enumerations	40
7 XML schema.....	41
7.1 XML schema URN namespace rules	41
7.2 Code list URN namespace rules.....	41

7.3	URI rules for model documentation	41
7.3.1	Datatype	41
7.3.2	Class	42
7.3.3	Attribute	42
7.3.4	Association end role name	42
7.4	ProblemStatement_MarketDocument schema	43
7.4.1	Schema Structure	43
7.4.2	Schema description	44
7.5	StatusRequest_MarketDocument schema	47
7.5.1	Schema Structure	47
7.5.2	Schema description	48
	Bibliography	50
	Figure 1 – IEC 62325-450 modelling framework	12
	Figure 2 – Overview of European style market profile dependency	13
	Figure 3 – Problem statement business case	14
	Figure 4 – Status request business case	16
	Figure 5 – Status request scenario 1	17
	Figure 6 – Status request scenario 2	17
	Figure 7 – Problem statement contextual model	19
	Figure 8 – Problem statement assembly model	25
	Figure 9 – Status request contextual model	33
	Figure 10 – Status request assembly model	36
	Figure 11 – ProblemStatement_MarketDocument XML schema structure	43
	Figure 12 – StatusRequest_MarketDocument XML schema structure	47
	Table 1 – IsBasedOn dependency	19
	Table 2 – Attributes of Problem statement contextual model::ProblemStatement_MarketDocument	20
	Table 3 – Association ends of Problem statement contextual model::ProblemStatement_MarketDocument with other classes	20
	Table 4 – Attributes of Problem statement contextual model::Delivery_MarketDocument	21
	Table 5 – Attributes of Problem statement contextual model::Domain	21
	Table 6 – Attributes of Problem statement contextual model::MarketDocument	22
	Table 7 – Association ends of Problem statement contextual model::MarketDocument with other classes	22
	Table 8 – Attributes of Problem statement contextual model::MarketParticipant	22
	Table 9 – Association ends of Problem statement contextual model::MarketParticipant with other classes	23
	Table 10 – Attributes of Problem statement contextual model::MarketRole	23
	Table 11 – Attributes of Problem statement contextual model::Process	23
	Table 12 – Attributes of Problem statement contextual model::Reason	24
	Table 13 – Attributes of Problem statement contextual model::Time_Period	24
	Table 14 – IsBasedOn dependency	25

Table 15 – Attributes of Problem statement assembly model::ProblemStatement_MarketDocument.....	26
Table 16 – Association ends of Problem statement assembly model::ProblemStatement_MarketDocument with other classes	27
Table 17 – Attributes of Problem statement assembly model::Reason	27
Table 18 – Attributes of ESMPDataTypes::ESMP_DateTimeInterval	28
Table 19 – Attributes of ESMPDataTypes::AreaID_String.....	28
Table 20 – Restrictions of attributes for ESMPDataTypes::AreaID_String	28
Table 21 – Attributes of ESMPDataTypes::ESMP_DateTime	28
Table 22 – Restrictions of attributes for ESMPDataTypes::ESMP_DateTime	29
Table 23 – Attributes of ESMPDataTypes::ESMPVersion_String	29
Table 24 – Restrictions of attributes for ESMPDataTypes::ESMPVersion_String.....	29
Table 25 – Attributes of ESMPDataTypes::ID_String.....	30
Table 26 – Restrictions of attributes for ESMPDataTypes::ID_String.....	30
Table 27 – Attributes of ESMPDataTypes::MarketRoleKind_String.....	30
Table 28 – Attributes of ESMPDataTypes::MessageKind_String	30
Table 29 – Attributes of ESMPDataTypes::PartyID_String.....	31
Table 30 – Restrictions of attributes for ESMPDataTypes::PartyID_String.....	31
Table 31 – Attributes of ESMPDataTypes::ProcessKind_String.....	31
Table 32 – Attributes of ESMPDataTypes::ReasonCode_String.....	31
Table 33 – Attributes of ESMPDataTypes::ReasonText_String.....	31
Table 34 – Restrictions of attributes for ESMPDataTypes::ReasonText_String.....	32
Table 35 – Attributes of ESMPDataTypes::YMDHM_DateTime.....	32
Table 36 – Restrictions of attributes for ESMPDataTypes::YMDHM_DateTime.....	32
Table 37 – IsBasedOn dependency.....	33
Table 38 – Attributes of Status request contextual model::StatusRequest_MarketDocument.....	33
Table 39 – Association ends of Status request contextual model::StatusRequest_MarketDocument with other classes	34
Table 40 – Attributes of Status request contextual model::AttributeInstanceComponent.....	34
Table 41 – Attributes of Status request contextual model::MarketParticipant.....	35
Table 42 – Association ends of Status request contextual model::MarketParticipant with other classes	35
Table 43 – Attributes of Status request contextual model::MarketRole	35
Table 44 – IsBasedOn dependency.....	36
Table 45 – Attributes of Status request assembly model::StatusRequest_MarketDocument.....	37
Table 46 – Association ends of Status request assembly model::StatusRequest_MarketDocument with other classes	37
Table 47 – Attributes of Status request assembly model::AttributeInstanceComponent	38
Table 48 – Attributes of ESMPDataTypes::AttributeValue_String	38
Table 49 – Restrictions of attributes for ESMPDataTypes::AttributeValue_String	38
Table 50 – Attributes of ESMPDataTypes::ESMP_DateTime	38
Table 51 – Restrictions of attributes for ESMPDataTypes::ESMP_DateTime	39
Table 52 – Attributes of ESMPDataTypes::ID_String.....	39

Table 53 – Restrictions of attributes for ESMPDataTypes::ID_String.....	39
Table 54 – Attributes of ESMPDataTypes::MarketRoleKind_String.....	40
Table 55 – Attributes of ESMPDataTypes::MessageKind_String	40
Table 56 – Attributes of ESMPDataTypes::PartyID_String.....	40
Table 57 – Restrictions of attributes for ESMPDataTypes::PartyID_String.....	40

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FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

Part 451-5: Problem statement and status request business processes, contextual and assembly models for European market

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FDIS	Report on voting
57/1518/FDIS	57/1543/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.

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

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INTRODUCTION

This standard is one of the IEC 62325 series which define protocols for deregulated energy market communications.

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.

The common information model (CIM) specifies the basis for the semantics for this message exchange.

The European style market profile is based on different parts of the CIM IEC standard. The CIM is defined through a series of standards, i.e. IEC 62325-301, IEC 61970-301 and IEC 61968-11 standards.

This document provides for the European style market profile the problem statement and status request business processes that can be used throughout a European style market. This standard was originally based upon the work of the European Transmission System Operators (ETSO) Task Force EDI (Electronic Data Interchange) and then on the work of the European Network of Transmission System Operators (ENTSO-E) Working Group EDI.

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FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

Part 451-5: Problem statement and status request business processes, contextual and assembly models for European market

1 Scope

Based on the European style market profile (IEC 62325-351), this part of IEC 62325-451 specifies a package for the problem statement and status request business processes and the associated document contextual models, assembly models and XML schema for use within European style markets.

The relevant aggregate core components (ACCs) defined in IEC 62325-351 have been contextualised into aggregated business information entities (ABIEs) to satisfy the requirements of this business process. The contextualised ABIEs have been assembled into the relevant document contextual models. Related assembly models and XML schema for the exchange of information between market participants are automatically generated from the assembled document contextual models.

2 Normative references

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

IEC TS 61970-2, *Energy management system application program interface (EMS-API) – Part 2: Glossary*

IEC 62325-301, *Framework for energy market communications – Part 301: Common information model (CIM) extensions for markets*

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

IEC 62325-450, *Framework for energy market communications – Part 450: Profile and context modelling rules*

IEC 62325-451-1, *Framework for energy market communications – Part 451-1: Acknowledgement business process and contextual model for CIM European market*

IEC 62361-100¹, *Power systems management and associated information exchange – Interoperability in the long term – Part 100: CIM profiles to XML schema mapping*

¹ Under consideration.

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 IEC 60050, *International Electrotechnical Vocabulary*, for general glossary definitions.

3.1 aggregate business information entity

ABIE

re-use of an aggregate core component (ACC) in a specified business

[SOURCE: ISO/TS 15000-5:2005, Clause 9, modified (modification of the definition)]

3.2 aggregate core component

ACC

collection of related pieces of business information that together convey a distinct business meaning, independent of any specific business context

Note 1 to entry: Expressed in modelling terms, this is the representation of an object class, independent of any specific business context.

[SOURCE: ISO/TS 15000-5:2005, Clause 9, modified (modification of the definition)]

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3.3 application program interface (standards.iteh.ai)

API

set of public functions provided by an executable application component for use by other executable application components

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3.4 assembly model

model that prepares information in a business context for assembly into electronic documents for data interchange

3.5 based on

IsBasedOn

use of an artefact that has been restricted according to the requirements of a specific business context

[SOURCE: IEC 62325-450:2013, 3.4]

3.6 business context

formal description of a specific business circumstance as identified by the values of a set of context categories, allowing different business circumstances to be uniquely distinguished

[SOURCE: UN/Cefact, Unified Context Methodology Technical Specification]

3.7 European style market profile

ESMP

the European style market profile, the object of this International Standard

3.8 information model

representation of concepts, relationships, constraints, rules, and operations to specify data semantics for a chosen domain of discourse

Note 1 to entry: It can provide shareable, stable, and organized structure of information requirements for the domain context.

3.9 market management system MMS

computer system comprised of a software platform providing basic support services and a set of applications providing the functionality needed for the effective management of the electricity market

Note 1 to entry: These software systems in an electricity market may include support for capacity allocation, scheduling energy, ancillary or other services, real-time operations and settlements.

3.10 message business information entity MBIE

aggregation of a set of ABIEs that respects a define set of assembly rules

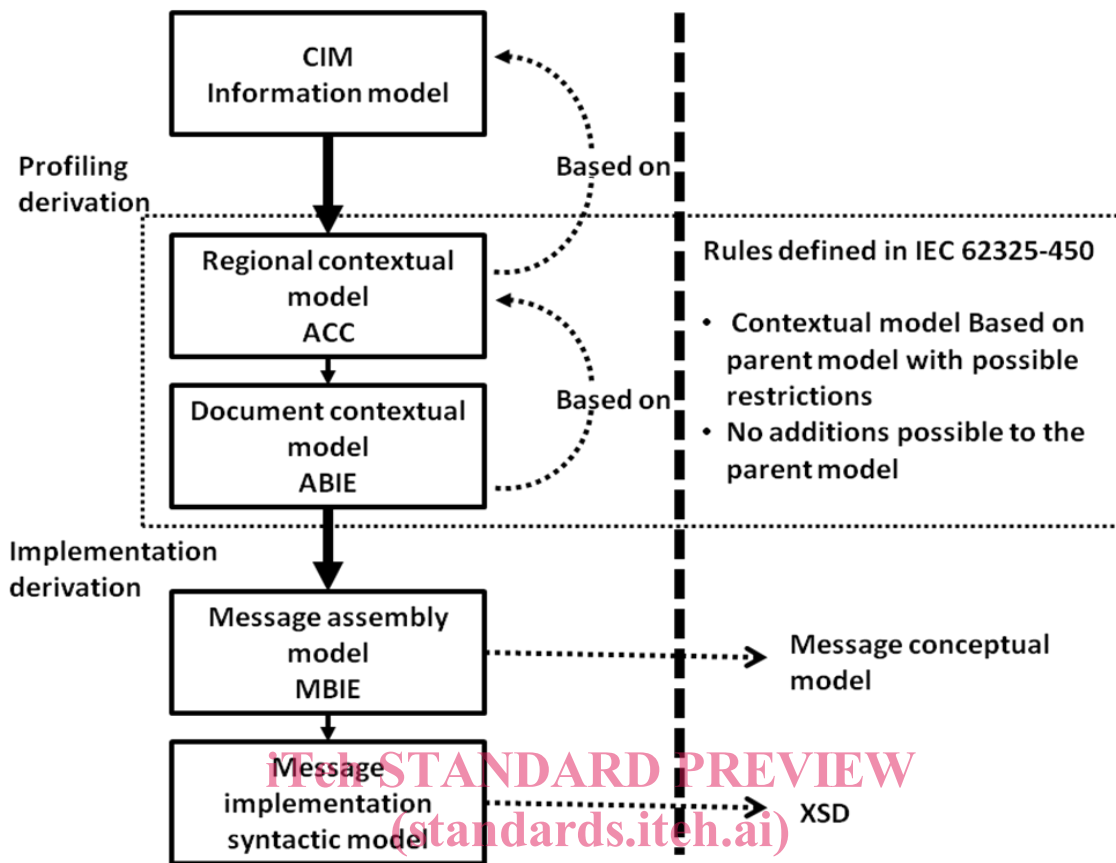
4 Document contextual model and message assembly model basic concepts

4.1 Overview

IEC 62325-450 defines a set of CIM profiles that follows a layered modelling framework as outlined in Figure 1 going from the common information model (CIM; IEC 61968-11, IEC 61970-301 and IEC 62325-301), to different regional contextual models and their subsequent contextualized documents for information exchange, the final step being the message specifications for information interchange.

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Figure 1 – IEC 62325-450 modelling framework
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The regional contextual models are the basic core components that are necessary to build electronic documents for information interchange. This is defined in the European style market contextual model (IEC 62325-351). These core 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 shall respect the rules defined in IEC 62325-450.

Once a document contextual model has been built that satisfactorily meets the business requirements, a message assembly model can be automatically generated from it.

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 legacy names.

4.2 European style market package structure

Figure 2 describes the main package structure of the European style market profile.

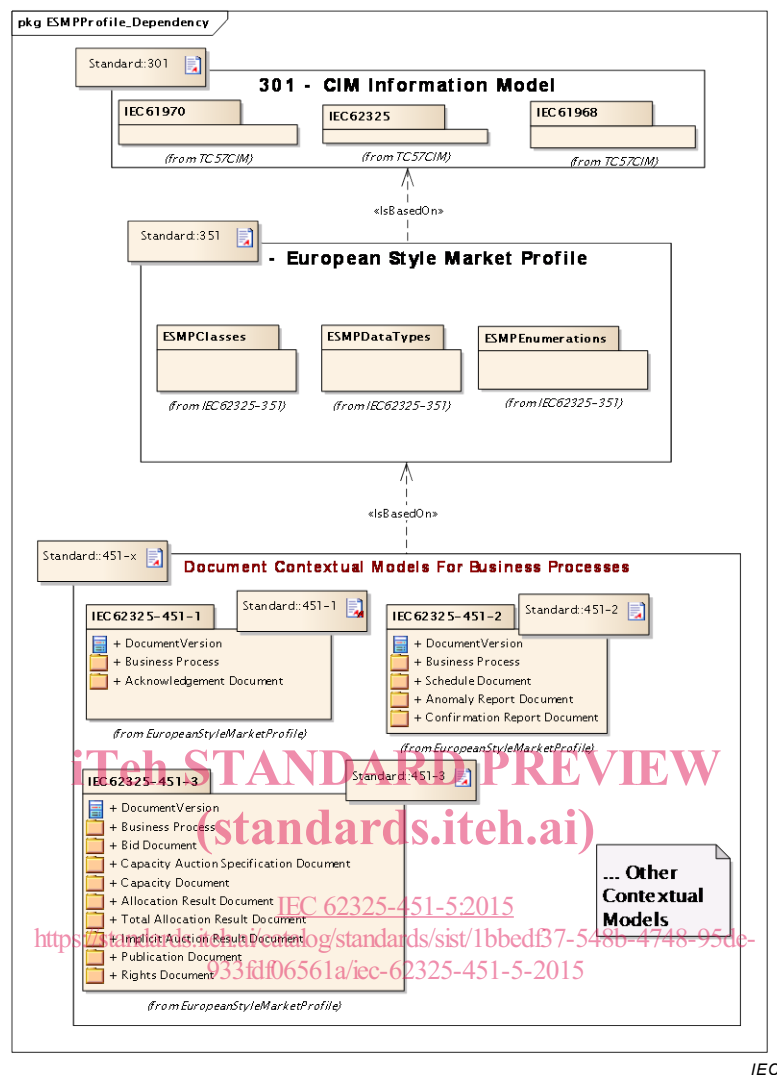


Figure 2 – Overview of European style market profile dependency

For each business process, a business process package is described in an IEC 62325-451-x (x from 1 to n) 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 IEC 62325-351, provides the core components permitted for use in an IEC 62325-451-x standard as all ABIEs shall be “based on” the IEC 62325-351 core components:

- ESMPClasses: Defining all the semi-contextual classes of the European style market profile derived by restriction from the CIM 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. These core components are consequently the basic building blocks from which all electronic document ABIEs are derived.