

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

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62325-451-5:2015 sisaldab Euroopa standardi EN 62325-451-5:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 62325-451-5:2015 consists of the English text of the European standard EN 62325-451-5:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 03.04.2015.	Date of Availability of the European standard is 03.04.2015.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 33.200

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

**Framework for energy market communications - Part 451-5:
Problem statement and status request business processes,
contextual and assembly models for European market
(IEC 62325-451-5:2015)**

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 européen
(IEC 62325-451-5:2015)

Kommunikation im Energiemarkt - Teil 451-5:
Problemstellungs- und Status-Anfragen-
Geschäftsprozesse, kontextbezogene Modelle und
Einbindungsmodelle für den europäischen Markt
(IEC 62325-451-5:2015)

This European Standard was approved by CENELEC on 2015-03-24. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 57/1518/FDIS, future edition 1 of IEC 62325-451-5, prepared by IEC/TC 57 "Power systems management and associated information exchange" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62325-451-5:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-12-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-03-24

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62325-451-5:2015 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61968-11	NOTE	Harmonized as EN 61968-11.
IEC 61970-301	NOTE	Harmonized as EN 61970-301.
IEC 62325-451-2	NOTE	Harmonized as EN 62325-451-2.
IEC 62325-451-3	NOTE	Harmonized as EN 62325-451-3.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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	EN 62325-301	-
IEC 62325-351	-	Framework for energy market communications -- Part 351: CIM European market model exchange profile	EN 62325-351	-
IEC 62325-450	-	Framework for energy market communications -- Part 450: Profile and context modelling rules	EN 62325-450	-
IEC 62325-451-1	-	Framework for energy market communications -- Part 451-1: Acknowledgement business process and contextual model for CIM European market	EN 62325-451-1	-
IEC 62361-100	-	Power systems management and - associated information exchange - Interoperability in the long term -- Part 100: CIM profiles to XML schema mapping	-	-

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

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.