

© Copyright SEK. Reproduction in any form without permission is prohibited.

Kommunikation på energimarknaden – Del 451-1: Affärskvittensprocess och dess CIM-profil för den europeiska marknaden

Framework for energy market communications –

Part 451-1: Acknowledgement business process and contextual model for CIM European market

Som svensk standard gäller europastandarden EN 62325-451-1:2013. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62325-451-1:2013.

Nationellt förord

Europastandarden EN 62325-451-1:2013

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62325-451-1, First edition, 2013 - Framework for energy market communications - Part 451-1: Acknowledgement business process and contextual model for CIM European market**

utarbetad inom International Electrotechnical Commission, IEC.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

**Framework for energy market communications -
Part 451-1: Acknowledgement business process and contextual model for
CIM European market
(IEC 62325-451-1:2013)**

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 CIM
(CEI 62325-451-1:2013)

Kommunikation im Energiemarkt -
Teil 451-1: Geschäftsprozessnachweis
und kontextbezogenes CIM-Modell für den
europäischen Markt
(IEC 62325-451-1:2013)

This European Standard was approved by CENELEC on 2013-11-11. 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.

CENELEC

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 57/1381/FDIS, future edition 1 of IEC 62325-451-1, 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 62325-451-1:2013.

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) 2014-08-11
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-11-11

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 62325-451-1:2013 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 62325-301	NOTE	Harmonised as EN 62325-301.
IEC 62325-451 (series)	NOTE	Harmonised as EN 62325-451 (series).
ISO 15000-5	NOTE	Harmonised as EN ISO 15000-5.

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 When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TS 61970-2	2004	Energy management system application program interface (EMS-API) - Part 2: Glossary	CLC/TS 61970-2	2005
IEC 62325-351	-	Framework for energy market communications - Part 351: CIM European market model exchange profile	FprEN 62325-351 ¹⁾	-
IEC 62325-450	2013	Framework for energy market communications - Part 450: Profile and context modelling rules	EN 62325-450	2013
IEC 62361-100	-	Harmonization of quality codes across TC 57 - Part 100: Naming and design rules for CIM profiles to XML schema mapping	FprEN 62361-100 ¹⁾	-

¹⁾ At draft stage.

CONTENTS

INTRODUCTION.....	7
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	8
4 Document contextual model and message assembly model basic concepts	10
4.1 Overview	10
4.2 European style market package structure	11
4.3 From the European style market profile to the document contextual model	12
4.4 From the document contextual model to the message assembly model	13
4.5 From the assembly model to the XML schema.....	14
5 The acknowledgment business process	14
5.1 Business process definition	14
5.1.1 General	14
5.1.2 Technical acknowledgment.....	15
5.1.3 Application acknowledgment.....	15
5.2 Business rules for the acknowledgment document.....	16
5.2.1 General	16
5.2.2 Time	16
5.2.3 Reason.....	16
6 Contextual and assembly models	17
6.1 Acknowledgement contextual model	17
6.1.1 Overview of the model	17
6.1.2 IsBasedOn relationships from the European style market profile.....	18
6.1.3 Detailed Acknowledgement contextual model	19
6.2 Acknowledgement assembly model	24
6.2.1 Overview of the model	24
6.2.2 IsBasedOn relationships from the European style market profile.....	25
6.2.3 Detailed Acknowledgement assembly model.....	25
6.2.4 Datatypes	30
6.2.5 Enumerations	33
7 XML schema	33
7.1 XML schema URN Namespace rules	33
7.2 Code list URN namespace rules	34
7.3 URI rules for model documentation.....	34
7.3.1 Datatype.....	34
7.3.2 Class	34
7.3.3 Attribute	34
7.3.4 Association end role name.....	35
7.4 Acknowledgement_MarketDocument schema	35
7.4.1 Schema Structure	35
7.4.2 Schema description	37
Bibliography.....	40

Figure 1 – IEC 62325-450 modelling framework	11
Figure 2 – Overview of European style market profile dependency	12
Figure 3 – Message assembly criteria	13
Figure 4 – Acknowledgement process	15
Figure 5 – Acknowledgement contextual model	18
Figure 6 – Acknowledgement assembly model	24
Figure 7 – Acknowledgement_MarketDocument XML schema structure – 1/2	36
Figure 8 – Acknowledgement_MarketDocument XML schema structure – 2/2	37
Table 1 – Codes used at the document header level	17
Table 2 – Codes used at the TimeSeries level when there is a Reason code of A03 at the document header level	17
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	17
Table 4 – IsBasedOn dependency	19
Table 5 – Attributes of Acknowledgement contextual model::Acknowledgement_MarketDocument	19
Table 6 – Association ends of Acknowledgement contextual model::Acknowledgement_MarketDocument with other classes	20
Table 7 – Attributes of Acknowledgement contextual model::MarketParticipant	21
Table 8 – Association ends of Acknowledgement contextual model::MarketParticipant with other classes	21
Table 9 – Attributes of Acknowledgement contextual model::MarketRole	21
Table 10 – Attributes of Acknowledgement contextual model::Reason	21
Table 11 – Attributes of Acknowledgement contextual model::Received_MarketDocument	22
Table 12 – Attributes of Acknowledgement contextual model::Receiver_MarketParticipant	22
Table 13 – Association ends of Acknowledgement contextual model::Receiver_MarketParticipant with other classes	22
Table 14 – Attributes of Acknowledgement contextual model::Time_Period	23
Table 15 – Association ends of Acknowledgement contextual model::Time_Period with other classes	23
Table 16 – Attributes of Acknowledgement contextual model::TimeSeries	23
Table 17 – Association ends of Acknowledgement contextual model::TimeSeries with other classes	24
Table 18 – IsBasedOn dependency	25
Table 19 – Attributes of Acknowledgement assembly model::Acknowledgement_MarketDocument	26
Table 20 – Association ends of Acknowledgement assembly model::Acknowledgement_MarketDocument with other classes	28
Table 21 – Attributes of Acknowledgement assembly model::Reason	28
Table 22 – Attributes of Acknowledgement assembly model::Time_Period	29
Table 23 – Association ends of Acknowledgement assembly model::Time_Period with other classes	29
Table 24 – Attributes of Acknowledgement assembly model::TimeSeries	29

Table 25 – Association ends of Acknowledgement assembly model:: TimeSeries with other classes	30
Table 26 – Attributes of ESMPDataTypes::ESMP_DateTimeInterval	30
Table 27 – Attributes of ESMPDataTypes::ESMP_DateTime	30
Table 28 – Attributes of ESMPDataTypes::ESMPVersion_String	31
Table 29 – Attributes of ESMPDataTypes::ID_String	31
Table 30 – Attributes of ESMPDataTypes::MarketRoleKind_String	31
Table 31 – Attributes of ESMPDataTypes::MessageKind_String	31
Table 32 – Attributes of ESMPDataTypes::PartyID_String	32
Table 33 – Attributes of ESMPDataTypes::PayloadId_String	32
Table 34 – Attributes of ESMPDataTypes::ReasonCode_String	32
Table 35 – Attributes of ESMPDataTypes::ReasonText_String	32
Table 36 – Attributes of ESMPDataTypes::YMDHM_DateTime	33

INTRODUCTION

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

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) described in IEC 62325-301¹, IEC 61970-301 and IEC 61968-11 specifies the basis for the semantics for message exchange.

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

This document provides for the European-style market profile the generic technical and application acknowledgement document that can be used in all European style market processes. These market processes are based on the European regulations, and on the concepts of third party access and zonal 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.

¹ To be published.

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 62325-451-x series for deregulated energy market data exchanges and is applicable to European style electricity markets.

Based on the European style market contextual model (IEC 62325-351), 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 62325-351 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 acknowledgment information between market participants is automatically generated from the Assembled document contextual model.

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 61970-2:2004, *Energy management system application program interface (EMS-API) – Part 2: Glossary*

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

IEC 62325-450:2013, *Framework for energy market communications – Part 450: Profile and context modeling rules*

IEC 62361-100, *Power systems management and associated information exchange – Interoperability in the long term – Part 100: CIM profiles to XML schema mapping²*

² To be published.