



IEC 62325-451-4

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# INTERNATIONAL STANDARD



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**Framework for energy market communications –  
Part 451-4: Settlement and reconciliation business process, contextual and  
assembly models for European market**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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# INTERNATIONAL ELECTROTECHNICAL COMMISSION

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## FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

### Part 451-4: Settlement and reconciliation business process, contextual and assembly models for European market

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International Standard IEC 62325-451-4 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

This second edition cancels and replaces the first edition published in 2014. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Removal of the attributes “quantity” and “secondary quantity” of the class “Point”;
- b) Introduction of the class “Quantity” from IEC 62351-351 UML package, with the following attributes “quantity” as mandatory and “quality” as optional, and create two association 1..1 between the class “Quantity” and the class “Point” with the role “In\_Quantity” and “Out\_Quantity”.

- c) Introduction of the class “Reason” from IEC 62351-351 UML package, with the following attributes “code” as mandatory and “text” as optional, and create an association 0..\* from the class “Reason” to the class “Point” with the role “Reason”.

The text of this International Standard is based on the following documents:

CDV	Report on voting
57/1737/CDV	57/1804/RVC

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

This document 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.

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.

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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 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 (ESMP) 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.

This document provides the settlement and reconciliation business process 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.

This document describes the settlement and reconciliation process for wholesale markets; it is brought to the attention of the reader that it is envisaged to initiate work on a combined reconciliation process for retail and wholesale markets.

## **FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –**

### **Part 451-4: Settlement and reconciliation business process, contextual and assembly models for European market**

#### **1 Scope**

Based on the European style market profile (ESMP) (IEC 62325-351), this part of IEC 62325-451 specifies a package for the settlement and reconciliation business process and the associated document contextual model, assembly model 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.

This part of IEC 62325 provides a uniform layout for the transmission of aggregated data in order to settle the electricity market. It is however not the purpose of this document to define the formula to be taken into account to settle or reconcile a market. The purpose of this document is only to enable the information exchange necessary to carry out the computation of settlement and reconciliation.

The settlement process or reconciliation process is the way to compute the final position of each market participant as well as its imbalance amounts.

#### **2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 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 62325-450:2013, *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 62325-451-2, *Framework for energy market communications – Part 451-2: Scheduling business process and contextual model for CIM European market*

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