TECHNICAL REPORT

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Framework for energy market communications –

Part 102:
Energy market model example

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

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FOREWORD

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The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC 62325-102, which is a technical report, has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The IEC 62325 series cancels and replaces IEC 62195 (2000) and its amendment (2002). It constitutes a technical revision.

IEC 62195 (2000) dealt with deregulated energy market communications at an early stage. Its amendment 1 (2002) points out important technological advancements which make it possible to use modern internet technologies based on XML for e-business in energy markets as an alternative to traditional EDI with EDIFACT and X12. The new IEC 62325 framework series for energy market communications currently consisting of IEC 62325-101, IEC 62325-102, IEC 62325-501, and IEC 62325-502 follows this direction and replaces IEC 62195 together with its amendment.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
57/705/DTR	57/722/RVC

Full information on the voting for the approval of this technical report 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.

IEC 62325 consists of the following parts, under the general title *Framework for energy market communications*:

Part 101: General guidelines

Part 102: Energy market model example

Part 201: Glossary [1]

Part 3XX: (Titles are still to be determined) [2]

Part 401: Abstract service model [3]

Part 501: General guidelines for use of ebXML

Part 502: Profile of ebXML

Part 503: Abstract service mapping to ebXML [3]

Part 601: General guidelines for use of web services [3]

Part 602: Profile of Web Services [3]

Part 603: Abstract service mapping to web services [3]

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual edition of this document may be issued at a later date.

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1 Under consideration. Because the technologies have an inherent own glossary within their standard definitions, this glossary is a placeholder for a glossary for future parts indicated with [2)] including energy market specific terms and definitions.

2 Under consideration. These parts for business content are mentioned for completeness only with a number space as placeholder. They extend the original scope and require an agreed new work item proposal for further work based on an overall strategy how to proceed.

3 Under consideration. These technical parts are mentioned for completeness with provisional title. They extend the original scope and require an agreed new work item proposal for further work.

INTRODUCTION

The market model depends on the market rules of the country or region. An incomplete list may include the legal and regulatory framework, business rules, technical market rules (network access, balance management, schedule management, congestion management), identification schemas of market participants and e-business objects, metering code (service and access to metering values), grid code (operation), distribution code (operation), and load profiles (synthetic and analytical). The model has to comply with these rules and should include all market participants and transactions to allow seamless communication.

This part of IEC 62325 deals with the UMM (UN/CEFACT modelling methodology) modelling of the energy market and its result, the business and information model. The model has been derived but is not identical with those from some existing markets. It serves as an informative *example* for business processes and associated information. For the purpose of the IEC 62325 series, and for reasons of space, the model has been simplified and shortened and is by no means complete. Some descriptions and modelling parts are derived from existing technology independent market models as EDIEL (http://www.ediel.org/), ETSO (www.edi.etso-net.org/, see ETSO Scheduling System (ESS)), ERCOT (http://www.ercot.com/, see Market Guide), VDEW (http://www.strom.de/, see Choice of Supplier). An other approach would be to derive variations and extensions of an existing model from artefacts in a registry/repository and business library.

Where the UML business model workflow is almost completely described, the other workflows are complete only with focus on specific business processes within process areas such as the process planning of scheduling and to some extent the process change of supplier. For simplicity in the collaborations and transactions, only business failures are shown and technical failures and business signals (as acknowledgements on the messaging level) are omitted.

The message content is based on a energy market specific vocabulary which can be shared over messages, business areas and business domains. Note that with the planned market extension of the CIM (Common Information Model, IEC 61970-301) model of the power system, the vocabulary for system operators may be derived in future from the extended CIM acting as a knowledge based market information model. This will be treated in future parts of the IEC 62325 series.

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FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

Part 102: Energy market model example

1 Scope

This part of IEC 62325 defines a restricted (see introduction) *example* business model of the electricity market following the Open-edi reference model ISO/IEC 14662. Fundamental to the model is the division of the business transactions into the Business Operational View (BOV) and the Functional Service (FSV) with mapping of services between to ensure independence of the communication technology used.

Because energy markets vary, this model example is only informative. The main purpose of the model is to show how the modelling methodology can be applied to the energy market, and to serve as the base of technology-dependent configuration examples in other parts of the IEC 62325 series.

The model uses the UN/CEFACT modelling methodology UMM based on UML (Universal Modelling Language) for the Business Operational View, but other modeling methodologies may also be used. The modelling is done from the beginning for the whole market and its result is the “business process and information model” which can be taken as the input for the technology-dependent modelling in the design phase of systems and further for the Functional Service View. See IEC 62325-501 and future parts of the IEC 62325 series for this.

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.

2.1 Generic Open-edi standards

ISO/IEC 14662, *Information technology – Open-edi reference model*

UN/CEFACT *Modelling Methodology (UMM)*, NO90 R10 or higher

UN/CEFACT *Modelling Methodology Meta Model*, NO90 R10 or higher

NOTE Work is in progress at UN/CEFACT regarding the “content” of business information exchange for example as Core Components (UN/CEFACT - Core Components Technical Specification), Core Component Library (CCL, accessible through an registry/repository), Catalogue of Core Components (including industry groups), Common Business Processes, UMM Business Library, XML message design rules (UN/CEFACT – XML Naming and Design Rules (Draft 2004)).

The energy market specific vocabulary can be derived from Core Components or/and an energy market information model.

2.2 Sectorial Open-edi standards

Market modelling based on this implies to some extent sectorial standards. At the moment, no references are given.