

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Framework for energy market communications –
Part 451-6: Publication of information on market, contextual and assembly
models for European style market**

**Cadre pour les communications pour le marché de l'énergie –
Partie 451-6: Publication d'informations de marché, modèles contextuels et
modèles d'assemblage pour les marchés de style européen**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2016 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Framework for energy market communications –
Part 451-6: Publication of information on market, contextual and assembly
models for European style market**

**Cadre pour les communications pour le marché de l'énergie –
Partie 451-6: Publication d'informations de marché, modèles contextuels et
modèles d'assemblage pour les marchés de style européen**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 33.200

ISBN 978-2-8322-3433-4

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	10
INTRODUCTION.....	12
1 Scope.....	13
2 Normative references.....	13
3 Terms and definitions	14
4 Document contextual model and message assembly model basic concepts.....	15
4.1 Overview.....	15
4.2 European style market package structure (ESMP).....	16
4.3 From the European style market profile to the document contextual model	18
4.4 From the document contextual model to the message assembly model.....	18
4.5 From the assembly model to the XML schema	18
5 The market information publication business process	18
5.1 General.....	18
5.2 The market information aggregator role	19
5.3 Market information publication business process.....	19
5.4 The use cases.....	20
5.4.1 General overview	20
5.4.2 Provide configuration information	21
5.4.3 Provide generation and load information.....	21
5.4.4 Provide actual availability and planned unavailability information	21
5.4.5 Provide balancing information.....	21
5.4.6 Provide network transmission related information	21
5.5 Sequence diagram	21
5.6 Electronic documents used.....	22
5.6.1 Configuration_MarketDocument.....	22
5.6.2 GenerationLoad_MarketDocument.....	22
5.6.3 Outage_MarketDocument.....	23
5.6.4 Balancing_MarketDocument.....	23
5.6.5 TransmissionNetwork_MarketDocument	23
5.6.6 Publication_MarketDocument	23
5.7 Generic business rules for documents	24
5.7.1 General	24
5.7.2 Document instance implementation	24
5.7.3 Rules governing the GenerationLoad_MarketDocument	25
5.7.4 Rules governing the Outage_MarketDocument	26
5.7.5 Rules governing the Balancing_MarketDocument.....	27
5.7.6 Rules governing the TransmissionNetwork_MarketDocument.....	27
5.7.7 Rules governing the Configuration_MarketDocument	27
5.7.8 Rules governing the Publication_MarketDocument.....	27
5.7.9 Rules governing the ProblemStatement_MarketDocument	27
6 Contextual and assembly models.....	28
6.1 GenerationLoad contextual model.....	28
6.1.1 Overview of the model.....	28
6.1.2 IsBasedOn relationships from the European style market profile	28
6.1.3 Detailed GenerationLoad contextual model.....	29
6.2 GenerationLoad assembly model.....	37

6.2.1	Overview of the model.....	37
6.2.2	IsBasedOn relationships from the European style market profile	38
6.2.3	Detailed GenerationLoad assembly model	39
6.2.4	Enumerations.....	44
6.3	Outage contextual model.....	44
6.3.1	Overview of the model.....	44
6.3.2	IsBasedOn relationships from the European style market profile	45
6.3.3	Detailed Outage contextual model	46
6.4	Outage assembly model	56
6.4.1	Overview of the model.....	56
6.4.2	IsBasedOn relationships from the European style market profile	57
6.4.3	Detailed Outage assembly model	58
6.4.4	Enumerations.....	64
6.5	Balancing contextual model.....	64
6.5.1	Overview of the model.....	64
6.5.2	IsBasedOn relationships from the European style market profile	65
6.5.3	Detailed Balancing contextual model	66
6.6	Balancing assembly model	75
6.6.1	Overview of the model.....	75
6.6.2	IsBasedOn relationships from the European style market profile	75
6.6.3	Detailed Balancing assembly model.....	76
6.6.4	Enumerations.....	82
6.7	TransmissionNetwork contextual model	82
6.7.1	Overview of the model.....	82
6.7.2	IsBasedOn relationships from the European style market profile	84
6.7.3	Detailed TransmissionNetwork contextual model.....	84
6.8	TransmissionNetwork assembly model.....	93
6.8.1	Overview of the model.....	93
6.8.2	IsBasedOn relationships from the European style market profile	94
6.8.3	Detailed TransmissionNetwork assembly model.....	95
6.8.4	Enumerations.....	100
6.9	Configuration contextual model	101
6.9.1	Overview of the model.....	101
6.9.2	IsBasedOn relationships from the European style market profile	101
6.9.3	Detailed Configuration contextual model.....	102
6.10	Configuration assembly model.....	111
6.10.1	Overview of the model.....	111
6.10.2	IsBasedOn relationships from the European style market profile	112
6.10.3	Detailed Configuration assembly model	112
6.10.4	Enumerations.....	117
7	XML schema	118
7.1	XML schema URN namespace rules	118
7.2	Code list URN namespace rules	118
7.3	URI rules for model documentation	118
7.3.1	Datatype	118
7.3.2	Class	119
7.3.3	Attribute.....	119
7.3.4	Association end role name	119
7.4	GenerationLoad_MarketDocument schema	120

7.4.1	Schema structure	120
7.4.2	Schema description	122
7.5	Outage_MarketDocument schema	127
7.5.1	Schema structure	127
7.5.2	Schema description	129
7.6	Balancing_MarketDocument schema	134
7.6.1	Schema structure	134
7.6.2	Schema description	137
7.7	TransmissionNetwork_MarketDocument schema	142
7.7.1	Schema structure	142
7.7.2	Schema description	144
7.8	Configuration_MarketDocument schema	149
7.8.1	Schema structure	149
7.8.2	Schema description	151
	Bibliography	156
	Figure 1 – IEC 62325-450 modelling framework	16
	Figure 2 – Overview of European style market profile dependency	17
	Figure 3 – Market information publication process overview	20
	Figure 4 – Sequence diagram of the information flows	22
	Figure 5 – GenerationLoad contextual model	28
	Figure 6 – GenerationLoad assembly model	38
	Figure 7 – Outage contextual model	45
	Figure 8 – Outage assembly model	57
	Figure 9 – Balancing contextual model	65
	Figure 10 – Balancing assembly model	75
	Figure 11 – TransmissionNetwork contextual model	83
	Figure 12 – TransmissionNetwork assembly model	94
	Figure 13 – Configuration contextual model	101
	Figure 14 – Configuration assembly model	111
	Figure 15 – GenerationLoad_MarketDocument XML schema structure – 1/2	120
	Figure 16 – GenerationLoad_MarketDocument XML schema structure – 2/2	121
	Figure 17 – Outage_MarketDocument XML schema structure – 1/2	127
	Figure 18 – Outage_MarketDocument XML schema structure – 2/2	128
	Figure 19 – Balancing_MarketDocument XML schema structure – 1/2	135
	Figure 20 – Balancing_MarketDocument XML schema structure – 2/2	136
	Figure 21 – TransmissionNetwork_MarketDocument XML schema structure – 1/2	142
	Figure 22 – TransmissionNetwork_MarketDocument XML schema structure – 2/2	143
	Figure 23 – Configuration_MarketDocument XML schema structure – 1/2	149
	Figure 24 – Configuration_MarketDocument XML schema structure – 2/2	150
	Table 1 – Dependency table outline for the market information publication processes	24
	Table 2 – Informative example of dependency table for the TransmissionNetwork_MarketDocument	25
	Table 3 – IsBasedOn dependency	29

Table 4 – Attributes of GenerationLoad contextual model::GL_MarketDocument	30
Table 5 – Association ends of GenerationLoad contextual model:: GL_MarketDocument with other classes	30
Table 6 – Attributes of GenerationLoad contextual model::Domain	31
Table 7 – Attributes of GenerationLoad contextual model::MarketParticipant	31
Table 8 – Association ends of GenerationLoad contextual model:: MarketParticipant with other classes	31
Table 9 – Attributes of GenerationLoad contextual model::MarketRole	31
Table 10 – Attributes of GenerationLoad contextual model::Measure_Unit	32
Table 11 – Attributes of GenerationLoad contextual model::MktGeneratingUnit	32
Table 12 – Attributes of GenerationLoad contextual model::MktPSRType	32
Table 13 – Association ends of GenerationLoad contextual model:: MktPSRType with other classes	33
Table 14 – Attributes of GenerationLoad contextual model::Point	33
Table 15 – Attributes of GenerationLoad contextual model::Process	33
Table 16 – Attributes of GenerationLoad contextual model::Production_VoltageLevel	34
Table 17 – Attributes of GenerationLoad contextual model::RegisteredResource	34
Table 18 – Attributes of GenerationLoad contextual model::Series_Period	34
Table 19 – Association ends of GenerationLoad contextual model:: Series_Period with other classes	35
Table 20 – Attributes of GenerationLoad contextual model::Time_Period	35
Table 21 – Attributes of GenerationLoad contextual model::TimeSeries	36
Table 22 – Association ends of GenerationLoad contextual model:: TimeSeries with other classes	37
Table 23 – IsBasedOn dependency	39
Table 24 – Attributes of GenerationLoad assembly model::GL_MarketDocument	40
Table 25 – Association ends of GenerationLoad assembly model:: GL_MarketDocument with other classes	40
Table 26 – Attributes of GenerationLoad assembly model::MktGeneratingUnit	41
Table 27 – Attributes of GenerationLoad assembly model::MktPSRType	41
Table 28 – Association ends of GenerationLoad assembly model:: MktPSRType with other classes	41
Table 29 – Attributes of GenerationLoad assembly model::Point	42
Table 30 – Attributes of GenerationLoad assembly model::Series_Period	42
Table 31 – Association ends of GenerationLoad assembly model:: Series_Period with other classes	42
Table 32 – Attributes of GenerationLoad assembly model::TimeSeries	43
Table 33 – Association ends of GenerationLoad assembly model:: TimeSeries with other classes	44
Table 34 – IsBasedOn dependency	46
Table 35 – Attributes of Outage contextual model::Unavailability_MarketDocument	47
Table 36 – Association ends of Outage contextual model::Unavailability_MarketDocument with other classes	47
Table 37 – Attributes of Outage contextual model::Asset_MktPSRType	48
Table 38 – Attributes of Outage contextual model::Asset_RegisteredResource	48

Table 39 – Association ends of Outage contextual model:: Asset_RegisteredResource with other classes	48
Table 40 – Attributes of Outage contextual model::DateAndOrTime.....	49
Table 41 – Attributes of Outage contextual model::Domain	49
Table 42 – Attributes of Outage contextual model::Location	49
Table 43 – Attributes of Outage contextual model::MarketParticipant	49
Table 44 – Association ends of Outage contextual model:: MarketParticipant with other classes	50
Table 45 – Attributes of Outage contextual model::MarketRole.....	50
Table 46 – Attributes of Outage contextual model::Measure_Unit.....	50
Table 47 – Attributes of Outage contextual model::MktGeneratingUnit	51
Table 48 – Attributes of Outage contextual model::MktPSRType	51
Table 49 – Association ends of Outage contextual model:: MktPSRType with other classes	51
Table 50 – Attributes of Outage contextual model::Point	51
Table 51 – Attributes of Outage contextual model::Process.....	52
Table 52 – Attributes of Outage contextual model::Production_RegisteredResource	52
Table 53 – Association ends of Outage contextual model::Production_RegisteredResource with other classes	52
Table 54 – Attributes of Outage contextual model::Reason	53
Table 55 – Attributes of Outage contextual model::Series_Period	53
Table 56 – Association ends of Outage contextual model:: Series_Period with other classes	53
Table 57 – Attributes of Outage contextual model::Time_Period.....	54
Table 58 – Attributes of Outage contextual model::TimeSeries	54
Table 59 – Association ends of Outage contextual model::TimeSeries with other classes	55
Table 60 – IsBasedOn dependency	58
Table 61 – Attributes of Outage assembly model::Unavailability_MarketDocument	59
Table 62 – Association ends of Outage assembly model::Unavailability_MarketDocument with other classes	60
Table 63 – Attributes of Outage assembly model::Asset_RegisteredResource	60
Table 64 – Attributes of Outage assembly model::Point	60
Table 65 – Attributes of Outage assembly model::Reason.....	61
Table 66 – Attributes of Outage assembly model::Series_Period.....	61
Table 67 – Association ends of Outage assembly model:: Series_Period with other classes	61
Table 68 – Attributes of Outage assembly model::TimeSeries	62
Table 69 – Association ends of Outage assembly model::TimeSeries with other classes.....	64
Table 70 – IsBasedOn dependency	66
Table 71 – Attributes of Balancing contextual model::Balancing_MarketDocument	67
Table 72 – Association ends of Balancing contextual model::Balancing_MarketDocument with other classes	67
Table 73 – Attributes of Balancing contextual model::Currency_Unit	68
Table 74 – Attributes of Balancing contextual model::Domain	68
Table 75 – Attributes of Balancing contextual model::Financial_Price.....	68

Table 76 – Attributes of Balancing contextual model::FlowDirection	69
Table 77 – Attributes of Balancing contextual model::Imbalance_Price	69
Table 78 – Attributes of Balancing contextual model::MarketParticipant	69
Table 79 – Association ends of Balancing contextual model:: MarketParticipant with other classes	69
Table 80 – Attributes of Balancing contextual model::MarketRole	70
Table 81 – Attributes of Balancing contextual model::Measure_Unit	70
Table 82 – Attributes of Balancing contextual model::MktPSRType	70
Table 83 – Attributes of Balancing contextual model::Point	71
Table 84 – Association ends of Balancing contextual model::Point with other classes	71
Table 85 – Attributes of Balancing contextual model::Price	72
Table 86 – Attributes of Balancing contextual model::Process	72
Table 87 – Attributes of Balancing contextual model::Series_Period	72
Table 88 – Association ends of Balancing contextual model:: Series_Period with other classes	72
Table 89 – Attributes of Balancing contextual model::Time_Period	73
Table 90 – Attributes of Balancing contextual model::TimeSeries	73
Table 91 – Association ends of Balancing contextual model:: TimeSeries with other classes	74
Table 92 – Attributes of Balancing contextual model::Type_MarketAgreement	75
Table 93 – IsBasedOn dependency	76
Table 94 – Attributes of Balancing assembly model::Balancing_MarketDocument	77
Table 95 – Association ends of Balancing assembly model:: Balancing_MarketDocument with other classes	77
Table 96 – Attributes of Balancing assembly model::Financial_Price	78
Table 97 – Attributes of Balancing assembly model::Point	79
Table 98 – Association ends of Balancing assembly model::Point with other classes	79
Table 99 – Attributes of Balancing assembly model::Series_Period	80
Table 100 – Association ends of Balancing assembly model:: Series_Period with other classes	80
Table 101 – Attributes of Balancing assembly model::TimeSeries	81
Table 102 – Association ends of Balancing assembly model:: TimeSeries with other classes	81
Table 103 – IsBasedOn dependency	84
Table 104 – Attributes of TransmissionNetwork contextual model::TransmissionNetwork_MarketDocument	85
Table 105 – Association ends of TransmissionNetwork contextual model::TransmissionNetwork_MarketDocument with other classes	85
Table 106 – Attributes of TransmissionNetwork contextual model::Asset_RegisteredResource	86
Table 107 – Association ends of TransmissionNetwork contextual model::Asset_RegisteredResource with other classes	86
Table 108 – Attributes of TransmissionNetwork contextual model::Currency_Unit	86
Table 109 – Attributes of TransmissionNetwork contextual model::DateAndOrTime	86
Table 110 – Attributes of TransmissionNetwork contextual model::Domain	87
Table 111 – Attributes of TransmissionNetwork contextual model::FlowDirection	87

Table 112 – Attributes of TransmissionNetwork contextual model::Location.....	87
Table 113 – Attributes of TransmissionNetwork contextual model::MarketParticipant.....	88
Table 114 – Association ends of TransmissionNetwork contextual model::MarketParticipant with other classes	88
Table 115 – Attributes of TransmissionNetwork contextual model::MarketRole	88
Table 116 – Attributes of TransmissionNetwork contextual model::Measure_Unit	88
Table 117 – Attributes of TransmissionNetwork contextual model::MktPSRType.....	89
Table 118 – Attributes of TransmissionNetwork contextual model::Point.....	89
Table 119 – Association ends of TransmissionNetwork contextual model:: Point with other classes	89
Table 120 – Attributes of TransmissionNetwork contextual model::Price.....	89
Table 121 – Attributes of TransmissionNetwork contextual model::Process	90
Table 122 – Attributes of TransmissionNetwork contextual model::Reason	90
Table 123 – Attributes of TransmissionNetwork contextual model::Series_Period	90
Table 124 – Association ends of TransmissionNetwork contextual model:: Series_Period with other classes.....	91
Table 125 – Attributes of TransmissionNetwork contextual model::Time_Period	91
Table 126 – Attributes of TransmissionNetwork contextual model::TimeSeries	91
Table 127 – Association ends of TransmissionNetwork contextual model:: TimeSeries with other classes	92
Table 128 – IsBasedOn dependency	95
Table 129 – Attributes of TransmissionNetwork assembly model::TransmissionNetwork_MarketDocument.....	96
Table 130 – Association ends of TransmissionNetwork assembly model::TransmissionNetwork_MarketDocument with other classes.....	96
Table 131 – Attributes of TransmissionNetwork assembly model::Asset_RegisteredResource.....	97
Table 132 – Attributes of TransmissionNetwork assembly model::Point.....	97
Table 133 – Attributes of TransmissionNetwork assembly model::Reason	97
Table 134 – Attributes of TransmissionNetwork assembly model::Series_Period	98
Table 135 – Association ends of TransmissionNetwork assembly model:: Series_Period with other classes.....	98
Table 136 – Attributes of TransmissionNetwork assembly model::TimeSeries.....	99
Table 137 – Association ends of TransmissionNetwork assembly model:: TimeSeries with other classes	100
Table 138 – IsBasedOn dependency	102
Table 139 – Attributes of Configuration contextual model::Configuration_MarketDocument	103
Table 140 – Association ends of Configuration contextual model::Configuration_MarketDocument with other classes	103
Table 141 – Attributes of Configuration contextual model::BiddingZone_Domain	103
Table 142 – Attributes of Configuration contextual model::ControlArea_Domain	104
Table 143 – Attributes of Configuration contextual model::DateAndOrTime	104
Table 144 – Attributes of Configuration contextual model::GeneratingUnit_Location	104
Table 145 – Attributes of Configuration contextual model::GeneratingUnit_MktPSRType	105
Table 146 – Attributes of Configuration contextual model::Location	105

Table 147 – Attributes of Configuration contextual model::MarketParticipant	105
Table 148 – Association ends of Configuration contextual model:: MarketParticipant with other classes	105
Table 149 – Attributes of Configuration contextual model::MarketRole	106
Table 150 – Attributes of Configuration contextual model::MktGeneratingUnit	106
Table 151 – Association ends of Configuration contextual model:: MktGeneratingUnit with other classes	106
Table 152 – Attributes of Configuration contextual model::MktPSRType	107
Table 153 – Association ends of Configuration contextual model:: MktPSRType with other classes	107
Table 154 – Attributes of Configuration contextual model::NominalIP_MktGeneratingUnit	107
Table 155 – Attributes of Configuration contextual model::Process	108
Table 156 – Attributes of Configuration contextual model::Provider_MarketParticipant.....	108
Table 157 – Attributes of Configuration contextual model::RegisteredResource	108
Table 158 – Association ends of Configuration contextual model:: RegisteredResource with other classes	108
Table 159 – Attributes of Configuration contextual model::TimeSeries.....	109
Table 160 – Association ends of Configuration contextual model:: TimeSeries with other classes	110
Table 161 – Attributes of Configuration contextual model::VoltageLevel	111
Table 162 – IsBasedOn dependency	112
Table 163 – Attributes of Configuration assembly model::Configuration_MarketDocument	113
Table 164 – Association ends of Configuration assembly model::Configuration_MarketDocument with other classes	113
Table 165 – Attributes of Configuration assembly model::ControlArea_Domain	114
Table 166 – Attributes of Configuration assembly model::MktGeneratingUnit.....	114
Table 167 – Attributes of Configuration assembly model::MktPSRType	114
Table 168 – Association ends of Configuration assembly model:: MktPSRType with other classes	115
Table 169 – Attributes of Configuration assembly model::Provider_MarketParticipant.....	115
Table 170 – Attributes of Configuration assembly model::TimeSeries.....	116
Table 171 – Association ends of Configuration assembly model:: TimeSeries with other classes	117

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –**Part 451-6: Publication of information on market, contextual
and assembly models for European style market**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62325-451-6 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this standard is based on the following documents:

FDIS	Report on voting
57/1689/FDIS	57/1720/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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 62325 is one of the IEC 62325-451-x series for deregulated energy market data exchanges based on the European style market profile. This part of IEC 62325 defines the document contextual models, the message assembly models as well as the XML schemas to be used for the market information publication process, also called the transparency process.

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 allow these applications or systems access to public data and exchange information independent of how such information is represented internally.

The common information model (CIM), i.e. IEC 62325-301, 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 standards and specifies the content of the messages exchanged.

This part of IEC 62325 provides, for the European style market profile, the publication (or transparency) information exchanges to submit either to a data aggregator or to an electronic publication platform the necessary information to be published about the electricity market. These market processes are based on the European regulations (No. 1227/2011 and No. 543/2013), and on the concepts of third party access and zonal markets. This part of IEC 62325 was originally based upon the work of the European Network of Transmission System Operators (ENTSO-E) Working Group EDI.

FRAMEWORK FOR ENERGY MARKET COMMUNICATIONS –

Part 451-6: Publication of information on market, contextual and assembly models for European style market

1 Scope

This part of IEC 62325 specifies a UML package for the market information publication business process and its associated document contextual models, assembly models and XML schemas for use within the European style electricity markets.

This part of IEC 62325 is based on the European style market contextual model (IEC 62325-351). The business process covered by this part of IEC 62325 is described in Clause 5.

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 publication business process.

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 62325-351:2013, *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 62325-451-3, *Framework for energy market communications – Part 451-3: Transmission capacity allocation business process (explicit or implicit auction) and contextual models for European market*

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