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entso**e**

WEATHER DOCUMENT
UML MODEL AND SCHEMA

2021-06-01
APPROVED DOCUMENT
VERSION 1.0

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Copyright notice:

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Maintenance notice:

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59 **This document is maintained by the ENTSO-E CIM EG. Comments or remarks are to be**
60 **provided at cim@entsoe.eu**

Revision History

61

Version	Release	Date	Comments
1	0	2021-06-01	First draft of the document. Changes in weather document xsd v1.1: • mRIDs were extended to 60 characters. • Attribute order in series was amended to align with the rest of market documents. Now timeInterval is in first place and resolution in second place. Approved by MC.

62

63 **1   Objective**

64 The purpose of this document is to provide the contextual and assembly UML models and the
65 schema of the Weather_MarketDocument.

66 The schema of the Weather_MarketDocument could be used in various business processes.

67 It is not the purpose of this document to describe all the use cases, sequence diagrams,
68 business processes, etc. for which this schema is to be used.

69 This document shall only be referenced in an implementation guide of a specific business
70 process. The content of the business process implementation guide shall be as follows:

71 • Description of the business process;

72 • Use case of the business process;

73 • Sequence diagrams of the business process;

74 • List of the schema (XSD) to be used in the business process and versions of the
75 schema;

76 • For each schema, dependency tables providing the necessary information for the
77 generation of the XML instances, i.e. when the optional attributes are to be used, which
78 codes from which ENTSO-E codelist are to be used.

79

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80 **2   Weather_MarketDocument**

81 2.1   **Weather contextual model**

82 **2.1.1   Overview of the model**

83   Figure 1 shows the model.
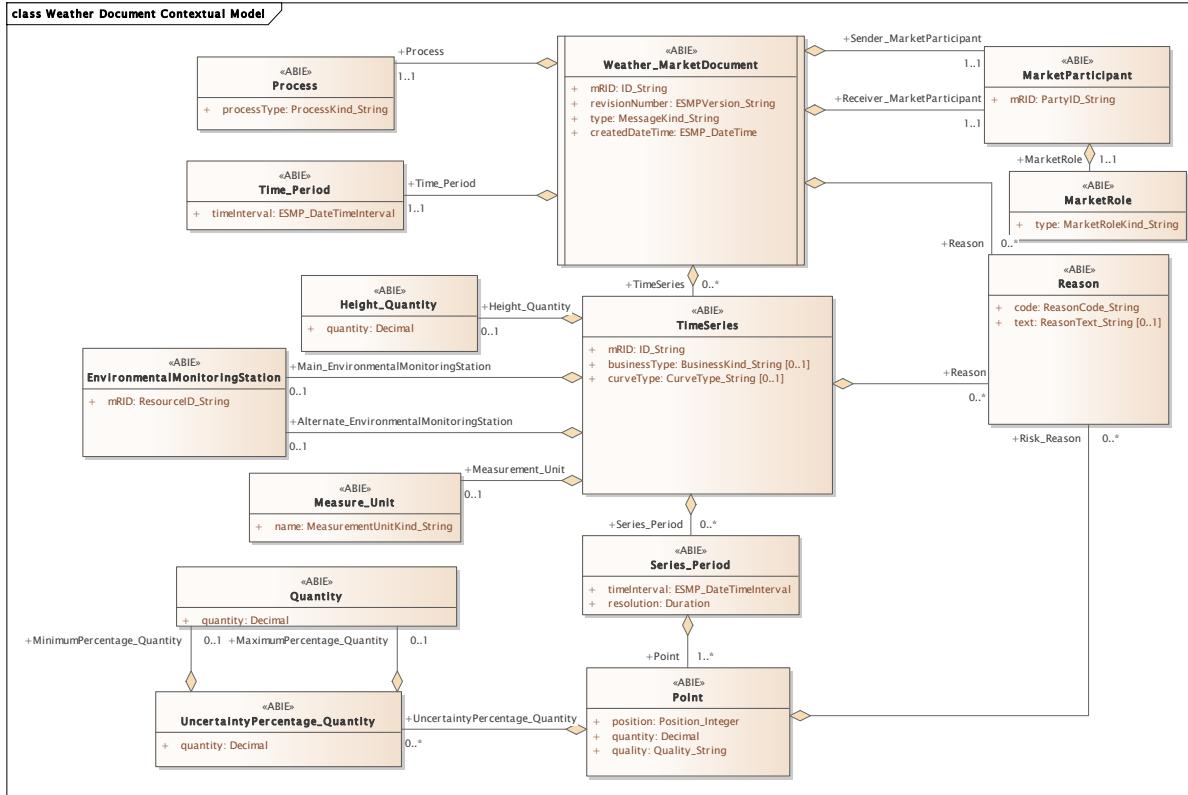
84

85   **Figure 1 - Weather contextual model**

86

87

2.1.2   IsBasedOn relationships from the European style market profile

89 Table 1 shows the traceability dependency of the classes used in this package towards the
90 upper level.

91 **Table 1 - IsBasedOn dependency**

Name	Complete IsBasedOn Path
EnvironmentalMonitoringStation	TC57CIM::IEC62325::MarketCommon::EnvironmentalMonitoringStation
Height_Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
MarketParticipant	TC57CIM::IEC62325::MarketCommon::MarketParticipant
MarketRole	TC57CIM::IEC62325::MarketCommon::MarketRole
Measure_Unit	TC57CIM::IEC62325::MarketManagement::Unit
Point	TC57CIM::IEC62325::MarketManagement::Point
Process	TC57CIM::IEC62325::MarketManagement::Process
Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
Reason	TC57CIM::IEC62325::MarketManagement::Reason
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
Time_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
UncertaintyPercentage_Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
Weather_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument

92

93

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94

95   **2.2**   **Weather assembly model**

96   **2.2.1**   **Overview of the model**

97   Figure 2 shows the model.
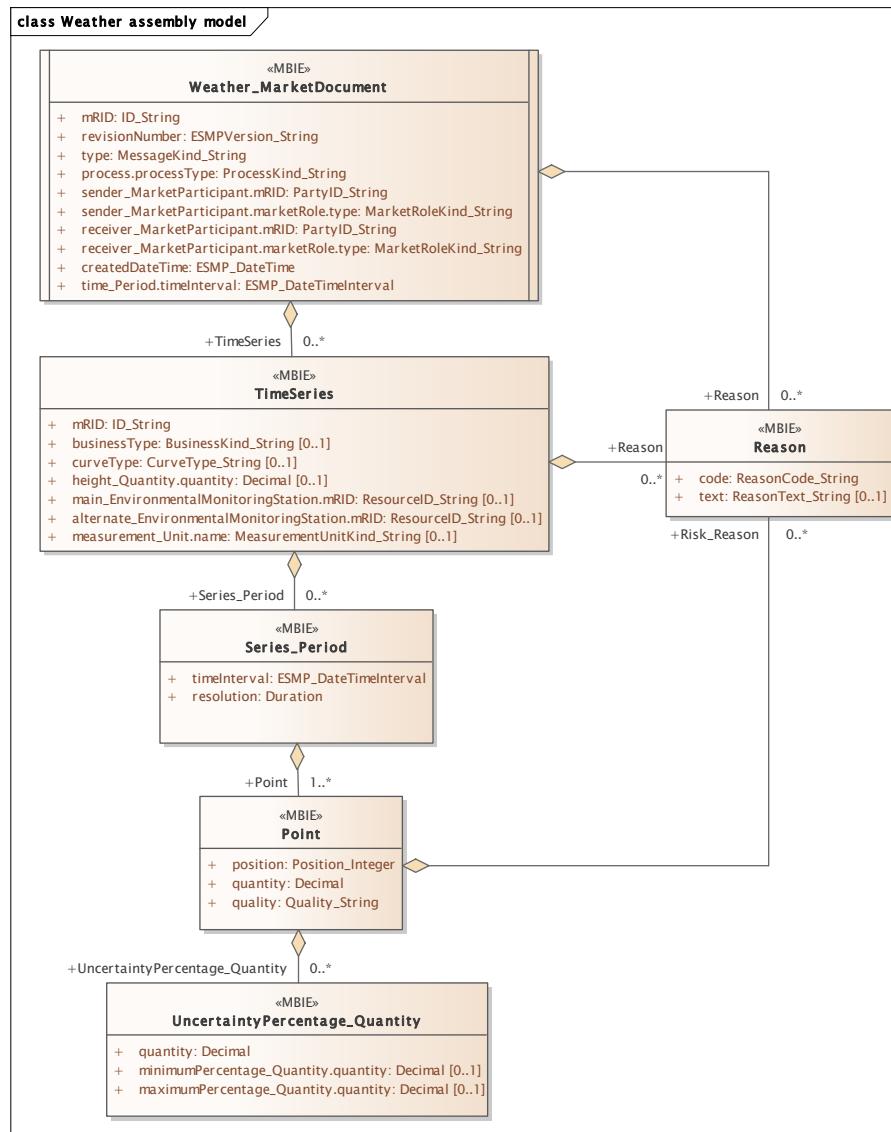
98

99   **Figure 2 - Weather assembly model**

100

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101

2.2.2 IsBasedOn relationships from the European style market profile

103 Table 2 shows the traceability dependency of the classes used in this package towards the
104 upper level.

105 **Table 2 - IsBasedOn dependency**

| Name	Complete IsBasedOn Path
Point	TC57CIM::IEC62325::MarketManagement::Point
Reason	TC57CIM::IEC62325::MarketManagement::Reason
Series_Period	TC57CIM::IEC62325::MarketManagement::Period
TimeSeries	TC57CIM::IEC62325::MarketManagement::TimeSeries
UncertaintyPercentage_Quantity	TC57CIM::IEC62325::MarketManagement::Quantity
Weather_MarketDocument	TC57CIM::IEC62325::MarketManagement::MarketDocument

106

2.2.3 Detailed Weather assembly model

2.2.3.1 Weather_MarketDocument root class

109 An electronic document containing the information necessary to satisfy the requirements of a
110 given business process.

111 Table 3 shows all attributes of Weather_MarketDocument.

112 **Table 3 - Attributes of Weather assembly model::Weather_MarketDocument**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	The unique identification of the document being exchanged within a business process flow.
1	[1..1]	revisionNumber ESMPVersion_String	The identification of the version that distinguishes one evolution of a document from another.
2	[1..1]	type MessageKind_String	The coded type of a document. The document type describes the principal characteristic of the document.
3	[1..1]	process.processType ProcessKind_String	The identification of the nature of process that the document addresses. --- The Process associated with an electronic document header that is valid for the whole document.
4	[1..1]	sender_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document owner
5	[1..1]	sender_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The document owner. --- The role associated with a MarketParticipant.
6	[1..1]	receiver_MarketParticipant.mRID PartyID_String	The identification of a party in the energy market. --- The document recipient.
7	[1..1]	receiver_MarketParticipant.marketRole.type MarketRoleKind_String	The identification of the role played by a market player. --- The document recipient. --- The role associated with a MarketParticipant.

Order	mult.	Attribute name / Attribute type	Description
8	[1..1]	createdDateTime ESMP_DateTime	The date and time of the creation of the document.
9	[1..1]	time_Period.timeInterval ESMP_DateTimeInterval	The start and end date and time for a given interval. --- The time interval that is associated with an electronic document and which is valid for the whole document.

113

114   Table 4 shows all association ends of Weather_MarketDocument with other classes.

115   **Table 4 - Association ends of Weather assembly model::Weather_MarketDocument with**
116   **other classes**

Order	mult.	Class name / Role	Description
10	[0..*]	TimeSeries TimeSeries	The time series that provides a set of weather characteristics. Association Based On: Weather contextual model::Weather_MarketDocument.[] ----- Weather contextual model::TimeSeries.TimeSeries[0..*]
11	[0..*]	Reason Reason	The Reason associated with the electronic document header providing different motivations for the creation of the document. Association Based On: Weather contextual model::Weather_MarketDocument.[] ----- Weather contextual model::Reason.Reason[0..*]

117

118   **2.2.3.2   Point**

119   The identification of the values being addressed within a specific interval of time.

120   Table 5 shows all attributes of Point.

121   **Table 5 - Attributes of Weather assembly model::Point**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	position Position_Integer	A sequential value representing the relative position within a given time interval.
1	[1..1]	quantity Decimal	The principal quantity identified for a point.
2	[1..1]	quality Quality_String	The quality of the information being provided. This quality may be estimated, not available, as provided, etc.

122

123   Table 6 shows all association ends of Point with other classes.

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124 **Table 6 - Association ends of Weather assembly model::Point with other classes**

Order	mult.	Class name / Role	Description
3	[0..*]	UncertaintyPercentage_Quantity UncertaintyPercentage_Quantity	The percentage of uncertainty of the quantity value provided. Association Based On: Weather contextual model::Point.[] ----- Weather contextual model::UncertaintyPercentage_Quantity.UncertaintyPercentage_Quantity[0..*]
4	[0..*]	Reason Risk_Reason	The risk information associated with a Point indicating the possibility of snow, ice, etc... Association Based On: Weather contextual model::Point.[] ----- Weather contextual model::Reason.Risk_Reason[0..*]

125

126 **2.2.3.3 Reason**

127 The motivation of an act.

128 Table 7 shows all attributes of Reason.

129 **Table 7 - Attributes of Weather assembly model::Reason**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	code ReasonCode_String	The motivation of an act in coded form.
1	[0..1]	text ReasonText_String	The textual explanation corresponding to the reason code.

130

131 **2.2.3.4 Series_Period**

132 The identification of the period of time corresponding to a given time interval and resolution.

133 Table 8 shows all attributes of Series_Period.

134 **Table 8 - Attributes of Weather assembly model::Series_Period**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	timeInterval ESMP_DateTimeInterval	The start and end time of the period.
1	[1..1]	resolution Duration	The definition of the number of units of time that compose an individual step within a period.

135

136 Table 9 shows all association ends of Series_Period with other classes.

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137 **Table 9 - Association ends of Weather assembly model::Series_Period with other**
138 **classes**

Order	mult.	Class name / Role	Description
2	[1..*]	Point Point	The Point information associated with a given Series_Period.within a TimeSeries. Association Based On: Weather contextual model::Series_Period.[] ----- Weather contextual model::Point.Point[1..*]

139

2.2.3.5 TimeSeries

141 A set of time-ordered quantities being exchanged.

142 Table 10 shows all attributes of TimeSeries.

143 **Table 10 - Attributes of Weather assembly model::TimeSeries**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	mRID ID_String	A unique identification of the time series.
1	[0..1]	businessType BusinessKind_String	The identification of the nature of the time series.
2	[0..1]	curveType CurveType_String	The identification of the coded representation of the type of curve being described.
3	[0..1]	height_Quantity.quantity Decimal	The quantity value. --- The height where the windspeed is calculated.
4	[0..1]	main_EnvironmentalMonitoringStation.mRID ResourceID_String	The unique identification of an environmental monitoring station. --- The main weather station within a TimeSeries.
5	[0..1]	alternate_EnvironmentalMonitoringStation.mRID ResourceID_String	The unique identification of an environmental monitoring station. --- The backupweather station within a TimeSeries.
6	[0..1]	measurement_Unit.name MeasurementUnitKind_String	The identification of the formal code for a measurement unit (UN/ECE Recommendation 20). --- The unit of measure associated with the quantities in a TimeSeries.

144

145 Table 11 shows all association ends of TimeSeries with other classes.

146 **Table 11 - Association ends of Weather assembly model::TimeSeries with other classes**

Order	mult.	Class name / Role	Description
7	[0..*]	Series_Period Series_Period	The time interval and resolution for a period associated with a TimeSeries. Association Based On: Weather contextual model::TimeSeries.[] ----- Weather contextual model::Series_Period.Series_Period[0..*]

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Order	mult.	Class name / Role	Description
8	[0..*]	Reason Reason	The reason information associated with a TimeSeries providing motivation information. Association Based On: Weather contextual model::TimeSeries.[] ----- Weather contextual model::Reason.Reason[0..*]

147

148   2.2.3.6   UncertaintyPercentage_Quantity

149   The quantity attribute provides the information relative to the percentage related to the level of
150   uncertainty of the related quantity.

151   Table 12 shows all attributes of UncertaintyPercentage_Quantity.

152   **Table 12 - Attributes of Weather assembly model::UncertaintyPercentage_Quantity**

Order	mult.	Attribute name / Attribute type	Description
0	[1..1]	quantity Decimal	The quantity value.
1	[0..1]	minimumPercentage_Quantity.quantity Decimal	The quantity value. --- The minimum uncertainty percentage.
2	[0..1]	maximumPercentage_Quantity.quantity Decimal	The quantity value. --- The maximum uncertainty percentage

153

154   2.2.4   Datatypes

155   The list of datatypes used for the Weather assembly model is as follows:

156   • ESMP_DateTimeInterval compound

157   • BusinessKind_String datatype, codelist BusinessTypeList

158   • CurveType_String datatype, codelist CurveTypeList

159   • ESMP_DateTime datatype

160   • ESMPVersion_String datatype

161   • ID_String datatype

162   • MarketRoleKind_String datatype, codelist RoleTypeList

163   • MeasurementUnitKind_String datatype, codelist UnitOfMeasureTypeList

164   • MessageKind_String datatype, codelist MessageTypeList

165   • PartyID_String datatype, codelist CodingSchemeTypeList

166   • Position_Integer datatype

167   • ProcessKind_String datatype, codelist ProcessTypeList

168   • Quality_String datatype, codelist QualityTypeList

169   • ReasonCode_String datatype, codelist ReasonCodeTypeList

170   • ReasonText_String datatype

171   • ResourceID_String datatype, codelist CodingSchemeTypeList

172 • YMDHM_DateTime datatype

173

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174   **2.2.5   Weather_MarketDocument XML schema structure**
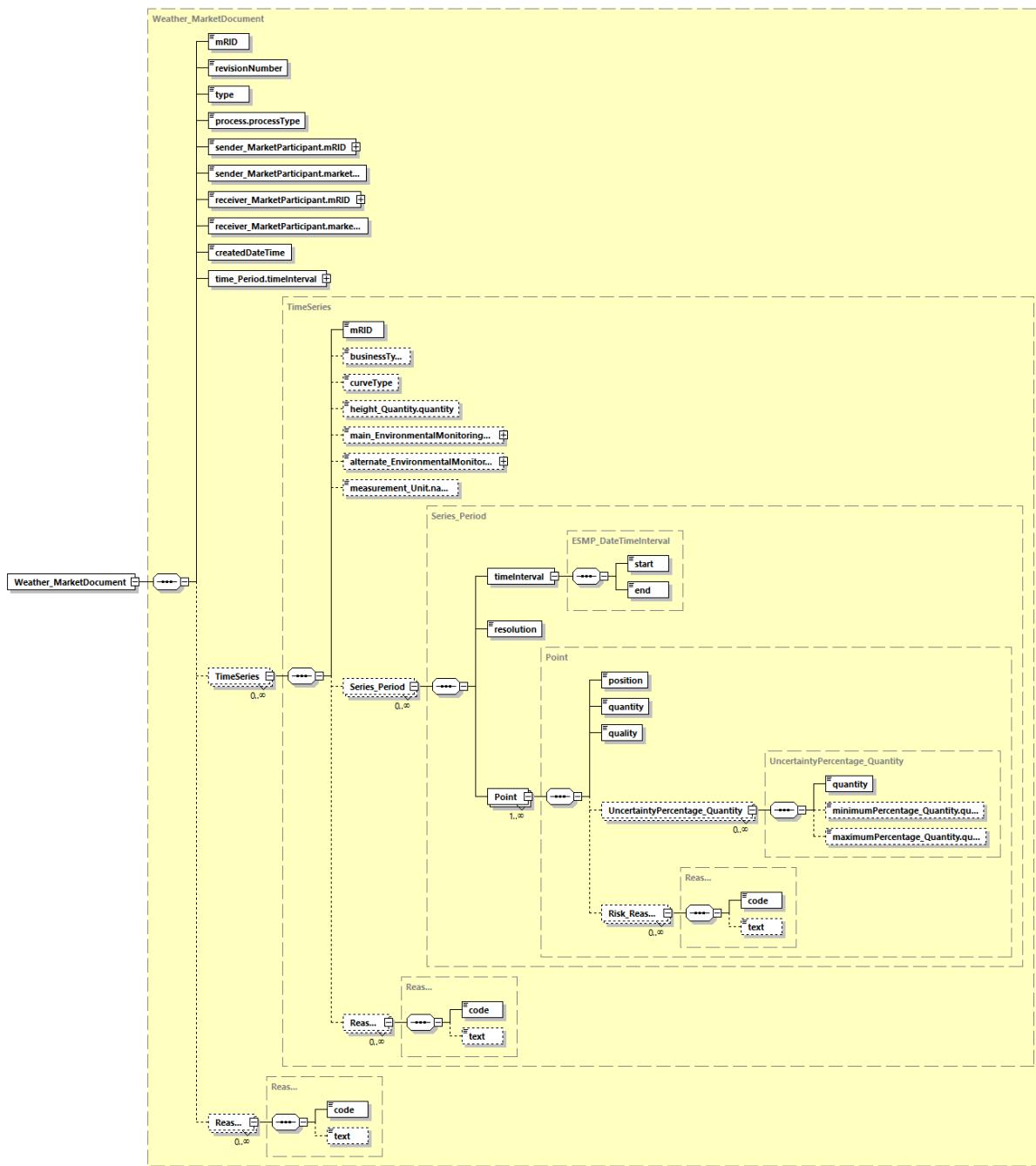
175
176   **Figure 3 - Weather_MarketDocument schema structure**

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177 **2.2.6   Weather_MarketDocument XML schema**

178

179   The schema to be used to validate XML instances is to be identified by:

180   urn:iec62325.351:tc57wg16:451-n:weatherdocument:1:1

181

```xml
182 <?xml version="1.0" encoding="utf-8"?>
183 <xs:schema xmlns:ecl="urn:entsoe.eu:wgedi:codelists"
184 xmlns="urn:iec62325.351:tc57wg16:451-n:weatherdocument:1:1"
185 xmlns:sawsdl="http://www.w3.org/ns/sawsdl"
186 xmlns:cimp="http://www.iec.ch/cimprofile"
187 xmlns:xs="http://www.w3.org/2001/XMLSchema"
188 targetNamespace="urn:iec62325.351:tc57wg16:451-n:weatherdocument:1:1"
189 elementFormDefault="qualified" attributeFormDefault="unqualified">
190        <xs:import namespace="urn:entsoe:eu:wgedi:codelists" schemaLocation="urn-
191 entsoe-eu-wgedi-codelists.xsd"/>
192        <xs:element name="Weather_MarketDocument" type="Weather_MarketDocument"/>
193        <xs:simpleType name="Position_Integer"
194 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Integer">
195              <xs:restriction base="xs:integer">
196                      <xs:maxInclusive value="999999"/>
197                      <xs:minInclusive value="1"/>
198              </xs:restriction>
199        </xs:simpleType>
200        <xs:simpleType name="Quality_String"
201 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
202              <xs:restriction base="ecl:QualityTypeList"/>
203        </xs:simpleType>
204        <xs:complexType name="Point"
205 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Point">
206              <xs:sequence>
207                      <xs:element name="position" type="Position_Integer"
208 minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
209 schema-cim16#Point.position"/>
210                      <xs:element name="quantity" type="xs:decimal" minOccurs="1"
211 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
212 cim16#Point.quantity"/>
213                      <xs:element name="quality" type="Quality_String" minOccurs="1"
214 maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
215 cim16#Point.quality"/>
216                      <xs:element name="UncertaintyPercentage_Quantity"
217 type="UncertaintyPercentage_Quantity" minOccurs="0" maxOccurs="unbounded"
218 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
219 cim16#Point.UncertaintyPercentage_Quantity"/>
220                      <xs:element name="Risk_Reason" type="Reason" minOccurs="0"
221 maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
222 cim16#Point.Risk_Reason"/>
223              </xs:sequence>
224        </xs:complexType>
225        <xs:simpleType name="ReasonCode_String"
226 sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
227              <xs:restriction base="ecl:ReasonCodeTypeList"/>
228        </xs:simpleType>
```

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```
229        <xs:simpleType name="ReasonText_String"
230    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
231            <xs:restriction base="xs:string">
232                <xs:maxLength value="512"/>
233            </xs:restriction>
234        </xs:simpleType>
235        <xs:complexType name="Reason"
236    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Reason">
237            <xs:sequence>
238                <xs:element name="code" type="ReasonCode_String" minOccurs="1"
239    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
240    cim16#Reason.code"/>
241                <xs:element name="text" type="ReasonText_String" minOccurs="0"
242    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
243    cim16#Reason.text"/>
244            </xs:sequence>
245        </xs:complexType>
246        <xs:simpleType name="YMDHM_DateTime"
247    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
248            <xs:restriction base="xs:string">
249                <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
250    9]|[12][0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
251    9]|30))T(([01][0-9]|2[0-3]):[0-5][0-
252    9])Z)|((([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
253    48]|[02468][048][02468][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[
254    0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T(([01][0-9]|2[0-3]):[0-
255    5][0-
256    9])Z)|(([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
257    9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
258    8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
259    9]|2[0-8])T(([01][0-9]|2[0-3]):[0-5][0-9])Z)"/>
260            </xs:restriction>
261        </xs:simpleType>
262        <xs:complexType name="ESMP_DateTimeInterval"
263    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTimeInterval">
264            <xs:sequence>
265                <xs:element name="start" type="YMDHM_DateTime" minOccurs="1"
266    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
267    cim16#DateTimeInterval.start"/>
268                <xs:element name="end" type="YMDHM_DateTime" minOccurs="1"
269    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
270    cim16#DateTimeInterval.end"/>
271            </xs:sequence>
272        </xs:complexType>
273        <xs:complexType name="Series_Period"
274    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Period">
275            <xs:sequence>
276                <xs:element name="timeInterval" type="ESMP_DateTimeInterval"
277    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
278    schema-cim16#Period.timeInterval"/>
279                <xs:element name="resolution" type="xs:duration" minOccurs="1"
280    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
281    cim16#Period.resolution"/>
282                <xs:element name="Point" type="Point" minOccurs="1"
283    maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
284    cim16#Period.Point"/>
```

```
285                </xs:sequence>
286            </xs:complexType>
287            <xs:simpleType name="ID_String"
288    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
289                <xs:restriction base="xs:string">
290                    <xs:maxLength value="60"/>
291                </xs:restriction>
292            </xs:simpleType>
293            <xs:simpleType name="BusinessKind_String"
294    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
295                <xs:restriction base="ecl:BusinessTypeList"/>
296            </xs:simpleType>
297            <xs:simpleType name="CurveType_String"
298    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
299                <xs:restriction base="ecl:CurveTypeList"/>
300            </xs:simpleType>
301            <xs:simpleType name="ResourceID_String-base"
302    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
303                <xs:restriction base="xs:string">
304                    <xs:maxLength value="60"/>
305                </xs:restriction>
306            </xs:simpleType>
307            <xs:complexType name="ResourceID_String"
308    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
309                <xs:simpleContent>
310                    <xs:extension base="ResourceID_String-base">
311                        <xs:attribute name="codingScheme"
312    type="ecl:CodingSchemeTypeList" use="required"/>
313                    </xs:extension>
314                </xs:simpleContent>
315            </xs:complexType>
316            <xs:simpleType name="MeasurementUnitKind_String"
317    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
318                <xs:restriction base="ecl:UnitOfMeasureTypeList"/>
319            </xs:simpleType>
320            <xs:complexType name="TimeSeries"
321    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#TimeSeries">
322                <xs:sequence>
323                    <xs:element name="mRID" type="ID_String" minOccurs="1"
324    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
325    cim16#IdentifiedObject.mRID"/>
326                    <xs:element name="businessType" type="BusinessKind_String"
327    minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
328    schema-cim16#TimeSeries.businessType"/>
329                    <xs:element name="curveType" type="CurveType_String"
330    minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
331    schema-cim16#TimeSeries.curveType"/>
332                    <xs:element name="height_Quantity.quantity" type="xs:decimal"
333    minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
334    schema-cim16#Quantity.quantity"/>
335                    <xs:element name="main_EnvironmentalMonitoringStation.mRID"
336    type="ResourceID_String" minOccurs="0" maxOccurs="1"
337    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
338    cim16#IdentifiedObject.mRID"/>
339                    <xs:element
340    name="alternate_EnvironmentalMonitoringStation.mRID" type="ResourceID_String"
```

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```
341    minOccurs="0" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
342    schema-cim16#IdentifiedObject.mRID"/>
343                        <xs:element name="measurement_Unit.name"
344    type="MeasurementUnitKind_String" minOccurs="0" maxOccurs="1"
345    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Unit.name"/>
346                        <xs:element name="Series_Period" type="Series_Period"
347    minOccurs="0" maxOccurs="unbounded"
348    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
349    cim16#TimeSeries.Series_Period"/>
350                        <xs:element name="Reason" type="Reason" minOccurs="0"
351    maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
352    cim16#TimeSeries.Reason"/>
353                </xs:sequence>
354        </xs:complexType>
355        <xs:complexType name="UncertaintyPercentage_Quantity"
356    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#Quantity">
357                <xs:sequence>
358                        <xs:element name="quantity" type="xs:decimal" minOccurs="1"
359    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
360    cim16#Quantity.quantity"/>
361                        <xs:element name="minimumPercentage_Quantity.quantity"
362    type="xs:decimal" minOccurs="0" maxOccurs="1"
363    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
364    cim16#Quantity.quantity"/>
365                        <xs:element name="maximumPercentage_Quantity.quantity"
366    type="xs:decimal" minOccurs="0" maxOccurs="1"
367    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
368    cim16#Quantity.quantity"/>
369                </xs:sequence>
370        </xs:complexType>
371        <xs:simpleType name="ESMPVersion_String"
372    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
373                <xs:restriction base="xs:string">
374                        <xs:pattern value="[1-9]([0-9]){0,2}"/>
375                </xs:restriction>
376        </xs:simpleType>
377        <xs:simpleType name="MessageKind_String"
378    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
379                <xs:restriction base="ecl:MessageTypeList"/>
380        </xs:simpleType>
381        <xs:simpleType name="ProcessKind_String"
382    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
383                <xs:restriction base="ecl:ProcessTypeList"/>
384        </xs:simpleType>
385        <xs:simpleType name="PartyID_String-base"
386    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
387                <xs:restriction base="xs:string">
388                        <xs:maxLength value="16"/>
389                </xs:restriction>
390        </xs:simpleType>
391        <xs:complexType name="PartyID_String"
392    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
393                <xs:simpleContent>
394                        <xs:extension base="PartyID_String-base">
395                                <xs:attribute name="codingScheme"
396    type="ecl:CodingSchemeTypeList" use="required"/>
```

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397                    </xs:extension>
398                </xs:simpleContent>
399        </xs:complexType>
400        <xs:simpleType name="MarketRoleKind_String"
401    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#String">
402                <xs:restriction base="ecl:RoleTypeList"/>
403        </xs:simpleType>
404        <xs:simpleType name="ESMP_DateTime"
405    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#DateTime">
406                <xs:restriction base="xs:dateTime">
407                    <xs:pattern value="((([0-9]{4})[\-](0[13578]|1[02])[\-](0[1-
408    9]|[12][0-9]|3[01])|([0-9]{4})[\-]((0[469])|(11))[\-](0[1-9]|[12][0-
409    9]|30))T(([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-
410    9])Z)|((([13579][26][02468][048]|[13579][01345789](0)[48]|[13579][01345789][2468][0
411    48]|[02468][048][02468][048]|[02468][1235679](0)[48]|[02468][1235679][2468][048]|[
412    0-9][0-9][13579][26])[\-](02)[\-](0[1-9]|1[0-9]|2[0-9])T(([01][0-9]|2[0-3]):[0-
413    5][0-9]:[0-5][0-
414    9])Z)|(([13579][26][02468][1235679]|[13579][01345789](0)[01235679]|[13579][0134578
415    9][2468][1235679]|[02468][048][02468][1235679]|[02468][1235679](0)[01235679]|[0246
416    8][1235679][2468][1235679]|[0-9][0-9][13579][01345789])[\-](02)[\-](0[1-9]|1[0-
417    9]|2[0-8])T(([01][0-9]|2[0-3]):[0-5][0-9]:[0-5][0-9])Z)"/>
418                </xs:restriction>
419        </xs:simpleType>
420        <xs:complexType name="Weather_MarketDocument"
421    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketDocument">
422                <xs:sequence>
423                    <xs:element name="mRID" type="ID_String" minOccurs="1"
424    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
425    cim16#IdentifiedObject.mRID"/>
426                    <xs:element name="revisionNumber" type="ESMPVersion_String"
427    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
428    schema-cim16#Document.revisionNumber"/>
429                    <xs:element name="type" type="MessageKind_String" minOccurs="1"
430    maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
431    cim16#Document.type"/>
432                    <xs:element name="process.processType"
433    type="ProcessKind_String" minOccurs="1" maxOccurs="1"
434    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
435    cim16#Process.processType"/>
436                    <xs:element name="sender_MarketParticipant.mRID"
437    type="PartyID_String" minOccurs="1" maxOccurs="1"
438    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
439    cim16#IdentifiedObject.mRID"/>
440                    <xs:element name="sender_MarketParticipant.marketRole.type"
441    type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
442    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
443                    <xs:element name="receiver_MarketParticipant.mRID"
444    type="PartyID_String" minOccurs="1" maxOccurs="1"
445    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
446    cim16#IdentifiedObject.mRID"/>
447                    <xs:element name="receiver_MarketParticipant.marketRole.type"
448    type="MarketRoleKind_String" minOccurs="1" maxOccurs="1"
449    sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-cim16#MarketRole.type"/>
450                    <xs:element name="createdDateTime" type="ESMP_DateTime"
451    minOccurs="1" maxOccurs="1" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-
452    schema-cim16#Document.createdDateTime"/>
```

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453                         <xs:element name="time_Period.timeInterval"
454     type="ESMP_DateTimeInterval" minOccurs="1" maxOccurs="1"
455     sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
456     cim16#Period.timeInterval"/>
457                         <xs:element name="TimeSeries" type="TimeSeries" minOccurs="0"
458     maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
459     cim16#MarketDocument.TimeSeries"/>
460                         <xs:element name="Reason" type="Reason" minOccurs="0"
461     maxOccurs="unbounded" sawsdl:modelReference="http://iec.ch/TC57/2013/CIM-schema-
462     cim16#MarketDocument.Reason"/>
463                 </xs:sequence>
464         </xs:complexType>
465     </xs:schema>
466
```