

1 **OPENADE 1.0 SERVICE DEFINITION - COMMON**

2 *VERSION: DRAFT V0.96*

3 Release Date: 7/28/2010

UCAIug OpenSG OpenADE Task Force
OpenADE 1.0 Service Definition - **Common**

1 **Acknowledgements**

2 The following individuals and their companies have contributed and/or provided support to the work of
3 the OpenADE 1.0 Service Definition - Common:

- 4 • Chad Maglaque from Microsoft
- 5 • Charles Spirakis from Google
- 6 • Dave Mollerstuen from Tendril Networks
- 7 • Debbie Tillman from SCE
- 8 • Gerald Gray from CIMple Integrations
- 9 • Jeffrey Kenward from DTE Energy
- 10 • Jeremy McDonald from SCE
- 11 • Mark Ortiz from Consumers Energy
- 12 • Mamta Shetty from SCE
- 13 • Shawn Hu from Xtensible Solutions / SCE
- 14 • Steve Van Ausdall from Xtensible Solutions / SCE
- 15 • Wayne Dennison from Xtensible Solutions / SCE

16 The OpenADE Task Force wishes to thank all of the contributors to OpenADE, especially the above-
17 mentioned individuals and their companies for their support of this important endeavor, as it sets a key
18 foundation for an interoperable Smart Grid.

19

UCAIug OpenSG OpenADE Task Force
OpenADE 1.0 Service Definition - **Common**

20 **Document History**

21 **Revision History**

22 Date of this revision: July. 28, 2010

Revision Number	Revision Date	Revision By	Summary of Changes	Changes marked
0.5	2/25/10	Steve Van Ausdall	Initial draft discussion version.	N
0.6	3/1/10	Steve Van Ausdall	Additional details about defined resources	N
0.8	4/8/10	Steve Van Ausdall	Simplified, following approved plan	N
0.9	4/15/10	Steve Van Ausdall	Addressed comments raised in walkthrough and from Jeff Kenward.	N
0.92	4/22/10	Steve Van Ausdall	Additional changes from SD team	Y
0.93	6/17/10	Wayne Dennison Steve Van Ausdall	Additional Cleanup and Updates from F2F meeting and Review, new schema structure from PAP10	Y
0.94	7/13/10	Wayne Dennison	Updated Schema and streamlined service operation documentation.	N
0.96	7/28/10	Steve Van Ausdall	Updated from Detroit meeting and subsequent feedback and alignment with SEP2 and PAP10	N

23 **Open Issues Log**

24 Last updated: July. 13, 2010

Issue	Issue Date	Provided By	Summary of the Issue

25

Contents

26			
27	1	Introduction	6
28	1.1	Rights / Management / Governance	6
29	1.1.1	Intellectual Property Rights	6
30	1.1.2	CIM Object Models	6
31	1.1.3	Service Resource Definitions	7
32	1.2	Referenced Specifications	7
33	1.3	Referenced Guidance	7
34	1.4	Namespaces	7
35	2	Resources	7
36	2.1	Security	8
37	2.1.1	Authentication	8
38	2.1.2	Authorization	8
39	2.2	Message document format	8
40	2.3	Payload entities	8
41	2.3.1	Usage File Format	9
42	3	Discovery	11
43	4	Metadata	11
44	5	Versioning	11
45	6	Extensibility	11
46	7	Concurrency	11
47	8	Service Resource Definitions	11
48	8.1	Energy Usage Information	11
49	8.1.1	CustomerAgreement	12
50	8.1.2	CustomerAuthorisation	12
51	8.1.3	DateTimeInterval	12
52	8.1.4	Direction «enumeration»	12
53	8.1.5	EnergyUsageInformation	12
54	8.1.6	IntervalReading	13
55	8.1.7	MeterAsset	13
56	8.1.8	MeterReading	13
57	8.1.9	ReadingKind «enumeration»	13
58	8.1.10	ReadingQuality	13
59	8.1.11	ReadingType	13
60	8.1.12	ServiceCategory	14
61	8.1.13	ServiceDeliveryPoint	14

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

62	8.1.14	ServiceKind «enumeration»	14
63	8.1.15	ServiceSupplier	14
64	8.1.16	SupplierKind «enumeration»	15
65	8.1.17	UnitMultiplier «enumeration»	15
66	8.1.18	UnitSymbol «enumeration»	15
67	8.1.19	Customer	15
68	8.2	Physical Schema Diagrams	15
69	9	Appendix A	18
70	9.1	Consumption XSD and Example	18
71	10	Appendix B	18
72	10.1	SUBSEQUENT ASSOCIATED REFERENCE DOCUMENTATION	18

73

74

75

List of Figures

76	Figure 1: Batch Payload Logical UML Data Model Diagram.....	9
77	Figure 2: OpenADE Schema – Overview	16
78	Figure 4: OpenADE Schema – Expanded 2.....	17

79

80

81

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

82

83 1 INTRODUCTION

84 Access to energy management resources is of paramount interest to consumers and Smart Grid service providers.
85 In order to provide access to customer data, energy service providers and 3rd Party consumers can use this best
86 practice recommendation in order to develop early implementations. As the standards development organizations
87 recommend alterations, stakeholders will decide how to handle these changes.

88 OpenADE represents the internet data service provided by energy service providers (Utilities). It is the goal of
89 OpenSG to promote interoperability by providing an easy to use, simple set of commonly available technologies.
90 Toward this goal, our direction is to define XML formats for payload data which can be used with; A resource-
91 oriented architecture or service-oriented architecture.

92 This document is focused on the common payload definition. For information on service operations, refer to
93 Appendix B.

94 1.1 RIGHTS / MANAGEMENT / GOVERNANCE

95 1.1.1 Intellectual Property Rights

96 This document and the information contained herein is provided on an "AS IS" basis. UCAIug DISCLAIMS ALL
97 WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE
98 INFORMATION HEREIN WILL NOT INFRINGE ANY OWNERSHIP RIGHTS OR ANY IMPLIED WARRANTIES OF
99 MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

100 UCAIug requests any party that believes it has a patent claim that would necessarily be infringed by
101 implementations of this UCAIug work, to notify UCAIug immediately, so that fair and reasonable licensing terms
102 can be negotiated. UCAIug invites any party aware of applicable undisclosed patent claims to contact the UCAIug.
103 UCAIug may include such claims on its website, but disclaims any obligation to do so.

104 UCAIug takes no position regarding the validity or scope of any intellectual property or other rights that might be
105 claimed to pertain to the implementation or use of the technology described in this document or the extent to
106 which any license under such rights might or might not be available; neither does it represent that it has made any
107 effort to identify any such rights. Copies of claims of rights made available for publication and any assurances of
108 licenses to be made available, or the result of an attempt made to obtain a general license or permission for the
109 use of such proprietary rights by implementers or users of this UCAIug recommendation, can be obtained from the
110 UCAIug. UCAIug makes no representation that any information or list of intellectual property rights will at any time
111 be complete, or that any claims in such list are, in fact, Essential Claims.

112 1.1.2 CIM Object Models

113 Information on the management of rights and governance for IEC can be found at the page below.

114 <http://www.iec.ch/tctools/patent-guidelines.htm>

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

115 The recommendations herein build on work owned by the IEC. Required extensions identified in this
116 recommendation will be submitted to the IEC, and will be tracked for inclusion in the model.

1.1.3 Service Resource Definitions

118 If necessary, UCAIug is willing to work with standards development organizations to incorporate additional aspects
119 of this recommendation into a standard, including the specification of how to use profiled (restricted) CIM objects
120 within different environments, and possibly the information object definitions themselves.

1.2 REFERENCED SPECIFICATIONS

- 121 • [1] OpenADE B&UR 1.0 -
122 [http://osgug.ucaiug.org/sgsystems/OpenADE/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%](http://osgug.ucaiug.org/sgsystems/OpenADE/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fsgsystems%2fOpenADE%2fShared%20Documents%2fBusiness%20and%20User%20Requirements)
123 [2fsgsystems%2fOpenADE%2fShared%20Documents%2fBusiness%20and%20User%20Requirements](http://osgug.ucaiug.org/sgsystems/OpenADE/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fsgsystems%2fOpenADE%2fShared%20Documents%2fBusiness%20and%20User%20Requirements)
124
- 125 • [2] OpenADE SRS 1.0 -
126 [http://osgug.ucaiug.org/sgsystems/OpenADE/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%](http://osgug.ucaiug.org/sgsystems/OpenADE/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fsgsystems%2fOpenADE%2fShared%20Documents%2fSRS)
127 [2fsgsystems%2fOpenADE%2fShared%20Documents%2fSRS](http://osgug.ucaiug.org/sgsystems/OpenADE/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2fsgsystems%2fOpenADE%2fShared%20Documents%2fSRS)
128
- 128 • [3] IEC CIM (TC 57 61968/61970) - <http://tc57.iec.ch>
- 129 • [4] IEC TC57 WG14 61968-1-2 – Profile for use of CIM with WS-I Basic Profile
130

1.3 REFERENCED GUIDANCE

- 131 • [G1] 3PDA – Security Profile for Third Party Data Access (ASAP-SG)
132 [http://osgug.ucaiug.org/utilisec/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2futilisec%2f](http://osgug.ucaiug.org/utilisec/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2futilisec%2fShared%20Documents%2fThird%20Party%20Data%20Access%20Security%20Profile)
133 [hared%20Documents%2fThird%20Party%20Data%20Access%20Security%20Profile](http://osgug.ucaiug.org/utilisec/Shared%20Documents/Forms/AllItems.aspx?RootFolder=%2futilisec%2fShared%20Documents%2fThird%20Party%20Data%20Access%20Security%20Profile)
134

1.4 NAMESPACES

135 The subject of namespaces is important, because the namespace identifies the domain managing the definitions of
136 protocol resources and formats. OpenSG proposes to use the format below for the namespace.

137 `http://osgug.ucaiug.org/ns/2010/06/oade`

138 Extensions to the schema that are backwards and forwards compatible will not change the namespace, but will
139 include a version number inside the definition.
140

2 RESOURCES

141 Some of the design decisions are being driven by the desire to provide an interface for the available data objects.
142 For Example; objects could be exposed as resources and have operations which specify URL's and Object ID's
143 (though they may not be required). Note: Alignment with the ZigBee Alliance Smart Energy Profile 2.0 is of interest,
144 along with other related industry efforts, as documented in NAESB PAP10 recommendations.
145

146 Since this document is the first to define the general-purpose conventions, several resources were identified
147 allowing consumers access to the resources they want. However, this document is not intended to provide details
148 of all resources and service operations, but the currently identified resources are available in Appendix B for

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

149 reference. The following “data” objects are currently in scope, as defined in [1] OADE-B&UR and [2] OADE-SRS.
150 They will be delivered via client services in a set of (chunked) batch XML files.

- 151 • **MeterReading** – Represents a collection of readings associated with a specific user key and meter point
 - 152 ○ **IntervalReading** – A durational measurement
 - 153 ○ **Reading** – An instantaneous measurement (future)
- 154 • **ReadingType** – Represents a type of reading (e.g. hourly kWh) used by a MeterReading
- 155 • **ServiceSupplier** – The supplier of utility service
- 156 • **CustomerAgreement** – Represents the agreement for service at a location
- 157 • **Customer** – The identifier for the customer associated with the data
- 158 • **CustomerAuthorisation** – Represents the agreement to share data with the ^{3rd} Party
- 159 • **ServiceDeliveryPoint** – The logical point at which the readings were obtained
- 160 • **MeterAsset** – The physical measurement device that captured the readings

161

162 2.1 SECURITY

163 Because these services define resources that could be used to cause damage, access must be restricted to only
164 those data objects that have been authorized. Security guidance is specified in [G1] 3PDA.

165 2.1.1 Authentication

166 Authentication is a process through which an identity is proven. Users may have an identity at each domain
167 involved in sharing their data, or they may use a federated identity managed at a separate domain. These
168 identities are associated at each domain with specific authorizations. OpenADE does not require a specific method
169 for authentication, but does require an authentication method which provides a reliable, secure way for customers
170 to protect access to their information.

171 2.1.2 Authorization

172 Authorization is the process of requesting and granting access to protected user resources. OpenADE shall allow
173 for the creation and management of user access details. Consumer Request Parameters are addressed in
174 subsequent documentation, please refer to Appendix B for additional information.

175 2.2 MESSAGE DOCUMENT FORMAT

176 “Message document” refers to the type of XML returned by resource requests. This initial release of OpenADE uses
177 CIM-based XML, according to the schema provided.

178 2.3 PAYLOAD ENTITIES

179 Payload entities will conform to the message document schema. They will contain an XML representation of CIM
180 classes.

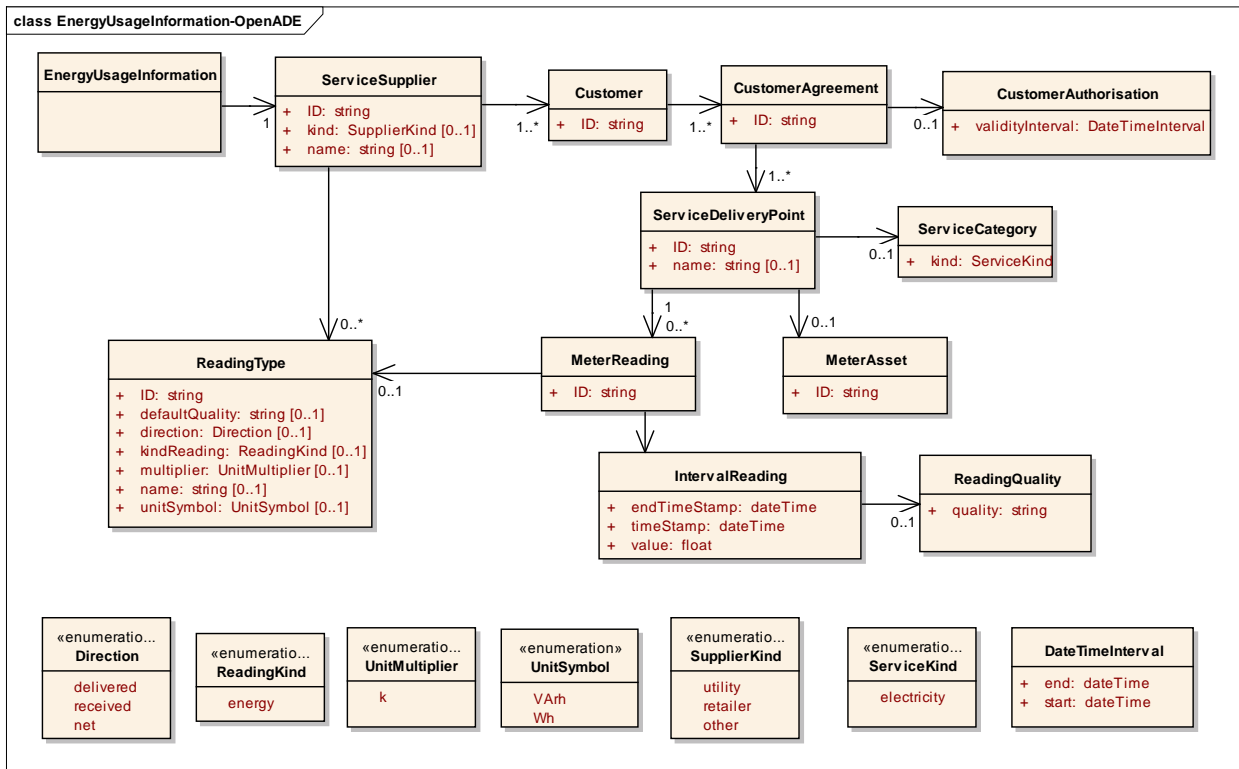
181 The batch payload defined allows a number of object instances to be included in a single transfer. Subscription will
182 be automatic, as defined in the implemented profile, based on the resources authorized by the user. For profile

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

183 details (subsequent associated reference documentation) please refer to Appendix B for additional information.
 184 All data elements are “create or update” so that if the ID does not exist, then the representation should be
 185 interpreted as a new instance of the type containing the ID. If the ID has been transferred previously, then it
 186 should be interpreted as an update to the fields specified, and elements not specified should not be modified.

187 A logical view of the schema for the initial payload structure is shown below. An XSD is provided as well in
 188 Appendix A. The model is also posted to the OpenADE SharePoint. This model was developed during initial PAP10
 189 harmonization efforts, and will be refined within NAESB Smart Grid PAP10 Task Force. It shares structures with
 190 ZigBee Alliance Smart Energy Profile 2.0, for OpenADE internet services to eventually be accessed from devices or
 191 applications within the HAN environment. The model below is a restricted subset of the full PAP10 model.



192

193

Figure 1: Batch Payload Logical UML Data Model Diagram

194 2.3.1 Usage File Format

195 Domain data objects build on the IEC CIM model. In general, complex type schema elements will be named using
 196 the CIM class. For listings of fields, see the details for each resource, defined in Section 8. The XSD for the format is
 197 included in the archive in Section 9.1, Consumption XSD and Example.

198 An example is shown below.

```

199 <?xml version="1.0" encoding="UTF-8"?>
200 <EnergyUsageInformation
201   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
202   xsi:schemaLocation="http://osgug.ucaiug.org/ns/2010/06/ade OpenADE-Schema.xsd"
203   xmlns="http://osgug.ucaiug.org/ns/2010/06/ade">
    
```

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

```
204 <ServiceSupplier>
205   <ID>123</ID>
206   <Customer>
207     <ID>12345678910</ID>
208     <CustomerAgreement>
209       <ID>56421587</ID>
210       <CustomerAuthorisation>
211         <validityInterval>
212           <end>2011-12-17T00:00:00Z</end>
213           <start>2010-12-17T00:00:00Z</start>
214         </validityInterval>
215       </CustomerAuthorisation>
216     <ServiceDeliveryPoint>
217       <ID>85945261</ID>
218       <MeterAsset>
219         <ID>19283746</ID>
220       </MeterAsset>
221       <MeterReading>
222         <ID>1</ID>
223         <IntervalReading>
224           <endTimeStamp>2010-12-17T11:00:00Z</endTimeStamp>
225           <ReadingQuality>
226             <quality>interpolated</quality>
227           </ReadingQuality>
228           <timeStamp>2010-12-17T10:00:00Z</timeStamp>
229           <value>0.0035</value>
230         </IntervalReading>
231       <ReadingType>
232         <ID>1001</ID>
233       </ReadingType>
234     </ServiceDeliveryPoint>
235     <name>Guest House</name>
236     <ServiceCategory>
237       <kind>electricity</kind>
238     </ServiceCategory>
239   </ServiceDeliveryPoint>
240 </CustomerAgreement>
241 </Customer>
242 <kind>utility</kind>
243 <name>Utility Company</name>
244 <ReadingType>
245   <ID>1001</ID>
246   <defaultQuality>validated</defaultQuality>
247   <direction>delivered</direction>
248   <kindReading>energy</kindReading>
249   <multiplier>k</multiplier>
250   <name>Energy Delivered kWh</name>
251   <unitSymbol>Wh</unitSymbol>
252 </ReadingType>
253 </ServiceSupplier>
254 </EnergyUsageInformation>
```

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

255 3 DISCOVERY

256 Discovery of available resources, retrieval of the supported operations and resource types are not specified in this
257 document. Supporting documentation of Service Operation documentation may include these details. Refer to
258 Appendix B for additional information

259 4 METADATA

260 No metadata publication is specified in this document, but supporting documentation of Service Operation
261 documentation may include this information. Refer to Appendix B for additional information.

262 5 VERSIONING

263 As additional capabilities are added to the interface definition, the minor version number of the definition will be
264 incremented. If compatibility with existing counterparts must be broken, the namespace and the major version
265 number will be updated, as per [9] 61968-1-2. Namespaces shown below are temporary, and will be updated as
266 determined by the participants.

```
267 <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"  
268           xmlns="http://osgug.ucaiug.org/ns/2010/06/ade"  
269           targetNamespace="http://osgug.ucaiug.org/ns/2010/06/ade" elementFormDefault="qualified"  
270           version="0.96">
```

271 6 EXTENSIBILITY

272 To enable backwards and forwards compatibility, schema validation should be turned off in operational systems to
273 allow new schema elements to pass without update or rebuild. Previous incarnations are not capable of 100%
274 guaranteed anticipation of future elements. As such, these unrecognized elements shall be ignored. Also,
275 additional platform-specific handling features should be implemented to support compatibility.

276 7 CONCURRENCY

277 No data shall be directly editable by clients, so concurrency controls are not included in this document.

278 8 SERVICE RESOURCE DEFINITIONS

279 For details of available profiles, extensions, initiations, authorization, access methods and how to incorporate
280 these details, please refer to Appendix B.

281 8.1 ENERGY USAGE INFORMATION

282 This data resource represents a collection of readings, related to a specific reading type at a specific service
283 delivery point and metering device. Meters may provide readings of different values, such as kWh and Voltage.
284 Each could be authorized separately or as a group by the user. Individual meter readings are represented by
285 IntervalReadings, which represent a measurement over a specified time interval.

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

286 The structure presented here is similar to the schema developed within IEC 61968-9, however it is not directly
287 compatible, due to the need for some additional data elements and structural differences. It is, however,
288 conformant to the more general CIM UML model. Extensions to the model are marked with [ADE Extension] in the
289 description.

290 8.1.1 CustomerAgreement

291 Agreement between the Customer and the ServiceSupplier to pay for service at a specific ServiceLocation. It records
292 certain billing information about the type of service provided at the ServiceLocation and is used during charge
293 creation to determine the type of service.

Name	Type	Description
ID	<i>string</i>	Object identifier

294 8.1.2 CustomerAuthorisation

295 Holds an authorisation for access to specific user-private data granted to a 3rd Party service provider. [OpenADE
296 Extension - Specialization of "Agreement"]

Name	Type	Description
validityInterval	<i>DateTimeInterval</i>	Date and time interval this agreement is valid (from going into effect to termination).

297 8.1.3 DateTimeInterval

298 Interval of date and time.

Name	Type	Description
end	<i>dateTime</i>	Date and time that this interval ended.
start	<i>dateTime</i>	Date and time that this interval started.

299 8.1.4 Direction «enumeration»

300

Name	Type	Description
delivered		
received		
net		

301 8.1.5 EnergyUsageInformation

302

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

303 8.1.6 IntervalReading

304 Data captured at regular intervals of time. Interval data could be captured as incremental data, absolute data, or
305 relative data. The source for the data is usually a tariff quantity or an engineering quantity. Data is typically captured
306 in time-tagged, uniform, fixed-length intervals of 5, 10, 15, 30, or 60 minutes.

307 Note: Interval Data is sometimes also called "Interval Data Readings" (IDR).

Name	Type	Description
endTimeStamp	<i>dateTime</i>	End interval timestamp
timeStamp	<i>dateTime</i>	The start date and time of an interval reading
value	<i>float</i>	Value in type of float

308 8.1.7 MeterAsset

309 Physical asset that performs the metering role of the ServiceDeliveryPoint. Used for measuring consumption and
310 detection of events.

Name	Type	Description
ID	<i>string</i>	Object identifier

311 8.1.8 MeterReading

312 Set of values obtained from the meter.

Name	Type	Description
ID	<i>string</i>	Object identifier

313 8.1.9 ReadingKind «enumeration»

314 Kind of reading.

Name	Type	Description
energy		

315 8.1.10 ReadingQuality

316 Quality of a specific reading value or interval reading value. Note that more than one Quality may be applicable to a
317 given Reading. Typically not used unless problems or unusual conditions occur (i.e., quality for each Reading is
318 assumed to be 'Good' unless stated otherwise in associated ReadingQuality).

Name	Type	Description
quality	<i>string</i>	Quality, to be specified if different than 'Good'.

319 8.1.11 ReadingType

320 Type of data conveyed by a specific Reading.

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

Name	Type	Description
ID	<i>string</i>	Object identifier
defaultQuality	<i>string</i>	Characteristics of a data value conveyed by a specific Reading, which allow an application to understand how a specific Reading is to be interpreted.
direction	<i>Direction</i>	Specifies the direction of flow of the measurement.
kindReading	<i>ReadingKind</i>	Kind of reading.
multiplier	<i>UnitMultiplier</i>	Multiplier for 'unit'.
name	<i>string</i>	Name of an attribute.
unitSymbol	<i>UnitSymbol</i>	Unit in symbol

321 8.1.12 ServiceCategory

322 Category of service provided to the customer.

Name	Type	Description
kind	<i>ServiceKind</i>	Kind of service.

323 8.1.13 ServiceDeliveryPoint

324 Logical point on the network where the ownership of the service changes hands. It is one of potentially many service
325 points within a ServiceLocation, delivering service in accordance with a CustomerAgreement. Used at the place
326 where a meter may be installed.

Name	Type	Description
ID	<i>string</i>	Object identifier
name	<i>string</i>	Name of an attribute.

327 8.1.14 ServiceKind «enumeration»

328 Kind of service.

Name	Type	Description
electricity		

329 8.1.15 ServiceSupplier

330 Organisation that provides services to Customers.

Name	Type	Description
ID	<i>string</i>	Object identifier
kind	<i>SupplierKind</i>	Kind of supplier.
name	<i>string</i>	The human-readable name for the service supplier.

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - Common

331 8.1.16 SupplierKind «enumeration»

332 Kind of supplier.

Name	Type	Description
utility		
retailer		
other		

333 8.1.17 UnitMultiplier «enumeration»

334 The unit multipliers defined for the CIM

Name	Type	Description
k		Kilo 10**3

335 8.1.18 UnitSymbol «enumeration»

336 The units defiend for usage in the CIM

Name	Type	Description
VArh		Reactive energy in volt ampere reactive hours
Wh		Real energy in what hours

337 8.1.19 Customer

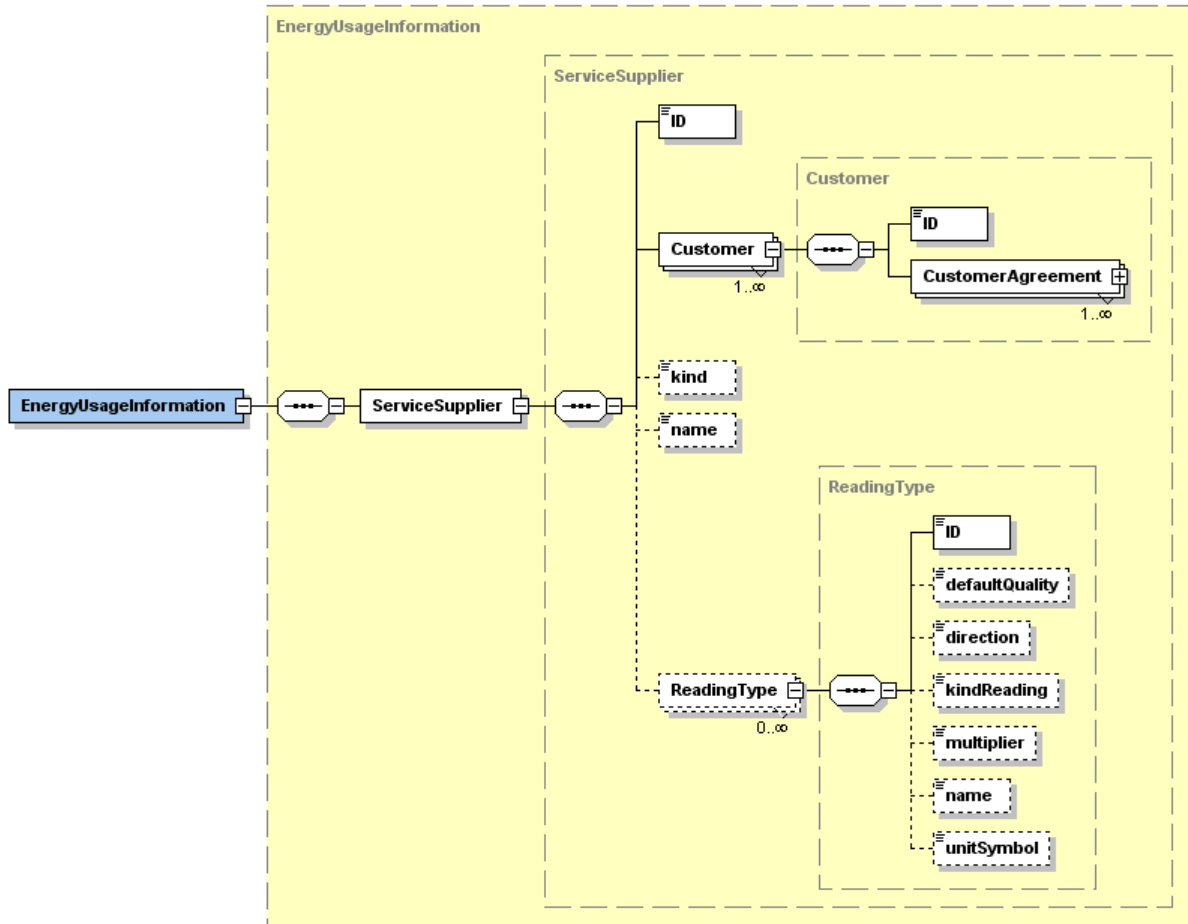
338 Organisation receiving services from ServiceSupplier.

Name	Type	Description
ID	<i>string</i>	Object identifier

339 8.2 PHYSICAL SCHEMA DIAGRAMS

340 The XML schema for this resource is shown below.

UCAIug OpenSG OpenADE Task Force
 OpenADE 1.0 Service Definition - **Common**

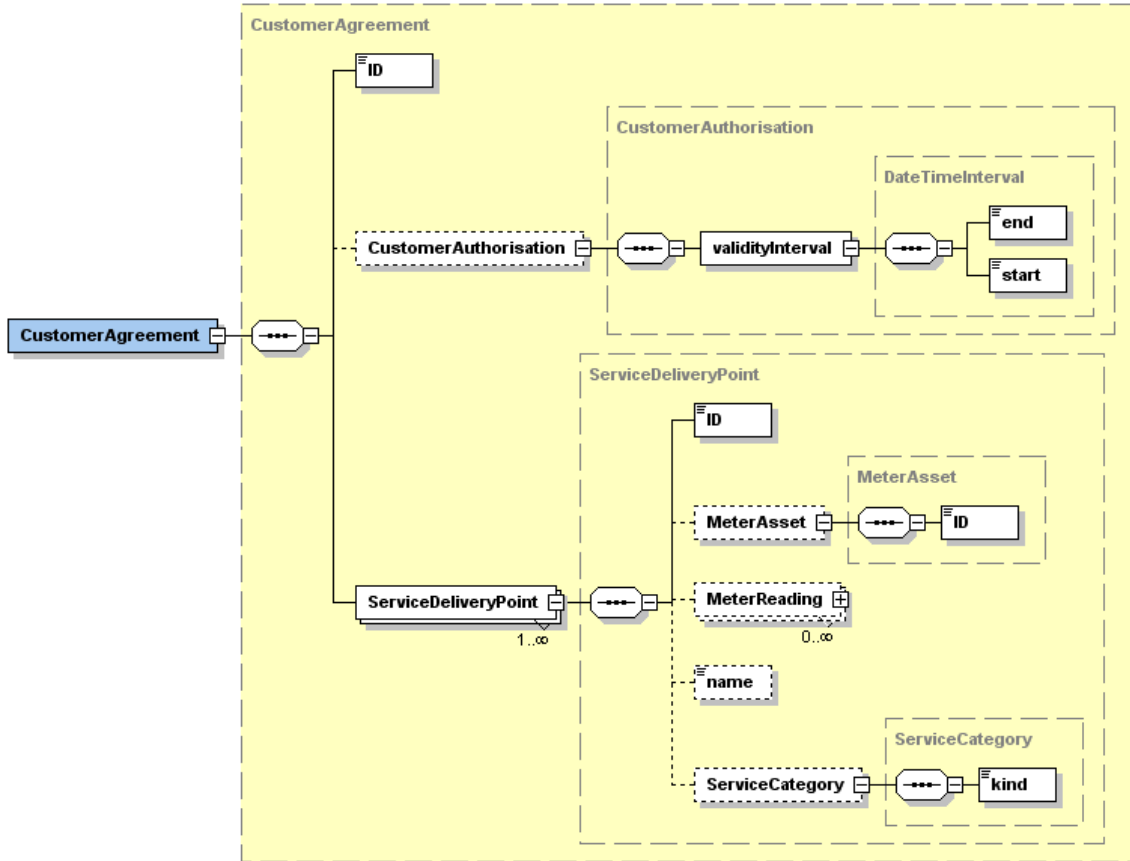


341

342

Figure 2: OpenADE Schema – Overview

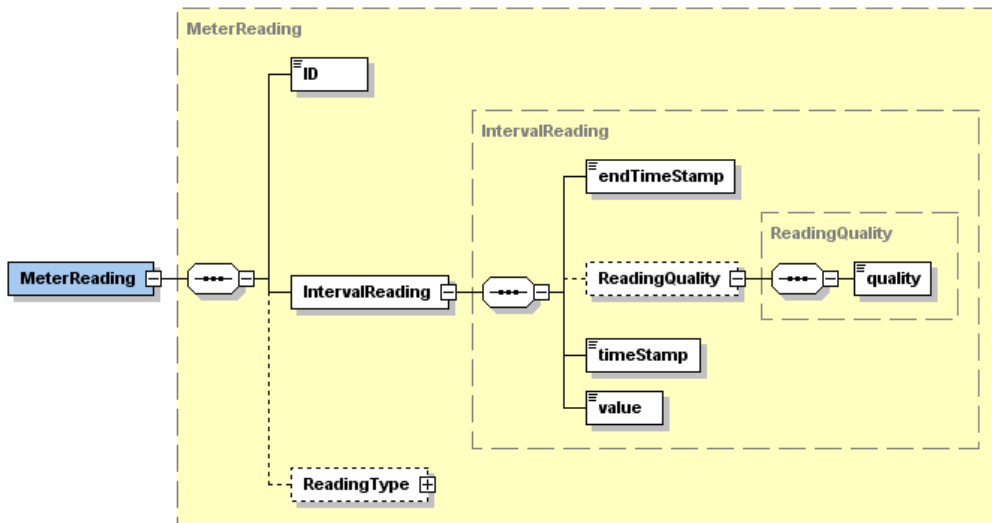
UCAIug OpenSG OpenADE Task Force
 OpenADE 1.0 Service Definition - Common



343

344

Figure 3: OpenADE Schema – Expanded 1



345

346

Figure 4: OpenADE Schema – Expanded 2

UCAIug OpenSG OpenADE Task Force

OpenADE 1.0 Service Definition - **Common**

347 **9 APPENDIX A**

348 9.1 CONSUMPTION XSD AND EXAMPLE

349 The files embedded below are the XML Schema Definition (XSD) described in this document, and the sample XML.



350 **OpenADE-Schema.xsd**

OpenADE-SampleMessage.xml

351 **10 APPENDIX B**

352 10.1 SUBSEQUENT ASSOCIATED REFERENCE DOCUMENTATION

353 Two reference documents were produced during development of this initial OpenADE guidance, to begin the
354 specification of exchange mechanisms needed to orchestrate the flows of information required to implement the
355 services, listed below and located in the OpenADE SharePoint document library.

- 356 • OpenSG OpenADE SD – REST
- 357 • OpenSG OpenADE SD – Web Services

358