Title:
OASIS Energy Interoperation Version 1.0 Specification

Introductory note

This Committee Draft is distributed according to the decision taken by PC 118 at its meeting in 2014-03 in Bangalore, see resolution 2 in the minutes 118/41/RM. The following background information (see next page) will further explain the background, goal, and relationship between this document and related existing IEC standards.

IEC PC 118 P-members are invited to provide specific technical comments that will help PC 118 identify any changes that may need to be made in order to make EI (Energy Interoperation) a functional and useful IEC standard. We specifically request input on the following questions:

- What national needs are not met by this Committee Draft together with IEC/PAS 62746-10-1 Ed. 1.0 (OpenADR)?
- What specific additions, deletions, or change items are recommended?

Please note that PC 118 will have its next plenary meeting in Korea from 9 to 11 March 2015. In response to a request from the convenor of PC 118 WG 2 and in agreement with the secretariat of PC 118 the circulation period of the present CD is two months (see Part 1 of ISO/IEC Directives, subclause 2.5.2) so that national comments are available for consideration at the plenary meeting in Korea.

The draft attached has been submitted by OASIS, which has a category D liaison with PC 118 WGs 1 and 2. A statement from OASIS ("LIAISON STATEMENT AND SUBMISSION") accompanying this submission is attached as well.

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Background

In the Bangalore meeting (March 2014), PC 118 resolved that, “IEC PC 118 directs the secretariat to register the Energy Interoperation document provided by OASIS as a committee draft for developing as an IEC standard.” This decision was made after consideration of the following:

1. IEC TR 62939-1 Smart Grid User Interface (SGUI) recommends advancing the Energy Interoperation (EI) standard in IEC.
2. IEC/PAS 62746-10-1 (OpenADR) is a profile of Energy Interoperation for Demand Response services and for Price/Product Definition.
3. The current CIM DR extensions in progress are based on EI.
4. Energy Interoperation was designed to bridge CIM-based systems to the facility domain.

It was recognized from the formation of the OASIS Energy Interoperation Technical Committee that EI must work well with CIM-based environments. EI was developed with collaboration and participation of CIM experts, utilities and systems operators including: the U.S. ISO/RTO Council, Southern California Edison, Xtensible Systems, and UISOL. Interaction services follow CIM naming conventions. Demand Response, Registration and Enrollment services in EI were submitted to IEC TC 57 as CIM extensions for Demand Response (in progress in WG 16 and WG 21). The simple EI Transactive Energy\(^1\) services and Price/Product definitions allow interactions with CIM-based markets as well as other markets. EI not only connects a CIM-based grid domain to a facility domain, but also enables connections to and within other non-CIM domains.

In the Singapore meeting (November 2014), the WG 1 of PC 118 supported the preparation of an IEC standard for an adaptation method that will serve to map both OpenADR and EI to the IEC CIM. This adapter specification, when combined with CIM extensions, will provide the seamless connection to core IEC standards.

Technical Comments Requested

PC 118 WG 1 requests specific technical comments that will help PC 118 identify any changes that may need to be made in order to make EI a functional and useful IEC standard. We specifically request input on the following questions:

1) What national needs are not met by this Committee Draft together with IEC/PAS 62746-10-1 ed1.0 (OpenADR)?
2) What specific additions, deletions, or change items are recommended?

Annexes:

Annex 1: Liaison statement and submission


\(^1\) The GridWise Architecture Council’s Transactive Energy Framework, and discussions within the Transactive Energy Association (TEA) describe aspects of Transactive Energy.
LIAISON STATEMENT AND SUBMISSION
OASIS Submission of OASIS Energy Interoperation v1.0 to IEC PC 118
November 2014

OASIS (the Organization for the Advancement of Structured Information Standards) respectfully submits the following OASIS Standard to IEC Project Committee 118, for consideration as a draft to be evaluated for approval as a candidate International Standard:

OASIS Energy Interoperation v1.0 Specification

The relevant documentation is enclosed (in a ZIP file) with this communication. OASIS Energy Interoperation v1.0 was approved as an OASIS Standard in June 2014, under the OASIS TC Process described below.

OASIS is a regular submitter of final shared ICT specifications to global de jure standards organizations, including ISO, whose TC 154 adopted OASIS' ebXML parts 1-4 as ISO 15000:2004, and updated versions are now in process; ISO/IEC JTC 1, where OASIS has been a Recognized PAS Submitter since 2004, resulting in submissions such as ISO/IEC 26300:2006 (OpenDocument) and ISO/IEC 19464:2014 (AMQP); and ITU-T, where SAML (ITU X.1141), XACML (X.1142 and X.1144) and CAP (ITU X.1303 and X.1303bis) also are published as ITU-T Recommendations. Additional background information about OASIS is available under the heading "SUBMITTING ORGANIZATION" below.

INTRODUCTION

Energy Interoperation (EI) was designed as an SGUI interface (per IEC 62939-1) to connect actors in different smart grid domains together. EI was created with the vision of interoperation and connection between the world of facility and device standards, markets, transactive energy, Demand Response, and the CIM Demand Response work begun in TC57 WG16 and WG21.

Stakeholders and participants in the OASIS Energy Interoperation committee included leading CIM experts. EI was developed with collaboration and participation from the ISO/RTO Council, Southern California Edison, Xtensible Systems, UISOL, and other committed users of the CIM. Interaction services follow CIM naming conventions. Requirements were defined by NAESB, the North American Energy Standards Board. Facility standards participants included leaders in BACNET, LonWorks, International Society of [Industrial] Automation, market and transactive experts, as well as leading distributed system architects. See the Contributions and Acknowledgments sections of the specification energy Interoperation for a more extensive listing.

The EI specification was designed to connect to diverse environments, in fact to and from any actor environment rich enough to encompass Demand Response behavior and Transactive Energy. CIM-based environments are called out in the charter for the Energy Interoperation work as the
critical grid-side environment. The current CIM DR extensions in progress are based on EI, with initial work contributed by members of the Energy Interoperation Technical Committee. Moreover, IEC/PAS 62746-10-1 ed1.0 (OpenADR 2.0) is a profile of EI for Demand Response services and for Price/Product Definition. OpenADR 2.0's semantics are defined in the EI specification submitted here, not in OpenADR profiles. To apply OpenADR 2.0, one must use Energy Interoperation.

EI Interoperation, as a profile base, defines richer semantics for (e.g.) the Registration Service, Report Service, Enrollment Service, and Transactive Energy Services as well as Demand Response. The simple Transactive Energy services and Price/Product Definition in Energy Interoperation allow interactions with CIM-based markets as well as other markets. (See, for example, the GridWise Architecture Council’s Transactive Energy Framework: http://www.gridwiseac.org/about/transactive_energy.aspx.)

Demand Response, Registration and Enrollment functions were based on work from Lawrence Berkeley National Laboratory and on ISO/RTO Council work subsequently submitted to TC57 as CIM extensions for Demand Response (in progress in its WG16 and WG21). The EI specification a submitted here also is included in the US SGIP Smart Grid Catalog of Standards; and is actively use in the utilities and smart-devices industries' demand/response community (see: http://www.openadr.org/specification).

THE SUBMITTED SPECIFICATION

The EI specification submitted here is available in various formats, which are transmitted here, but also can be found at the following publicly accessible location:

https://www.oasis-open.org/standards#energyinterop-v1.0

This submission encompasses all of the elements listed there, and submitted with this package, including the specification's main descriptive document, as well as the XSD Schemas and WSDL files supplied therewith.

TERMS OF SUBMISSION

The submission terms and licensure applicable to this submission by OASIS of Energy Interoperation v1.0 are attached as Annex A to this report. These terms are a condition of the submission; conform to those used by OASIS in its prior successful submissions to ISO and ISO/IEC JTC 1; are consistent with the applicable rules of OASIS; and comply generally with those used in our submissions to other international de jure standards organizations. OASIS policies applicable to such submissions can be reviewed here:
OASIS and its Energy Interoperation Technical Committee plan to conduct the ongoing publication, maintenance and revisions of the submitted specification, and to work collaboratively with IEC PC 118 towards joint releases of updated future versions. The OASIS Technical Committee will continue to collect errata, implementation experience, and possible feedback towards future improvements and revisions, all consistent with the OASIS Liaison Policy:

https://www.oasis-open.org/policies-guidelines/liaison#submitwork

All comments, drafts, and approved versions developed in either organization necessarily will be delivered by each organization to the other, with sufficient rights to apply those to the outputs of both organizational, and in a collaborative manner by parallel issuance where possible; all as described in the Terms of Submission. As a practical matter, coordination should be assisted by the fact that some members of the OASIS TC are also members of the receiving Project Committee in IEC.

OASIS will continue to welcome input from any defect reports or suggestions for improvement which may originate in, or be shared with, IEC PC 118 and its national bodies and their experts.

If in the future the OASIS TC is closed, or votes to cease its work on the submitted specification, OASIS will then inform IEC PC 118 or its successor body, and grant to it such the copyright and permission as may be required for it to continue separately to maintain the work as an IEC product; provided, however, that the OASIS IPR Policy and its terms will not impose disclosure, licensing or permissions obligations on contributors to any work not issued or co-published by OASIS, and OASIS may require that a notice to that effect be included.

SUBMITTING ORGANIZATION

OASIS is a member-led, international standards consortium, incorporated as a Section 501(c)(6) not-for-profit corporation under the law of the State of Pennsylvania in the United States, concentrating on structured information and global e-business standards, and organized in 1993. As of 2013, approximately 50% of the over 550 members are technology providers, 35% are technology users and influencers, and 15% are government and academic entities. OASIS is one of the largest and most widely recognized open standards consortia developing data and methodology specifications for e-business and public administration. All organizational members of OASIS may vote on OASIS standards (and on governance issues such as election of the Board of Directors); and any member (including Associate and Individual members) may join any OASIS technical committee as a voting member.

OASIS, as a consortium, interoperates and liaises, broadly and productively, with international de jure standards organizations and
many relevant industry consortia of various types, and also has working relationships with, ABA, CalConnect, AIAG, CEN/ISSS, CSCC, Eclipse Foundation, ETSI, HL7, Kantara Initiative, NAESB, NSTIC IDESG, the OpenGeoSpatial Consortium, ODCA, SWIFT, UPU and W3C, among other standards consortia.

OASIS maintains a number of other accreditations, including panel member of the European Commission's MultiStakeholder Platform on ICT Standardization; corresponding member of the ISO/IEC/ITU/UN-ECE Global Memorandum of Understanding Management Group (MoUMG) for E-Business; and Approved Standards Developer status from the American National Standards Institute.

AVAILABILITY AND INTELLECTUAL PROPERTY RIGHTS

OASIS does not charge for copies of OASIS specifications. The OASIS IPR Policy:

https://www.oasis-open.org/policies-guidelines/ipr

provides that users may implement an OASIS Standard without any requirement of a license, permission or royalty from OASIS. Other parties with claims are permitted to assert those claims and make any license terms known, as described below.

All participants in the OASIS Energy Interoperation TC have agreed, under the terms set forth in the OASIS IPR Policy, to make any licensed rights available, as needed, to permit royalty-free licenses to any implementer of the submitted OASIS EI standard, under the terms provided in the "RF on Limited Terms" IPR Mode as defined in that policy.

Under our IPR Policy, members actively participating in the development of the OASIS TC's work are obligated to disclose any intellectual property rights they hold in the approved standard, and to provide license rights to implementers of the standard, in the manner described in the policy. OASIS calls the attention of IEC to the fact that the licensing rights granted by its participants apply to the final version of the approved specification.

All declared claims of rights in the submitted standard are required to be posted publicly here:

https://www.oasis-open.org/committees/energyinterop/ipr.php

As can be seen, no claims or reservations of licenses have been made as of the date of this submission. However, if any later-claimed rights held by OASIS members participating in the OASIS TC's work arise, they will be licensed to implementers, at a minimum, on the terms set forth in the OASIS IPR Policy.
In this submission, OASIS is willing to comply with the ISO/IEC Common Patent Policy; the disclosures in this report comply with its disclosure requirements.

OASIS holds a copyright in the submitted specification, and makes the grants to IEC described in Annex A appended hereto. Under the terms of its liaison policy (above), OASIS will agree either (a) to have its copyright notice and associated disclaimers retained on an IEC print of the transposed work, or (b) to have only the IEC copyright notice and face-page indexing matter appear, so long as OASIS' retention of its independent copyright is properly memorialized as noted above. OASIS has no objection to joint or dual distribution of the transposed approved standard, at IEC's option. All contributions provided by members into its technical committees are made to OASIS with the assurance that they are freely available for incorporation, derivation and republication into the OASIS committee's output.

OASIS holds a trademark in the name of the specification, but otherwise knows of no claimed trademark rights in the normative elements of the submitted specification. OASIS will grant such permissions to refer to that name, if any, as might be necessary for joint or parallel distribution by IEC of the standard, if the OASIS and IDEC versions remain substantially identical in content.

The submitted specification also will remain perpetually available from OASIS as provided in the OASIS IPR Policy. The OASIS Energy Interoperation TC plans to remain active, drive growth of the specification, and retain the responsibility for its ongoing maintenance and revisions.

OASIS DEVELOPMENT

The submitted specification is a complete and final approved version, based on earlier contributed work developed in connection with the institutions and projects named above. OASIS EI v1.0 was developed by the membership of the OASIS Energy Interoperation Technical Committee, which can be seen here:

http://www.oasis-open.org/committees/energyinterop

It was approved by that committee, and then approved by the OASIS membership at OASIS' highest level of approval, under the OASIS IPR Policy (see above) and the OASIS TC Process rules:

https://www.oasis-open.org/policies-guidelines/tc-process

OASIS rules assure transparent public feedback in structured open public review periods; broad quality review under a consensual process; and a declared and clear regime for the resolution of any intellectual property rights claims (although none have been asserted against this work). The progressive drafts and versions of this specification been
publicly accessible for review from OASIS's web portals since the TC's inception.

The OASIS Standards approval process also requires that multiple OASIS members publicly acknowledge successful implementation of the specification. In this case that acknowledgment is provided by:

Akuacom Inc.

OpenADR Alliance

AutoGrid Systems Inc.

Universal Devices, Inc.

IPKeys Technologies, LLC

TeMix Inc.

These notices applied to the stable version that was finally approved as an OASIS Standard and is submitted here. Copies of the notices also are enclosed with this submission.

END OF BODY
ANNEX A

TERMS OF SUBMISSION

OASIS submissions to external standards organizations such as IEC PC 118 are governed by our OASIS Liaison Policy (https://www.oasis-open.org/policies-guidelines/liaison). One of the goals of that policy is to ensure that the output of the two organizations remains coordinated, and not be forked into multiple conflicting future versions. That goal requires some coordination of the parallel reviews conducted by each organization.

1. Coordination. The two organizations will work to cooperate (via liaisons and schedule coordination) in the standard's future development, with the goal of simultaneous issuance of mutually-approved future versions.

2. Cross-contribution. In order to achieve that goal, the OASIS TC and IEC PC both will agree to seek and incorporate only those comments, from their respective participants and stakeholders, that can be freely used by both organizations, and will share those comments with the other organization. Each organization will take steps to ensure that all of the changes to the original v1.0 that it adopts also are contributed unconditionally to the other organization, for use in developing the specification. Each organization will grant an irrevocable copyright license to the other, to use the contributions, changes and comments to version 1.0 that it receives and/or adopts, on and after the initial contribution.

3. Joint releases. The two committees will strive to synchronize approval and release cycles so that each may take advantage of the other's input, with the goal of releasing technically identical future releases. Any release that both committees approve shall bear the copyright and licensing notices of both organizations, and may at the parties' option bear both organizations' names. Each organization may apply its own formatting, covers, notices, and similar document metadata.

4. End of joint releases. If the two committees fail to agree on a future version (by parallel approval of the same technical content), then each organization may proceed freely with its own separate publication, and any derivative works thereof, provided that:

a. Any separate future version will include a notation that portions thereof are subject to the copyright of the other organization, and used by permission.

b. Any separate future version by IEC will not use the names "OASIS" or Energy Interoperation", and any separate future version by OASIS will not claim IEC authorship, so as to prevent confusion.
c. The parties acknowledge that the patent provisions, disclosures and licenses provided under the OASIS IPR Policy only apply to standards approved by the OASIS process.

END OF ANNEX