P2030.5

Submitter Email: bheile@ieee.org
Type of Project: Revision to IEEE Standard 2030.5-2018
PAR Request Date: 06-Jun-2018
PAR Approval Date:
PAR Expiration Date:
Status: Unapproved PAR, PAR for a Revision to an existing IEEE Standard

1.1 Project Number: P2030.5
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: Standard for Smart Energy Profile Protocol

Changes in title: ~~IEEE Approved Draft~~ Standard for Smart Energy Profile~~Application~~ Protocol

3.1 Working Group: Smart Energy Profile 2.0 (COM/PLC/SEP2)
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3.2 Sponsoring Society and Committee: IEEE Communications Society/Power Line Communications (COM/PLC)
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None

3.3 Joint Sponsor: IEEE-SASB Coordinating Committees/SCC21 - Fuel Cells, Photovoltaics, Dispersed Generation, and Energy Storage (SASB/SCC21)
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None

4.1 Type of Ballot: Entity
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 07/2019
4.3 Projected Completion Date for Submittal to RevCom
Note: Usual minimum time between initial sponsor ballot and submission to Revcom is 6 months.: 02/2020

5.1 Approximate number of entities expected to be actively involved in the development of this project: 10

5.2 Scope: IEEE 2030.5-2018 defines an application profile which provides an interface between the smart grid and users. It enables management of the end user energy environment, including demand response, load control, price communication, distributed generation, energy storage, and electric vehicles as well as the support of additional commodities including water, natural gas, and steam. This standard defines the mechanisms for exchanging application messages, the exact messages exchanged including error messages, and the security features used to protect the application messages. This

Changes in scope: ~~This~~IEEE ~~standard~~2030.5-2018 defines ~~the~~an '~~APPLICATION~~'application ~~layer~~profile ~~with~~which ~~TCP/IP~~provides ~~providing~~an ~~functions~~interface ~~in~~between the '~~TRANSPORT~~'smart grid and '~~INTERNET~~'users. ~~layers~~It ~~to~~enables ~~enable utility~~ management of the end user energy environment, including ~~things like~~ demand response, load control, ~~time~~price ~~of day pricing~~communication, ~~management of~~ distributed generation, ~~electric~~energy ~~vehicles~~storage, ~~etc.~~and ~~Depending~~electric ~~on~~vehicles ~~the~~as ~~physical~~well ~~layer~~as ~~in~~the ~~use~~support ~~(e.g.,~~of

standard focuses on a variety of possible architectures and usage models including direct communications between a service provider and consumers/prosumers, communications within a premises or home area network (HAN), and communications between a service provider and an aggregator. The defined application profile sources elements from many existing standards, including IEC 61968 and IEC 61850, and follows a RESTful architecture utilizing widely adopted protocols such as TCP/IP and HTTP.

This revision maintains backwards compatibility with IEEE 2030.5-2018 while providing an expanded feature set.

~~IEEE802.15.4,~~additional ~~IEEE802.11,~~commodities ~~IEEE1901,~~including ~~IEEE1901.2)~~water, ~~a~~natural ~~variety of lower layer protocols may be involved in providing a complete solution. Generally~~gas, ~~lower~~and ~~layer protocols are not discussed in this standard except where there is a direct interaction with the application protocol~~steam. This standard defines the mechanisms for exchanging application messages, the exact messages exchanged including error messages, and the security features used to protect the application messages. ~~With~~This ~~respect~~standard ~~to~~focuses ~~the~~on ~~Open~~a ~~Systems~~variety ~~Interconnection~~of ~~(OSI)~~possible ~~network~~architectures ~~model~~and usage models including direct communications between a service provider and consumers/prosumers, ~~this~~communications ~~standard~~within ~~is~~a ~~built~~premises ~~using~~or ~~the~~home ~~four~~area ~~layer~~network ~~Internet~~(HAN), ~~stack~~and ~~model~~communications between a service provider and an aggregator. The defined application ~~protocol~~profile ~~is~~sources ~~an~~elements ~~IEC~~from ~~61968~~many ~~common~~existing ~~information~~standards, ~~model~~including ~~[~~IEC 61968~~]~~ ~~profile~~and IEC 61850, ~~mapping~~and ~~directly~~follows ~~where~~a ~~possible,~~RESTful ~~and~~architecture ~~using~~utilizing ~~subsets~~widely ~~and~~adopted ~~extensions~~protocols ~~where~~such ~~needed,~~as TCP/IP and ~~follows~~HTTP. ~~an~~This ~~IETF~~revision ~~RESTful~~maintains ~~architecture~~backwards ~~[REST]~~compatibility with IEEE 2030.5-2018 while providing an expanded feature set.

5.3 Is the completion of this standard dependent upon the completion of another standard: No

5.4 Purpose: The purpose of this standard is the definition of an application profile interfacing the smart grid and users. This is critical in enabling the management of distributed generation, electric vehicles, energy storage, the end user energy environment, including demand response, load control, and price communication, as well as the support of additional commodities including water, natural gas, and steam. Maintaining grid stability, which is becoming a major problem in many areas, and coping with the anticipated rising cost of energy are just two of several problems requiring this kind of management capability. In an effort to facilitate global utilization, the defined application profile sources elements from many existing standards, including IEC 61968 and IEC 61850, and follows a RESTful architecture utilizing widely adopted protocols such as TCP/IP and HTTP.

Changes in purpose: The purpose of this ~~document~~standard is ~~to~~the ~~define~~definition ~~the~~of an application ~~protocol~~profile ~~to~~interfacing ~~enable~~the ~~utility~~smart grid and users. This is critical in enabling the management of distributed generation, electric vehicles, energy storage, the end user energy environment, including ~~things like~~ demand response, load control, ~~time~~and price communication, as well as the support of ~~day~~additional ~~pricing~~commodities including water, ~~management~~natural gas, and steam. Maintaining grid stability, which is becoming a major problem in many areas, and coping with the anticipated rising cost of ~~distributed~~energy ~~generation~~are just two of several problems requiring this kind of management capability. In an effort to facilitate global utilization, ~~electric~~the ~~vehicles~~defined application profile sources elements from many existing standards, ~~etc~~including IEC 61968 and IEC 61850, and follows a RESTful architecture utilizing widely adopted protocols such as TCP/IP and HTTP.

5.5 Need for the Project: With a predicted mass global deployment of distributed generation and Electric Vehicles (EV) on the horizon, the home effectively becomes a part of the SmartGrid as well as an electrical filling station for future transportation needs. Without real-time management on the part of the utility, unmanaged distributed generation can lead to serious grid instabilities and too many EVs in close proximity, can lead to distribution system failures.
This standard addresses this need with sections Distributed Energy Resource (DER) management to cope with both distributed generation and EVs and on EVs specifically and how consumers can leverage an enhanced HAN to manage this new and unique transportation model.
In addition, the role of the Home Area Network (HAN) for managing energy usage is a crucial factor in addressing the worlds growing energy concerns. This standard serves these needs by providing an adoptable and sustainable experience by linking new and useful digital technologies to the needs of consumers. By empowering consumers with near real-time information of their energy usage through an array of products and services, the intent is to help consumers use energy more efficiently, take advantage of renewable energy resources, and also to minimize their personal impact on the environment.

This standard is also key to reinforcing the IEEE Smart Grid Interoperability Reference Model and IEEE 1547 interconnection requirements for adaptations by other IEEE standard working groups. Emerging users/applications that will benefit from this include aggregators, smart cities architectures, and transportation infrastructures. This may also support migration to new business models where utilities provide a broader set of solutions that may include electricity, gas, communications, water, and security.

This Revision provides a mechanism for addressing errors and ambiguities discovered in the testing and deployment phases of the base Standard and to add selected new features and capabilities needed by the industry.

5.6 Stakeholders for the Standard: Electric Utilities, Metering Manufacturers, Consumers, Silicon Providers, Government Ministries and Regulatory Agencies, Appliance Manufactures, Automotive Manufacturers, OEMs, Service Providers and those related to providing elements and applications for Home Energy Management Systems (HEMS), Prosumers, Aggregators, and Smart City Communities.

Intellectual Property
6.1.a. Is the Sponsor aware of any copyright permissions needed for this project?: No
6.1.b. Is the Sponsor aware of possible registration activity related to this project?: No

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7.1 Are there other standards or projects with a similar scope?: No
7.2 Joint Development
Is it the intent to develop this document jointly with another organization?: No

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8.1 Additional Explanatory Notes: TBP: provide full info for all standards referenced in this document