P2030.100

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Type of Project: New IEEE Standard
PAR Request Date: 27-Apr-2012
PAR Approval Date: 08-Jun-2012
PAR Expiration Date: 31-Dec-2016
Status: PAR for a New IEEE Standard

1.1 Project Number: P2030.100
1.2 Type of Document: Recommended Practice
1.3 Life Cycle: Full Use

2.1 Title: Recommended Practice for Implementing an IEC 61850 Based Substation Communications, Protection, Monitoring and Control System

3.1 Working Group: IEC 61850 Implementation (PE/SUB/WGC15)
Contact Information for Working Group Chair
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None

3.2 Sponsoring Society and Committee: IEEE Power and Energy Society/Substations (PE/SUB)
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4.1 Type of Ballot: Individual
4.2 Expected Date of submission of draft to the IEEE-SA for Initial Sponsor Ballot: 01/2014
4.3 Projected Completion Date for Submittal to RevCom: 05/2014

5.1 Approximate number of people expected to be actively involved in the development of this project: 50
5.2 Scope: This recommended practice outlines the necessary steps and procedures a utility should undertake to implement an IEC 61850 substation in a multi-vendor equipment environment. The document addresses equipment configuration, equipment procurement specification, documentation procedures and general design philosophy that will condense the IEC61850 standard into a practical working implementation guide. The recommended practice also defines baseline information sets and functionality for IEC 61850 devices to allow users to implement similar design philosophies between vendors of IEC 61850 equipment.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: This document will not include a purpose clause.
5.5 Need for the Project: IEC 61850 has been promoted as an interoperability standard, but to date, interoperability among vendors has been achieved only at a communications level. When actually implementing the various substation functions the user is forced to change methods between vendors due to the flexibility and options provided for in IEC 61850. This recommended practice will establish a baseline for functionality and information sets in IEC 61850 devices which will give users a solid practice to use the vendors existing features and promote change for other vendors. Additionally, IEC 61850 requires significant changes to how utilities design, construct and commission a substation. Hardwire signals are replaced by Ethernet devices, documentation and naming conventions are distinctly different from existing substation practice, and device functionality can be assigned and even migrate in an operational environment. Utilities also require a methodology to integrate IEC 61850 and non-IEC-61850 operational practices in their system as both approaches will have to exist side by side for many years to come. The myriad of options and approaches has hindered the implementation of IEC61850 for nearly 20 years. This recommended practice will provide a starting point for those utilities which would like to migrate to an IEC 61850 substation approach and establish baseline functionality to which vendors can adhere with confidence of achieving interoperability with other vendors.

5.6 Stakeholders for the Standard: Electric Utilities who wish to implement IEC 61850; IEC 61850 Equipment, Software and Service providers
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

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

8.1 Additional Explanatory Notes (Item Number and Explanation): PAR 2.1- The “Recommended Practice for Implementing an IEC 61850 Based Substation Communications, Protection, Monitoring and Control System” use of IEC 61850 refers to the following listed parts of the IEC standard. The working group will also include any new parts which are released that pertain to substation communications, protection, monitoring and control systems.
IEC 61850-1: Communication networks and systems in substations - Part 1: Introduction and overview
IEC 61850-2: Communication networks and systems in substations - Part 2: Glossary
IEC 61850-3: Communication networks and systems in substations - Part 3: General requirements
IEC 61850-4: Communication networks and systems in substations - Part 4: System and project management
IEC 61850-5: Communication networks and systems in substations - Part 5: Communication requirements for functions and device models
IEC 61850-6: Communication networks and systems for power utility automation - Part 6: Configuration description language for communication in electrical substations related to IEDs
IEC 61850-7: Communication networks and systems in substations - Basic communication structure for substation and feeder equipment
IEC 61850-7-1: Principles and models
IEC 61850-7-2: Abstract communication service interface (ACSI)
IEC 61850-7-3: Common Data Classes
IEC 61850-7-4: Compatible logical node classes and data classes
IEC 61850-8: Communication networks and systems in substations - Specific Communication Service Mapping (SCSM)
IEC 61850-8-1: Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3
IEC 61850-9: Communication networks and systems in substations - Specific Communication Service Mapping (SCSM)
IEC 61850-9-1: Sampled values over serial unidirectional multidrop point to point link
IEC 61850-9-2: Sampled values over ISO/IEC 8802-3
IEC 61850-10: Communication networks and systems in substations - Part 10: Conformance testing