P2030.8

Submitter Email: geza.joos@mcgill.ca
Type of Project: New IEEE Standard
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PAR Expiration Date: 31-Dec-2019
Status: PAR for a New IEEE Standard

1.1 Project Number: P2030.8
1.2 Type of Document: Standard
1.3 Life Cycle: Full Use

2.1 Title: Standard for the Testing of Microgrid Controllers

3.1 Working Group: WG for the Standard for the Testing of Microgrid Controllers (PE/T&D/DRI/2030.8)
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None

3.2 Sponsoring Society and Committee: IEEE Power and Energy Society/Transmission and Distribution (PE/T&D)
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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: 12/2017
4.3 Projected Completion Date for Submittal to RevCom: 05/2018

5.1 Approximate number of people expected to be actively involved in the development of this project: 15
5.2 Scope: A key element of microgrid operation is the microgrid controller and more specifically the energy management system. It includes the control functions that define the microgrid as a system that can manage itself, and operate autonomously or grid connected, and seamlessly connect to and disconnect from the main distribution grid for the exchange of power and the supply of ancillary services, including to the distribution system to which it is connected. It is recognized that microgrid components and operational solutions exist in different configurations with different implementations. The scope of this standard is to develop a set of testing procedures allowing the verification, the quantification of the performance and a comparison of the performance with expected minimum requirements of the different functions of the microgrid controller that are common to the control of all microgrids, regardless of topology, configuration or jurisdiction. It aims to present metrics for a comparison of the control functions required from both the microgrid operator and the distribution system operator. A set of testing and performance metrics will be developed.

5.3 Is the completion of this standard dependent upon the completion of another standard: No
5.4 Purpose: The reason for establishing a standard for testing microgrid controllers, in the context of enabling interoperability of the different controllers and components needed to operate the controller through cohesive and platform-independent interfaces, is to establish standardized testing procedures. This approach will allow for flexibility and customization of components and control algorithms to be deployed without sacrificing "plug-and-play" or limiting potential functionality, while ensuring minimum requirements are met and establishing comparative performance indices. The standardization focuses on testing functional requirements, while recognizing that there are many possible hardware and software implementations of the same microgrid controller generic functions. The interoperability with various Distributed Energy Resources (DER) interfaces, and other electrical system interfaces within the microgrid will be considered. A standardized set of testing procedures will facilitate the wide adoption of standard microgrid controller functional and performance requirements by vendors and utilities, including the Distribution System Operator, for ease of interfacing with the Distribution Management System. The standard is

functionality-driven and focuses on a modular approach to the implementation of the functional requirements.

5.5 Need for the Project: The standard will assist vendors and users (utilities, independent microgrid operators) in specifying testing requirements and procedures for microgrid controllers. This will allow standardization of functions and comparisons of the performance of microgrid controllers of different types and with different implementation approaches provided by different vendors.

5.6 Stakeholders for the Standard: Vendors and manufacturers, transmission and distribution system operators, independent distribution system operators, independent microgrid operators (industrial commercial and community microgrids) and all entities participating in the capacity, energy, power and ancillary services markets, including independent transmission system operators.

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 (Item Number and Explanation): #5.4 - Purpose and need - This PAR project structures and develops the testing requirements of the microgrid controllers for which the functional specifications are defined in P2030.7, Standard for the Specification of Microgrid Controllers. #5.2 - Scope and potential overlaps - The proposed standard does not overlap with scope and intent of the IEEE Std 1547 series, which deals largely with Distributed Resources (DR), and specifically with the issues associated with the interconnection of the DR units, individually or aggregated, to the Electric Power System (EPS). The proposed PAR on the other hand deals with the interaction of a microgrid, as a single entity with the Distribution System and the Distribution System Operator (DSO) through its Distribution Management System (DMS). The microgrid is an entity that comprises, in addition to different types of DR units, loads, curtailable or not, and other electrical systems, including control and switching devices, that are controlled directly or indirectly and at different levels and in different time frames by a microgrid controller, as defined in P2030.7.