P605

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Type of Project: Revision to IEEE Standard 605-2008
PAR Request Date: 09-Feb-2014
PAR Approval Date: 27-Mar-2014
PAR Expiration Date: 31-Dec-2018
Status: PAR for a Revision to an existing IEEE Standard
Root Project: 605-2008

1.1 Project Number: P605
1.2 Type of Document: Guide
1.3 Life Cycle: Full Use

2.1 Title: Guide for Bus Design in Air Insulated Substations

Changes in title: ~~IEEE~~ Guide for Bus Design in Air Insulated Substations

3.1 Working Group: Substation Bus Design Working Group (PE/SUB/WGD3)
Contact Information for Working Group Chair
Name: Hanna Abdallah
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Contact Information for Working Group Vice-Chair
None

3.2 Sponsoring Society and Committee: IEEE Power and Energy Society/Substations (PE/SUB)
Contact Information for Sponsor Chair
Name: Michael Dood
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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: 07/2017
4.3 Projected Completion Date for Submittal to RevCom: 10/2018

5.1 Approximate number of people expected to be actively involved in the development of this project: 40

5.2 Scope: This design guide provides direction for the substation engineer in the design of air insulated substations. This guide provides users with information on typical bus arrangements including various criteria necessary to develop bus arrangement decisions.
The guide is applicable to both rigid bus and strain bus designs for outdoor and indoor, air-insulated, alternating current substations. This guide includes a method to calculate ampacity for electrical bus and ampacity tables for typical bus types and sizes. This guide also provides design criteria and a method to calculate electromechanical forces on insulators and bus resulting from gravity, wind, ice, short circuit forces, and thermal expansion.
This guide does not consider the following:
a) The electrical criteria for the selection of insulators (see IEEE Std 1313.2TM[B22])
b) The seismic forces to which the substation may be subjected (see IEEE Std 693TM and
IEEE Std 1527TM)
c) The design of bus mounting structures (see ASCE Manual and

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Report on Engineering Practice No. 113)
d) Design considerations for contaminated environments (see IEEE Std 1313.2-1999 [B22])
e) Installation methods
f) Design of direct current buses

1527TM-2006) c) The design of bus mounting structures (see ASCE Manual and Report on Engineering Practice No. 113) d) Design considerations for contaminated environments (see IEEE Std 1313.2-1999 [B22]) e) Installation methods f) Design of direct current buses

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

5.4 Purpose: Substation rigid and strain bus structure design involves electrical, mechanical, and structural considerations. It is the purpose of this guide to integrate these considerations into one document. Special considerations are given to fault current force calculations. The factors considered include the decrement of the fault current, the flexibility of supports, and the natural frequency of the bus. These factors are mentioned in ANSI C37.32-2002 but are not taken into consideration in the equations presented in that standard, including intended users and benefits to users.

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5.5 Need for the Project: The new revision of IEEE 605 will include updates to provide guidance to the substation engineer about how to determine the fault current to use in the calculations for bus design. The guide will provide a second method to calculate forces using the Load Resistant Factor Design
[LRFD] approach (in addition to Allowable bus Design
[ASD]) to be consistent with ASCE. The new revision will also update the ampacity tables in an annex, and make general corrections and updates throughout the document.

5.6 Stakeholders for the Standard: Engineers associated with the design and engineering of substation bus and the associated structures and insulators

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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): 5.2 1313.2: IEEE Guide for the Application of Insulation Coordination

693: IEEE Recommended Practice for Seismic Design of Substation

1527: IEEE Recommended Practice for the Design of Flexible Buswork Located in Seismically Active Areas

5.4 ANSI C37.2.32-2002-American National Standard for High Voltage Switches, Bus Supports, and Accessories Schedules of Preferred Ratings, Construction Guidelines, and Specifications