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IEEE Guide for Specifications for High-Voltage Gas-Insulated Substations Rated 52 kV and Above

IEEE Power and Energy Society

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Substations Committee

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(Revision of IEEE Std C37.123-1996)

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Abstract: The development of specifications for the technical requirements for the design, fabrication, testing, installation, and in-service performance of a high-voltage gas-insulated substation (GIS) are covered in this guide.

Keywords: gas-insulated metal-enclosed switchgear, gas-insulated substation, GIS equipment, GIS specification, IEEE C37.123™, SF_6, sulfur hexafluoride

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Introduction

This introduction is not part of IEEE Std C37.123–2016, IEEE Guide for Specifications for High-Voltage Gas-Insulated Substations Rated 52 kV and Above.

This guide is a revision of IEEE Std C37.123–1996. It reflects changes needed to coordinate with the IEEE Std C37.122™. It also reflects the present gas-insulated substation (GIS) manufacturing technology. This guide applies to all indoor and outdoor ac high-voltage gas-insulated substations rated above 52 kV and is issued as a guide for use in compiling technical specifications for the purchase of ac high-voltage gas insulated switchgear.

This guide is not a tutorial. This guide is intended to assist the user in developing and preparing specifications for gas-insulated substations and equipment. The user of this guide should evaluate how, and to what extent, each clause applies to the development of the GIS specification. Application of this guide shall be done with sufficient technical knowledge and understanding. Users of this guide are expected to have become familiar with IEEE Std C37.122, IEEE Standard for High Voltage Gas-Insulated Substations Rated Above 52 kV, and are encouraged to review IEEE Std C37 122.1, IEEE Guide for Gas-Insulated Substations Rated Above 52 kV.

The structure of this guide is similar to that of a typical utility GIS specification. From the very beginning it was obvious to the working group that while most of the GIS projects are executed as a turnkey project, this guide would have to be limited in scope to a "procurement specification" and provide guidance for the design, fabrication, testing, installation, and in-service performance requirements of the equipment only. General commercial terms and conditions that form part of a specification for a project are not discussed in this guide. The imperative mode of the language used for example clauses is illustrative of that used in specifications. It does not imply that this document is anything other than advisory in its scope. This guide contains clauses that may be used directly in a purchaser's specification. Alternately, users may modify example clauses to form the basis of their own specification. This guide does not contain all of the clauses that a purchaser may require for the purchase of a GIS for each and every conceivable application or physical installation. For example, this guide makes no reference to commercial conditions that might be included in a purchaser's complete specification. The guide also does not contain example clauses that would provide all necessary requirements for every system application or physical installation. Users of the guide are cautioned to thoroughly review each individual application when preparing a GIS specification. Ultimately the user specification will have to be influenced by the user's own system requirements, and operating and maintenance practices.

This guide was prepared by the High-Voltage Gas-Insulated Substation Working Group K12 of the IEEE Substations Committee.

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IEEE Guide for Specifications for High-Voltage Gas-Insulated Substations Rated 52 kV and Above

1. Overview

1.1 Scope

This guide is for the development of specifications for the technical requirements for the design, fabrication, testing, installation, and in-service performance of a high-voltage gas-insulated substation (GIS).

1.2 Purpose

This document is issued as a guide for use in compiling procurement specifications for the design, fabrication, testing, installation and in-service performance of high-voltage gas-insulated substation equipment. This guide applies specifically to all types of high-voltage gas-insulated substation equipment rated above 52 kVac. The imperative mode of the language is illustrative of that used in design and procurement specifications. It does not imply that this document is anything other than advisory in its scope. Specifically, this revision will align the text with IEEE Std C37.122™ and IEEE Std C37.122.1™.[1]

This guide is not intended to develop a complete specification for a turnkey project. General terms and conditions forming the commercial part of a specification for a particular project are outside the scope of this document.

[1]Information on references can be found in Clause 2.