



IEEE Guide for Installation, Inspection, and Testing for Class 1E Power, Instrumentation, and Control Equipment at Nuclear Facilities

IEEE Power Engineering Society

Sponsored by the
Nuclear Power Engineering Committee

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**Nuclear Power Engineering Committee
of the
IEEE Power Engineering Society**

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Abstract: This guide provides considerations for the pre-installation, installation, inspection, and testing of Class 1E power, instrumentation, and control equipment and systems of a nuclear facility. This guidance is applicable to initial construction, modification (backfit), and maintenance activities. This guide does not apply to periodic testing.

Keywords: Class 1E, configuration management, constructability reviews, functional testing, inspection procedures, multi-unit, nuclear facilities, plant design bases, pre-construction inspection, pre-construction testing, pre-installation inspection, pre-installation testing, post-installation inspection, post-construction testing, post-maintenance testing, post-modification testing, test plans, test procedures

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Introduction

This introduction is not part of IEEE Std 336-2005, IEEE Guide for Installation, Inspection, and Testing for Class 1E Power, Instrumentation, and Control Equipment at Nuclear Facilities.

This guide was originally published as a standard, and it set forth requirements for installation, inspection, and testing of important instrumentation and electric equipment in a nuclear power generating station during its construction phase. This standard was prepared by the IEEE in response to a request by American National Standards Committee N45 on Reactor Plants and their Maintenance. The N45 committee was chartered to promote development of standards for location, design, construction, and maintenance of nuclear reactors and plants embodying nuclear reactors, including equipment, methods, and components specifically for this purpose.

In May 1969, the IEEE Joint Committee on Nuclear Power Standards (JCNPS) established an ad hoc committee on Installation, Inspection, and Testing of Electric and Instrumentation Equipment. The purpose of this committee was to prepare a standard for general industry use that would define requirements for installation, inspection, and testing of instrumentation and electric equipment necessary to ensure attainment of a safe and reliable nuclear power generating station. The ad hoc committee was composed of representatives of key segments of the nuclear industry, including utilities, reactor suppliers, construction contractors, component manufacturers, and consultants.

In 1977, the standard was revised to provide clarity and simplification. In 1979, the standard was again revised to expand the scope to include operating plant modifications that are comparable in nature and extent with those related activities occurring during initial construction of the station. Subcommittee 8 of the Nuclear Power Engineering Committee (NPEC) developed these revisions.

In 1985, this standard was then revised to allow application of the requirements to include nuclear facilities other than nuclear power generation stations. Nuclear facilities include facilities for power generation, spent fuel storage, waste storage, fuel processing, plutonium processing, and fuel fabrication.

In 2003, the Nuclear Power Engineering Committee directed its Working Group 3.1 to convert IEEE Std 336™-1985 from a standard to a guide (to allow more flexibility for selective guidance than mandatory requirements), to incorporate “lessons learned” from industry (in particular, for post-modification and post-maintenance testing), and to change the format to be more user-friendly.

Suggestions for improvement gained in the use of this guide will be welcomed. They should be addressed to:

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Working Group 3.1 would like to acknowledge and commemorate the instrumental and dedicated efforts of our colleague Surin Dureja to the completion of this revision. We regret his unfortunate passing shortly after this revision was approved by the IEEE Standards Committee.

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