

IEEE Recommended Practice for Operation of 300 MW to 600 MW Pulverized Coal-Fired Boiler

IEEE SA Board of Governors

Developed by the
Corporate Advisory Group

IEEE Std 277™ 2021

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Corporate Advisory Group
of the
IEEE SA Board of Governors

Approved 9 February 2021

IEEE SA Standards Board

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Abstract: General technical recommended practice for operation of pulverized coal-fired boilers in power plants is provided, including start-up, shutdown, operation and maintenance, and emergency and failure detection/handling/prevention. In this document, a boiler with existing single units with a capacity of 300 MW to 600 MW in thermal power plants, where pulverized coal is combusted to generate electricity and/or to supply heat, is discussed. Development of boiler operation code as a reference to determine detailed operation steps and/or procedures for a particular boiler in the plant is outlined. The specifications of manufacturers, successful experiences from practice, and stipulations defined in other related high-level standards/regulations/codes are also considered.

Keywords: emergence and failure, failure, IEEE 2777™, maintenance, operation, pulverized coal-fired boiler, start-up, shutdown

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Introduction

This introduction is not part of IEEE Std 2777-2021, IEEE Recommended Practice for Operation of 300 MW to 600 MW Pulverized Coal-Fired Boiler.

This recommended practice defines the general principles, common requirements, essential steps, and other related works that need to be conducted in procedures of start-up, normal operation, shutdown, and routine inspection and maintenance for a pulverized coal-fired boiler and its main auxiliary equipment.

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1. Overview

This recommended practice defines the general principles, common requirements, essential steps, and other related works that need to be conducted for start-up, normal operation, shutdown, and routine inspection and maintenance of a pulverized coal-fired boiler and its main auxiliary equipment.

1.1 Scope

This recommended practice defines the principles and procedures for start-up, normal operation, shutdown, daily operation, and maintenance during normal and emergency conditions for a 300 MW to 600 MW pulverized coal-fired boiler and its main auxiliary equipment. This recommended practice applies to 300 MW to 600 MW pulverized coal-fired boilers with a balanced draft, including natural circulation and forced circulation; subcritical and supercritical once-through boilers; tangential-fired boilers; opposed-fired boilers; and so on. For specific applications, an additional document needs to be formulated by users based on this recommended practice to cover detailed procedures or normally so-called “operation code,” together with the instructions of manufacturers and the experiences derived from normal operation practice.

1.2 Word usage

The word *shall* indicates mandatory requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted (shall equals is required to).^{1, 2}

The word *should* indicates that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others; or that a certain course of action is preferred but not necessarily required (should equals is recommended that).

The word *may* is used to indicate a course of action permissible within the limits of the standard (may equals is permitted to).

The word *can* is used for statements of possibility and capability, whether material, physical, or causal (can equals is able to).

¹The use of the word *must* is deprecated and cannot be used when stating mandatory requirements, *must* is used only to describe unavoidable situations.

²The use of *will* is deprecated and cannot be used when stating mandatory requirements, *will* is only used in statements of fact.