

IEEE Guide for Maintenance, Operation, and Safety of Industrial and Commercial Power Systems

Sponsor

**Power Systems Engineering Committee
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Abstract: Guidelines for the numerous personnel who are responsible for safely operating and maintaining industrial and commercial electric power facilities are provided. This guide provides plant engineers with a reference source for the fundamentals of safe and reliable maintenance and operation of industrial and commercial electric power distribution systems.

Keywords: electrical hazards, electrical maintenance, electrical safety program, fire protection, grounding, infrared, inspection, maintenance, operation protective devices, record keeping, safety single-line diagram, testing

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Introduction

(This introduction is not a part of IEEE Std 902-1998, IEEE Guide for Maintenance, Operation, and Safety of Industrial and Commercial Power Systems.)

The purpose of this document is to provide guidelines for the numerous personnel who are responsible for operating industrial and commercial electric power facilities.

The Working Group on a Guide for Operation, Maintenance, and Safety of Industrial and Commercial Power Systems was formed in 1981. It was sponsored by the Industrial and Commercial Power Systems Engineering Committee of the IEEE Industry Applications Society through the Safety, Operations, and Maintenance Subcommittee. The requirements of the then-new Occupational and Safety Health Act (OSHA, a U.S. law) and the limited information that was generally offered at that time were prime driving forces. The first task of the Working Group, a formidable task, was to agree on a scope that would produce a publication of reasonable size. The final product provides basic philosophies and approaches to problems without going into great detail on any one aspect of the subject.

The Working Group recognizes the international applicability of this guide. The Working Group also recognizes that this first edition of the guide refers to some practices that are U.S. oriented. As a practical matter, the consensus was to publish this edition now and to start the first revision promptly, with international content. The Working Group and the Safety, Operations, and Maintenance Subcommittee have committed to incorporating international information in the first revision.

Over the years, a great many people have contributed to the development of this guide. The names of these contributors, to the extent known, are listed below. Undoubtedly, some names have been missed. We extend our apologies to those people for such inadvertent oversight.

At the time this guide was approved, the IEEE Yellow Book Working Group had the following membership:

Erling C. Hesla, *Chair*

Chapter 1: Overview—**H. Landis Floyd II**, *Chair*

Chapter 2: Operating diagrams—**Kenneth W. Carrick**, *Chair*

Chapter 3: System management—**Kenneth W. Carrick**, *Chair*

Chapter 4: System control responsibilities and clearing procedures—
Kenneth W. Carrick, *Chair*

Chapter 5: Maintenance strategies—**T. John White**, *Chair*

Chapter 6: Maintenance testing overview—**T. John White**, *Chair*

Chapter 7: Introduction to electrical safety—**Joseph J. Andrews**, *Chair*

Chapter 8: Establishing an electrical safety program—**Joseph J. Andrews**, *Chair*

Chapter 9: Providing and maintaining electrically safe facilities—
Joseph J. Andrews, *Chair*

Chapter 10: Safe electrical work practices—**Joseph J. Andrews, Chair**

Chapter 11: Protective equipment, tools, and methods—**H. Landis Floyd II, Chair**

Chapter 12: Safe use of electrical equipment—**H. Landis Floyd II, Chair**

Jerry S. Baskin
James H. Beall
Carl E. Becker
Richard W. Becker
Kay Bollinger
Thaddeus E. Brown
Barry Brusso
Rene Castenschiold
Paul M. A. Chan
Carey J. Cook
John Cooper
W. H. Cooper
Tim Cotter
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Bruce G. Douglas
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Donald R. Ruthman
H. Kenneth Sacks
Melvin K. Sanders
Vincent Saporita
Lynn F. Saunders
Robert Schuerger
Joe Simon
Robert L. Simpson
Robert L. Smith
Gary Smullin
R. L. Smurif
Stanley Wells
Thomas Wogenrich
Donald W. Zipse

The following persons were on the balloting committee:

Joseph J. Andrews
Arthur Ballato
Jerry S. Baskin
Graydon M. Bauer
James H. Beall
Carl E. Becker
Kenneth W. Carrick
Rene Castenschiold
James M. Daly
H. Landis Floyd II
Jerry M. Frank
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Conrad R. St. Pierre
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Donald W. Zipse

The final conditions for approval of this guide were met on 30 October 1998. This guide was conditionally approved by the IEEE-SA Standards Board on 16 September 1998, with the following membership:

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Contents

Chapter 1	
Overview.....	1
1.1 Introduction.....	1
1.2 How to use this guide.....	2
Chapter 2	
Operating diagrams.....	3
2.1 Introduction.....	3
2.2 Single-line diagram (one-line diagram).....	4
2.3 Plan (equipment location plan).....	6
2.4 References.....	7
2.5 Bibliography.....	7
Chapter 3	
System management.....	9
3.1 Introduction.....	9
3.2 Load distribution.....	10
3.3 System integrity.....	11
3.4 Power factor.....	12
3.5 System protection coordination.....	13
3.6 Operating economics.....	14
3.7 References.....	15
3.8 Bibliography.....	15
Chapter 4	
System control responsibilities and clearing procedures.....	17
4.1 Introduction.....	17
4.2 Responsibility of the owner.....	17
4.3 Maintenance role.....	18
4.4 Utility responsibilities.....	18
4.5 Other workers.....	18
4.6 Clearing procedures.....	18
4.7 References.....	19
Chapter 5	
Maintenance strategies.....	21
5.1 Introduction.....	21
5.2 Definitions and acronyms.....	21
5.3 Preventive maintenance.....	22
5.4 Fundamentals of electrical equipment maintenance.....	26
5.5 Inspection and test frequency.....	28
5.6 Reference.....	28
5.7 Bibliography.....	28

Chapter 6	
Maintenance testing overview	29
6.1 Introduction.....	29
6.2 Insulation tests.....	29
6.3 Protective device testing	34
6.4 Analytical tests	37
6.5 Grounding tests	41
6.6 Functional testing.....	43
6.7 Testing procedures and specifications	44
6.8 Bibliography.....	45
Chapter 7	
Introduction to electrical safety	51
7.1 General discussion	51
7.2 Exposure to electrical hazards.....	52
7.3 Case histories	62
7.4 Reasons for practicing electrical safety.....	68
7.5 Summary	71
7.6 References	72
7.7 Bibliography.....	72
Chapter 8	
Establishing an electrical safety program	75
8.1 General discussion	75
8.2 Purpose.....	75
8.3 Scope.....	76
8.4 Content of program	76
8.5 References	84
8.6 Bibliography.....	84
Chapter 9	
Providing and maintaining electrically safe facilities.....	85
9.1 General discussion	85
9.2 Design considerations	86
9.3 Installation safety requirements	90
9.4 Safety and fire protection inspections	91
9.5 Preplan for safe maintenance	91
9.6 Repairs and replacements parts.....	92
9.7 References	92
9.8 Bibliography.....	93

Chapter 10	
Safe electrical work practices	95
10.1 General discussion	95
10.2 Training	95
10.3 Electrical safety controls	97
10.4 Working on or near de-energized equipment.....	102
10.5 Working on or near equipment that is, or can become, energized.....	113
10.6 References	118
10.7 Bibliography.....	118
Chapter 11	
Protective equipment, tools, and methods	119
11.1 Introduction.....	119
11.2 Personal protective equipment.....	119
11.3 Other protective equipment.....	120
11.4 Protective methods	121
11.5 Drawings and other documentation	122
11.6 Safety audits	124
11.7 Safety morale	126
11.8 Bibliography.....	126
Chapter 12	
Safe use of electrical equipment	129
12.1 Introduction.....	129
12.2 Portable electrical equipment.....	129
12.3 Test instruments and equipment	129
12.4 Facilities infrastructure (power and light circuits).....	130
12.5 Bibliography.....	131
Index	133

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Chapter 1 Overview

1.1 Introduction

Even with the best design and equipment, the expected safety and reliability performance of a power system is largely dependent on the quality and capability of its operation and maintenance. Optimizing maintenance and operation often can be the most cost-effective approach in improving system performance.

The phrase “industrial and commercial power systems” covers a broad spectrum. At one end of this spectrum is the large, industrial complex that can justify a staff of highly-skilled and knowledgeable maintenance and operation personnel. At the other end of this spectrum is the small, simple system in which the owner may have little or no electrical expertise.

The objective of this guide is to provide plant engineers with a reference source for the fundamentals of safe and reliable maintenance and operation of industrial and commercial electric power distribution systems. These fundamentals are independent of system size or complexity. The most effective utilization of the information contained in this guide would be its inclusion in a long-term maintenance and operation strategy that is tailored to the individual needs of each power system.

The fundamental elements include

- a) Maintenance, operation, and safety considerations in system design;
- b) Development of a maintenance and operations strategy to ensure long-term reliability;
- c) Development of record-keeping and documentation files;
- d) Development and implementation of testing and inspection methods;
- e) Development of procedures for auditing maintenance and operation performance;
- f) Development of procedures to ensure personnel safety.