



# IEEE Guide for Installation, Maintenance, and Operation of Irrigation Equipment Located Near or Under Power Lines

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**IEEE Power Engineering Society**

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# IEEE Guide for Installation, Maintenance, and Operation of Irrigation Equipment Located Near or Under Power Lines

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**Transmission and Distribution Committee  
of the  
IEEE Power Engineering Society**

Approved 27 September 2007

**IEEE-SA Standards Board**

**Abstract:** The guide is based on industry practices, and guidelines for installation, maintenance and operation of irrigation equipment near or under power lines as they pertain to minimum distance to energized conductors and proper grounding to minimize nuisance shocks are presented. A variety of conditions in general terms is covered in this guide. Specific recommendations are made for the type of irrigation systems and power line parameters most commonly found.

**Keywords:** farm irrigation systems, irrigation, irrigation systems, sprinklers

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## Introduction

This introduction is not part of IEEE Std 1542-2007, IEEE Guide for Installation, Maintenance, and Operation of Irrigation Equipment Located Near or Under Power Lines.

The guide is intended for designers, installers, and operators of the irrigation equipment, as well as electric power utilities whose lines are located near or above the irrigation systems. General information is provided on installation, maintenance, and operation of irrigation equipment as it relates to safety due to the presence of electric power lines. The following parameters are considered:

- a) Distance to energized conductors during installation
- b) Proper grounding to minimize nuisance shocks
- c) Distance between irrigation nozzle and power line conductors during operation of the irrigation system

The recommended minimum conductor-to-nozzle distance is based on the maximum allowable body leakage current of 5 mA rms and field tests conducted by the Nebraska Public Power District and the USDA Agricultural Research Service, University of Nebraska.

Because of the great variety of conditions, practices, electrical system designs, types of irrigation systems, water conductivity, and ground resistance values, this guide covers these variables only in general terms. However, specific recommendations are made for the type of irrigation system and power line parameters that are most representative in the industry. The IEEE makes no representation or warranty as to the adequacy or accuracy of the information in this guide or as to economic, or safety issues associated with the use of this guide. When determining whether or not, and/or how, to use the information in this guide, all factors shall be considered with regard to the specific situation(s).

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## 1. Overview

### 1.1 Scope

The guide is based on industry practices and presents guidelines for installation, maintenance, and operation of irrigation equipment near or under power lines as they pertain to minimum distance to energized conductors and proper grounding to minimize nuisance shocks. The guide covers a variety of conditions in general terms. Specific recommendations are made for the type of irrigation systems and power line parameters most commonly found.

### 1.2 Purpose

The guide is intended for designers, installers, and operators of the irrigation equipment, as well as electric power utilities whose lines are located near or above the irrigation systems. General information is provided on installation, maintenance, and operation of irrigation equipment as it relates to safety due to the presence of electric power lines. The following parameters are considered:

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