

Commercial and Industrial Harmonics Training

Nov. 9, 2026 — 9 a.m. to 2 p.m.

Idaho Power Corporate Headquarters (CHQ)
(1221 W. Idaho St. Boise, ID 83702)

This class is free for Idaho Power customers.

This class will be held in-person at the Idaho Power CHQ and virtually. **Lunch will be provided.** Participants will learn the basics of power quality and focus on harmonics — current and voltage distortion from equipment that can affect its performance and lifespan. The course will explain how distortion impacts motors, transformers, and other power system components, and ways to reduce the impact of harmonics and extend the life of your equipment. The class will also cover the rules and standards that apply to harmonics in power systems and help attendees understand how these rules and standards apply to their facilities.

Key Learning Objectives

- Describe the main causes and effects of a power quality problem.
- Understand the relationship between frequency and power flow.
- Learn how rectifiers create harmonic current.
- Learn the difference between *linear* and *non-linear* load.
- Understand how harmonics can affect power factor.
- Identify the basic functions of diodes, capacitors, and inductors.
- Recognize the harmonics produced by single- and three-phase rectifiers.
- Understand why *triplin* and *negative sequence* harmonics require special attention.
- Understand how harmonics' can affect transformers, conductors, circuit breakers, fuses, and motors.
- Learn about Idaho Power's Rule K and the IEEE-519 standard.
- Understand how passive and active filters reduce harmonics.
- Identify ways to help minimize the impact of harmonics in the power system.

Who Should Attend?

- Operational staff
- Maintenance engineers
- Managers, executive, system/process engineers
- Energy efficiency professionals and utility staff
- Variable frequency drive (VFD) vendor

Instructor

Paul Ortmann, P.E. earned a Bachelor of Science in Electrical Engineering from California State University – Sacramento and a Master of Engineering in Electrical Engineering from the

University of Idaho. Paul has worked as an Electrical Engineer since 1991 in utility generation and distribution systems and focused on power quality since 1999. He is a member of the Institute of Electrical and Electronics Engineers where he has been on standards committees for harmonics, stray and contact voltage, and voltage quality. Paul regularly teaches a semester-long graduate course in power quality for the University of Idaho and short courses for the University of Wisconsin as well as several workshops and seminars for Idaho Power's customers and employees.

Registration

Registration deadline is Monday, November 2.

To register, enter your information online [here](#).

Questions?

Visit idahopower.com/training or contact Idaho Power at training@idahopower.com.