

## Commercial and Industrial Motors Training

Sept. 17, 2024

8 a.m. to 4:30 p.m.

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

**This class is free for Idaho Power customers.**

### Class format

The class will be held in-person at Idaho Power's CHQ Auditorium, or you may join virtually. A link will be provided for all registrants, and in-person attendees will receive a parking pass for the day.

### Why should you attend?

In this interactive course, we will refresh your knowledge of alternating current (AC) induction motors and give you a taste of what is new on the motors market, including switched reluctance and advanced direct current (DC) motors. We'll also review key strategies for maximizing the reliability of motor applications when there are variable-frequency drives (VFD) used in your facility.

### Who should attend?

- Plant operation supervisors and managers
- Plant process and project engineers
- Industrial maintenance personnel
- Efficiency consultants and utility staff
- Anyone desiring more knowledge of AC and DC motors application

### Instructor

Ronald Wroblewski holds a bachelor's and master's degree in mechanical engineering, and has 35 years of experience designing, analyzing, troubleshooting, and optimizing fan, pump, and blower systems. He is the lead motor systems and VFD trainer for the US Department of Energy's (DOE) Better Plants program and has taught fan and motor systems optimization courses across the US and internationally.

### Preliminary Agenda with learning objectives is as follows:

- **Light breakfast/registration 7:30 to 8 a.m.**
- **Session 1: AC Motor Fundamentals**
  - Review motor system definition
  - List five categories of motor losses
  - Review operating principle of AC induction motors
- **Session 2: Advanced Motor Designs**
  - Describe advantages and disadvantages of traditional DC motors and key differences in their modern replacements
  - List advantages and disadvantages of switched reluctance motors
- **Session 3: Advanced Design of AC Motors**
  - Describe AC motor characteristics from the motor nameplate
  - List characteristics, advantages, and disadvantages of premium-efficiency motors
  - Describe how to create a motor inventory in MEASUR software
- **Lunch break – 11:30 a.m. to 12:30 p.m.**

- **Session 4: External Factors Affecting AC Motor Efficiency**
  - Review external factors affecting motor efficiency
  - List four primary categories of causes of motor failure
  - Discuss impact of poor power factor and its causes
- **Session 5: Maintenance and Repair**
  - List three preventative maintenance strategies for improving motor reliability
  - List five factors to consider before repairing a burnt-out motor
  - Describe motor calculators in MEASUR software
- **Session 6: VFDs and Their Impact on Motors**
  - List common problems associated with VFDs
  - Recognize critical requirements for VFD cables
  - Consider four key factors that dictate the critical (maximum) VFD cable length
  - List three strategies to avoid problems with bearing currents
- **Adjourn 4:30 p.m.**

**Registration**

- I will join the seminar in-person
- I will join the seminar virtually

First Name	Last Name	Title	Phone
Company Name		Email Address	
Mailing Address		City, State ZIP	
Vehicle Make	Vehicle Model	License Plate	State

Electrical License Number (if needing CEUs): \_\_\_\_\_

\*Vehicle information is only needed for in-person attendees that would like free parking in Idaho Power lots for the day.

**Registration deadline is Monday, Sept. 9.**

To register, email, call or mail registration form to:

Phone: 208-388-5099

Email: [training@idahopower.com](mailto:training@idahopower.com)

Idaho Power c/o Andee Morton 1221 W. Idaho St. Boise, ID 83702

**Questions?**

Visit [idahopower.com/training](http://idahopower.com/training) or contact Idaho Power at 208-388-5099 or [training@idahopower.com](mailto:training@idahopower.com).