

Adjustable Speed Drives and Energy Efficiency



HOSTED BY SNOHOMISH COUNTY PUD

April 23, 2019

Snohomish County PUD
Room TC2-BC
2320 California St
Everett, WA 98201

Registration Fee: \$139

Value of \$490 per person

0.7 Continuing Education Units through Washington State University will be available for this training

Class size is limited to 25 attendees

Key Learning Objectives

- Identify types of adjustable speed loads
- Determine where the savings exist with adjustable speed drives
- Explain how motors and VFDs function
- Understand the types and characteristics of VFDs
- Ascertain power quality issues
- Recognize motor life issues and EMI mitigation
- Evaluate Energy Savings
- Employ VFD evaluation and specification guidelines

Who Should Attend

- Operation staff and managers, building operators
- Technicians, plant/process engineers
- Industrial maintenance personnel
- Consultants and utilities
- Anyone wanting to know more about energy saving costs while improving reliability & extending drive life

Agenda

7:30 Registration (breakfast provided)

8:00 Morning Session

- Types of adjustable speed loads
- Flow control with fans, pumps and compressors
- Where to find savings
- Motors and VFDs
- Types of VFDs, characteristics and pulse width modulations

11:30 Lunch (provided)

12:30 Afternoon Session

- Power quality issues
- Effects of harmonics
- Regulation and IEEE 5019
- Motor life issues and EMI mitigation

2:00 Break

2:15 Afternoon Session Continued

- Other types of ASD: EMC, permanent magnet, eddy current and magnetic clutch
- Overall efficiency
- Energy Savings analysis
- Cost and other economic benefits
- VFD evaluation and specifications

4:15 Summary and Evaluation

4:30 Adjourn

Course Description

This course addresses the choices available and relevant issues regarding the use of adjustable speed drives (ASD) with electric motors, and demonstrates the energy cost savings and other benefits made possible by this technology. In this course we explore how adjustable speed drives work and ways to assess the savings. Variable frequency drives (VFD) are the most common speed control method and is the major focus of the course content, which will cover the benefits of pulse width modulation technology and well as identifying and mitigating harmful electromagnetic interference that can cause motor failure. Additional information on evaluating and specifying VFDs will be provided.

Instructor

David Wylie, P.E.

David has an engineering degree from Cal Poly San Luis Obispo and a MBA at National University. Since the early 1970s, David has been analyzing energy efficiency investment from both a mechanical and financial perspective. David and his two partners began working together in 1976 and the engineering management consulting firm of ASWB Engineering. Their work experience covers the range of energy engineering including research, development, program design, measurement, feasibility study of electrical/mechanical systems and energy supply for commercial and industrial facilities. David, who holds a college teaching credential, teaches what he does and knows about, and has developed over 20 courses that address energy-efficient systems.

Hosting Sponsor

Snohomish County PUD

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- Mason county PUD No 3
- Pacific County PUD No 2
- Puget Sound Energy
- Seattle City Light
- Tacoma Power
- Tanner Electric
- Washington State University Energy Extension

Registration form on Page 3

How to Register

Deadline is April 9, 2019

Register Online:

www.regonline.com/205neea-industrialtraining

Or fill out registration form on next page and send to:

NEEA Industrial Training c/o CLEAResult
100 SW Main St, #1500
Portland, OR 97204

Email: industrial-training@industrial.neea.org

Phone: 888-720-6823

Please make checks payable to NEEA Industrial Training c/o CLEAResult Consulting

Questions

Visit <http://neea.org/get-involved/calendar> or contact the training center at 888.720.6823 or industrial-training@industrial.neea.org

This training is provided by ASWB Engineering. For more information: www.aswb-engineering.com/

The Northwest Regional Industrial Training project is coordinated and funded by the Northwest Energy Efficiency Alliance (NEEA), a private non-profit organization funded by Northwest utilities, the Energy Trust of Oregon, and Bonneville Power Administration. NEEA and its stakeholders subsidize up to 85% of the cost to attendees, which means the cost listed on the front of this brochure is significantly less than the average price in the marketplace. NEEA works in collaboration with its stakeholders and strategic market partners to accelerate the sustained market adoption of energy-efficient products, technologies, and practices. NEEA's market transformation efforts address energy efficiency in homes, businesses, and industry.

Register Online

www.regonline.com/205neea-industrialtraining

Registration via Mail or Email

Please register me for the **Adjustable Speed Drives and Energy Efficiency** training in **Everett** on **April 23, 2019**:

First Name	Last Name	Title	Phone
Company Name			Email
Electric Provider			
Address			
City	State	Zip	Please indicate special dietary needs
			<input type="checkbox"/> Vegetarian
			<input type="checkbox"/> Other

Payment Options

Please mail this registration form with a check to the address on the previous page.

If you have a discount code, purchase order number and/or would like an invoice, please indicate so below.

Discount Code: _____ Purchase Order: _____ Invoice Request: _____

Cancellation Policy: Full refund of registration fee if attendance is cancelled by deadline date; half refund thereafter.