

Free Educational Seminar

For PGE Commercial and Industrial Customers

Industrial Fan Systems

This half-day free seminar provides an overview of the principles of industrial fan, blower, and dust collection systems and how to save energy without reducing production.

This seminar will equip participants to better:

- *Define terms related to fan systems*
- *Understand different types of fans and situations where they should be used*
- *Understand the cost of fan operation and explain the benefits of optimizing industrial fans*
- *Explain the interaction between fan curves and system curves*
- *Discuss key factors that affect fan system efficiency, including fan style, and fan controls (i.e. variable frequency drives)*
- *Identify basic measurement techniques that will assist in evaluating fan, blower, and dust collection systems*
- *Recognize the optimization potential of fan systems*
- *Determine which of their fan systems might have good optimization potential that they want to pursue*

Who should attend?

Decision makers who plan for new dust collection systems and industrial fans, as well as those who operate and maintain existing systems:

- *Plant, process, and energy engineers*
- *Energy managers*
- *Facility operators*
- *Maintenance managers*

Instructor

Ronald G. Wroblewski, P.E., Productive Energy Solutions, LLC

Ron has over 25 years of engineering experience helping customers design, analyze, specify and optimize commercial and industrial energy systems. In addition to earning both a bachelors and masters degree in mechanical engineering, Ron is a highly rated trainer who applies proven principles of adult education to make his technical seminars beneficial and fun. He is the senior DOE fan systems trainer, and provides industrial energy efficiency training worldwide for the United Nations.

March 2, 2010 • Wilsonville Training Center

Time and Location

Tuesday, March 2, 2010

7:30 a.m. - 12:00 p.m.

Continental breakfast beginning at 7:30 a.m.

Seminar beginning at 7:50 a.m.

Wilsonville, Clackamas Community College,

PGE Corporate Training University Campus

Directions

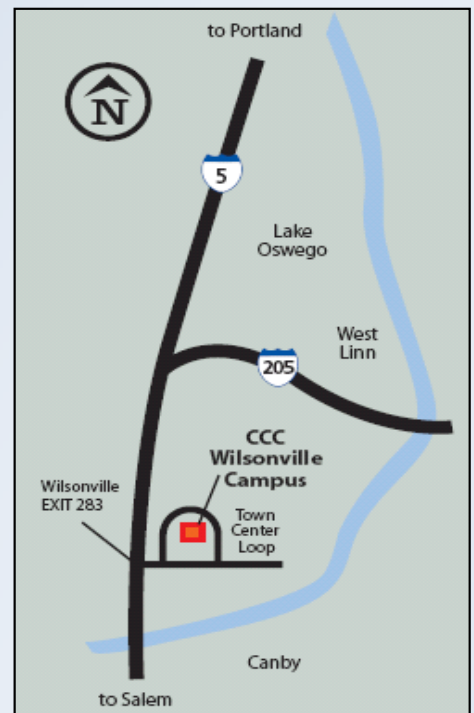
From 1-5 Southbound: Take 1-5 South to Exit 283.

Turn left at light onto Wilsonville Road, go to fourth stop light and turn left onto Town Center Loop East.

From 1-5 Northbound: Take 1-5 North to Exit 283.

Turn right at light onto Wilsonville Road, go to third stop light and turn left onto Town Center Loop East.

Clackamas Community College (CCC) – PGE Corporate University Campus - Look for the “PGE/PacifiCorp” sign.



Cost

Free to PGE customers. Others are welcome based on space, small fee may apply.

Accreditation

- Clackamas Community College: 0.4 CEUs (continuing education units)
- IFMA: Qualifies for four CFM maintenance points
- BOMA: Certificate of Completion that can be used toward certification

Registration

RSVP is requested as soon as possible. However, we can accommodate a few walk-in registrations.

To register, e-mail PGE.Seminars@pgn.com or call **503-464-8020** and press “1” for classes.

More Educational Opportunities

Visit our web site at PortlandGeneral.com/Classes. Classes may be added throughout the year. If you'd like to receive e-mail notices of new class offerings, e-mail PGE.Seminars@pgn.com.

Additional classes to look forward to in 2010:

- Chilled Water Systems
- Compressed Air Systems
- Energy Champions Workshop
- Industrial Pump Systems
- Solar Photovoltaic Systems
- Solar Thermal (Hot Water) Systems



Portland General Electric



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