Professional Engineering Seminar # 1: For Energy Project

Speaker: Mr. Larry Feist, Program Chair for Electro-Mechanical Engineering Technology and Power Systems Engineering Technology Cincinnati State
Date: June 22, 2010
Time: 1:00-3:00 PM
Venue: 641 Baldwin Hall

Prepared by:
Ms. Stephanie Baldwin, Little Miami Junior High School, Morrow, OH
Mr. Deon Edwards, Western Hills Engineering High School, Cincinnati, OH

This seminar was given by Mr. Larry Feist, Program chair for Electro-Mechanical Engineering Technology and Power Systems Engineering Technology, Cincinnati State. Mr. Feist works with college students majoring in renewable energy and speaks to many groups on the benefits of alternative energy sources as well as conserving resources.

Mr. Feist was introduced by Dr. Shanov, Associate Professor, Department of Chemical and Materials Engineering, University of Cincinnati. Dr. Shanov explained it often takes a tragedy to get people to consider changing their way of life. He hoped the oil spill in the Gulf of Mexico would encourage people to start thinking more seriously about investing in and using renewable sources of energy. He expressed that our energy needs in the future would need to be met by a combination of technologies including fossil fuels, nuclear, fuel cells, and hydrothermal. He felt fossil fuels would continue to be important as a bridge between nonrenewable energy sources of the past and renewable sources of energy in the future.

Dr. Shanov Introducing Mr. Feist

Mr. Feist Presenting Energy Information

Mr. Feist began his presentation with an overview of the history of fossil fuel use from the cotton gin to the steam engine. Technology often has geopolitical and environmental consequences. For example, the cotton gin revolutionized economics in America, but had a negative social role in prolonging slavery in the South. Inventions like the steam engine also had a huge economic impact on Americans, but had a negative impact on our environment. Strip mining for coal caused air pollution and combustion of fossil fuels has been linked to global climate change. It is important for engineers to think about possible consequences of their inventions as they seek to solve technical problems.

There is a certain level of distrust for many Americans when it comes to renewable sources of energy and emerging technologies. The technologies seem new because fossil fuel use has been the primary source of energy for many years. However, many of the emerging technologies in renewable energy like the fuel cell, solar cell and

windmill have been around just as long as fossil fuel technologies. The fuel cell was invented more than 150 years ago. The wind turbine and solar water heater have been in use for over 100 years. Though renewable energy sources are not widely available, the technology is not new or untested as some people might think.

The future of energy is in technology. Creating smarter, more efficient appliances to consume less electricity will save consumers money and conserve valuable resources. Using economics to guide energy usage was one way Mr. Feist used to encourage people to switch to more renewable sources of energy and conserve resources. He recommended teaching children exactly how electricity comes to their homes and how energy use relates to energy cost. One way to teach children the economics of energy is by using real-world examples. By replacing just 4 bulbs per house, a class of 155 children could save $29,016 on their families electric bills and conserve resources. Another idea to reduce electric bills and energy resources was to reduce phantom loads caused by electric appliances that are turned off, but still drawing a current. Installing power strips cuts all electricity off to appliances and can save money and resources over time.

Mr. Feist also informed us about the renewable energy major now offered at Cincinnati State. The need for more renewable energy technology presented an opportunity to create new technical jobs and put people to work. Cincinnati State is training people to be able to handle the new technologies these jobs will require. Each teacher was given and informational folder about the new programs. Cincinnati State has photovoltaic laboratories where students can learn to install and maintain solar cells and solar water heaters. There is also a geothermal laboratory and wind laboratory. Cincinnati State offers certification for those people wanting to become energy rater certified. There is a power systems engineering technology program to train people to enter the power engineering community. A smart grid major is also available for people interested in careers that focus on making electric grids more efficient.

Mr. Feist ended his session with resources for the teachers to learn more about renewable energy, like the Greater Cincinnati Energy Alliance. He also directed the teachers to dsireusa.org where there was a list of rebates and tax breaks for purchasing and installing renewable technologies.