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# Columbus Engineer

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## PRESIDENT'S MESSAGE

By Howard Jones, P.E. / FCC President



I hope you and your family had a very safe, happy and wonderful holiday.

The Chapter submitted the application for the Star Chapter Recognition on December 1. We accomplished a lot of activities, but

we still did not get above 4 stars as submitted. We need to work harder this year to increase our score to the 5 stars award.

OSPE is moving forward on merging some inactive Chapters with active Chapters. Our Chapter and the Central Ohio Chapter may merge. Look for a future communication concerning this possible merger.

Membership goals for 2010-2011 are being established for each OSPE Chapter. To date we have not received our goal, but I believe it will be 10% of our membership based on our member count as of July 1, 2010. I am requesting all Chapter

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## FCC-OSPE January Luncheon Program

**DATE:** Friday, January 21, 2011

**PLACE:** The Hickory House  
550 Officecenter Place, Gahanna

**TIME:** Registration: 11:30 am  
Lunch: 11:50 am  
Speaker: 12:05 pm  
Closing Remarks: 12:55 pm

**COST:** Advance Reservation: Members: \$20.00  
Non-Members: \$30.00. Call Chapter at 470-4170 or email registration information to OSPEFCC@aol.com by Jan. 17. Please include name and phone number. Pay at the door (check payable to FCC-OSPE)

**SPEAKER:** Robert J. Mergel, P.S, is a professor at Columbus State Community College and lecturer The Ohio State University.

**PROGRAM:** "The U.S. Corps of Engineers During the American Civil War"

The onset of the American Civil War with a standing army of 17,000 troops and 1000 officers the United States found itself completely unprepared to wage a major war against a foreign power let alone an internal conflict within its own borders. Similarly, the Army had two organizations of Engineers with only a total authorized strength of 79 commissioned officers and a lone company of 100 enlisted Engineers. In early August 1861, three companies were added to the Army Corps of Engineers and one to the Corps of Topographical Engineers (did not come to fruition). The commissioned officer strength was raised to

103. Thus, at the beginning of the Civil War, the total strength of the Army Engineers numbered only 750 men. During the war, the Engineers performed many duties, such as Pontooners, Miners, Sappers and Pioneers. Like their modern counterparts the Corps duties included a myriad of tasks such as clearing obstacles and constructing roads, bridges, palisades, stockades, canals, blockhouses and signal towers. They also laid down hundreds of pontoon bridges, built fixed bridges and railroad trestles, repaired railroad lines, and erected field fortifications in addition to their mission as Combat Engineers, Topographic Engineers and Facility Engineers. They were also responsible for the dismantling of the Confederacy's infrastructure thus limiting its ability to conduct war and resulting in its ultimate defeat. This presentation includes the following:

1. A brief history of the U.S. Corps of Engineers and its relationship with the U.S. Military Academy prior to the Civil War.
2. A brief listing of the notable officers in the U.S. Corps of Engineers at the onset of the Civil War.
3. A review of the revolutionary engineering accomplishments during the Civil War.
4. Citation of Official documents outlining De-Construction and Construction Techniques to be employed by the Engineers.
5. A brief review of the post-war careers of a selected group of Engineers.

A certificate for 1 hour of Professional Development for attending the program will be presented after the luncheon.

(Presidents Message continued from page 1)

members to encourage a non-member to join the three tier organization of NSPE, OSPE and FCC. If they join we give them a free "PE License Plate Frame" and a "FCC Ballpoint Pen". As a member, you gain from someone joining who uses your name as a reference. You can earn a reduction in fees for CPD hours offered by OSPE or other OSPE member benefits.

The "Imagine Engineering Coloring Contest" for 2<sup>nd</sup> graders is underway. Some of our members are contacting the schools that responded to make arrangements to present the program, "All Engineers Don't Drive Trains". If you are interested in participating contact me, Howard Jones at hrjones63@yahoo.com.

As we start the programs in 2011, we have an excellent program for history buffs, "Civil War Army Corps of Engineers" scheduled for January 21. Be sure to see the program details in this issue.

February will be a very active month for the Chapter. We have "Engineer for a Day"- a program where junior and senior high school students spend the day with an engineer in industry, government or consulting firm; the Regional MATHCOUNTS Program; and the Engineers Week Luncheon. Volunteers are needed for grading and proctoring at the Regional MATHCOUNTS competition. Contact Joe Bolzenius at jbolzenius@dynotecinc.com to volunteer your services. College students can also help out, so if you know some students invite them to participate.

I look forward to seeing you at the January Program.

## MATHCOUNTS

by Joe Bolzenius

It is time again to volunteer for the MATHCOUNTS program. The Franklin County Chapter (FCC) competition will be held February 19 and the State competition will be held March 12. Both competitions are to be at Columbus State Community College.

Why should I volunteer? How often have we heard that the United States is not preparing a sufficient number of students, teachers, and practitioners in the areas of science, technology, engineering, and mathematics (STEM). The latest survey has shown that 85% of the Mathletes who compete at the state level go on to pursue a STEM field of study. Three of the top five majors for Mathletes, who compete at the State level, are computer science, electrical engineering, and chemical engineering.

We, as professional engineers, must take it upon ourselves to help mentor, directly or indirectly, the students that will be "the future engineers". This is just one small opportunity for us as professional engineers. Please email Joe ([joseph.bolzenius@hotmail.com](mailto:joseph.bolzenius@hotmail.com)) regarding the FCC competition or Tina ([Sutermeister@alcatel-lucent.com](mailto:Sutermeister@alcatel-lucent.com)) regarding the state competition if you will volunteer for one or both. In addition, Nick McCullough administers the grading room for the FCC competition. Jeff Bullock, Cincinnati, administers the grading for the State competition. Also, plan to stay for the Countdown Round, you will leave in awe.



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## WIND ENERGY FARMS IN OHIO - PART II

By Leon Winget, Ph.D., P.E.

Wind energy farms in Ohio are becoming a reality. Those who travel I-270, will notice a working wind machine at the automobile dealership near Sawmill road. I do not know the rating of the unit, but I would guesstimate it is 50 to 65 kW. The turbine is mounted on a 150 foot high pole (tower). (Please note that the turbine rotates at a constant speed regardless of the wind speed and the amount of energy it is generating. The energy, generated, is controlled by the pitch of the blades. The wind turbine is turning an AC generator, and must maintain a constant rpm so that the current/voltage are constantly in-phase with the grid.) The facilities installed on the wind farms will be twice the size of this wind machine.

The first wind farm of significant size to begin construction in Ohio is the Blue Creek Wind Farm in Van Wert and Paulding Counties this past September. Blue Creek will have a generation capacity of 350 MW. The wind farm is under construction by the Heartland Wind, LLC (a subsidiary of Iberdrola Renewables). The company has proposed 175 turbines (maximum) to be located on 40,500 acres. Approximately 140 landowners will be involved. The project area is located in Blue Creek and Latty Townships in Paulding County and Tully, Union, and Hoaglin Townships in Van Wert County. The wind farm will have an annual production of approximately 1,000,000 MWHs, depending on the final number of turbines erected. (A second major wind farm, Timber Road I and II projects, by Horizon Wind Energy, began construction work last November, also in Paulding County. Another three wind farms are expected to start construction this year.)

The proposed turbines are the Gamesa G90-2.0 MW, with which the applicant has had considerable experience in other projects outside of Ohio. (A General Electric 1.5 MW is an

alternative, depending upon the availability of either machine.) The rotor diameter of the G90-2 is 328 feet. The hub height of the turbines will be approximately 325 feet, with a maximum height reached by the blades of 490 feet. A 34.5 kilovolt (kV) collection system will consist of 103 miles of underground cable, and 5 miles of aboveground lines. The facility will have four 5-acre step-up voltage substations, 34.5kV to 350 kV, to interconnect to the AEP 345 kV Convoy to East Lima electric transmission line. The project requires 42 miles of permanent access roads.

The applicant intends to install two self-supporting, 330-foot tall permanent meteorological towers to monitor wind resources during the operation of the wind farm. A small trailer located near one of the permanent meteorological towers will house a SODAR (SONic Detection And Ranging) unit. SODAR, also known as a wind profiler, is a meteorological instrument that measures the scattering of sound waves by atmospheric turbulence. The SODAR unit can remotely measure wind speed, wind direction, wind profile, and turbulence.

To view the wind farm this summer, take US 33 to Van Wert and take any of the county/township roads north. The project lies north of Van Wert, east of Convoy, south of Haviland and west of SR 637.



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## 2011 CALENDAR

Jan. 11	5:30 p.m.	FCC Board Meeting @ Korda Nemeth
<u>Jan. 15</u>	<u>5:00 p.m.</u>	<u>Deadline for January <i>Columbus Engineer</i></u>
Jan. 21	Noon	Program: Luncheon – <i>Bob Mergel: Civil War Army Corps of Engineers</i>
Feb. 8	5:30 p.m.	FCC Board Meeting @ Korda Nemeth
<u>Feb. 15</u>	<u>5:00 p.m.</u>	<u>Deadline for January <i>Columbus Engineer</i></u>
Feb. 19	8:00 a.m.	Local Mathcounts Competition @ Columbus State Community College
Feb. 20-26		National Engineers Week (see <a href="http://www.eweek.org">www.eweek.org</a> )
Feb. 23	8 a.m.-3 p.m.	Engineer for a Day Program
Feb. 23	11:30 a.m.	E-Week Luncheon