

MENTORLINKS

ADVANCING TECHNOLOGICAL EDUCATION



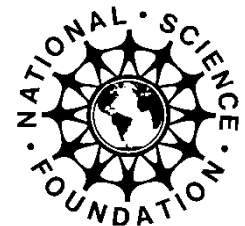
Pueblo Community College

*Tom Elliott and David Cockrell
Mentor Extraordinaire, Mike Schmidt,
WindIngen, Inc.*

MentorLinks Project Meeting

October 26 – 27, 2010

Washington, DC





MentorLinks Goal

Second Year Project Objectives

- *Objective 1:* Develop a research- and project-based wind energy maintenance technician associate degree and certificate curriculum
- *Objective 2:* Successfully recruit at least 10 students into the Wind Energy Technician Program for the first cohort beginning Spring, 2010 and all cohorts thereafter
- *Objective 3:* Successfully teach the curriculum to the first cohort of students





Collaborations

(Advisory Committee in Red)

- Jennifer Askew College Recruiter, Vestas American Wind Technology, Inc., Portland, OR
- Bob Mailander Governor's Energy Office, Denver, CO
- Jason Sheaves Site Lead, Twin Buttes Wind Farm, Lamar, CO
- Jesse Stapleton Technician, Twin Buttes Wind Farm, Lamar, CO
- Jim Gill Lamar Light & Power
- Kathy Worthington Public Relations Director, Xcel Energy, Pueblo, CO
- David Griffin Rural Project Mgr., CO Dept. of Labor & Employment (CDLE), Denver, CO
- Richard Garb CO State Energy Sector Partnership, CDLE, Denver, CO
- Thomas Bailey, Production Manager, Duke Energy Generation Services, Cheyenne, WY
- Kelly Bartholomew, OMS Site Supervisor, Clipper Windpower, Rock River, WY
- Burt Matthew, VP of Operations, Renewable Energy Systems Americas, Inc., Broomfield, CO
- Craig Cos, E.D., Interwest Energy Alliance, Conifer, CO
- David Cutro, Support Engineer, Woodward Governor Co., Fort Collins, CO
- Devos, William, Service Area Manager, GE Energy, Loveland, CO
- Milton Floch, Wind Sales Representative, Trico TCWind Inc., Valley Ford, WA
- Mark Guilloz, Operations Manager, Peetz & Ceder Creek, enXco, Peetz, CO
- Mark Hennessey, Technical Services, Gcube Insurance, Newport Beach, CA



More Collaborations

- Dennis Owens Training manager, Upwind Solutions, Sweetwater, TX
- Troy Ryan Project Manager, Cedar Creek Wind Farm, Babcock & Brown, Grover, CO
- Fred Schillreff Director, Education & Training, Syntech Safety Solutions, Dalgary, Alberta
- Willem Jan van der Ven, Regional Director of Service, Suzlon Wind Energy Corp., Portland OR
- Randy Whelchel Site Manager, Happy Jack Project Site, Suzlon Wind Energy Corporation, Cheyenne, WY
- Charles White B9 Operations
- Phillip Gregory Project manager, Mitsubishi Power Systems America
- Aaron Moeller OMS Fleet Manager, Clipper Windpower, Denver, CO
- Andrew Fowler Senior VP for O&M, Renewable Energy Systems, Broomfield, CO
- Daniel Lance Global Training Leader, GE Energy, Schenectady, NY
- Maureen M. Hand, Ph.D., Senior Engineer, National Wind Technology Ctr., Golden, CO
- Linda Lung National Renewable Energy Laboratory, Golden, CO
- Tad Miller Director, Operations & Maintenance, enXco, Forest City, IA
- Richard Nelen Group Director, Strategy & Business Development, Woodward Governor Co., Ft. Collins, CO



Accomplishments: Curriculum Adopted & Underway

63.5 Wind Turbine Technology

17 General Education Requirements

- 3 ENG 131 Technical Writing I
- 3 COM 125 Interpersonal Communication
- 4 MAT 108 Technical Mathematics
- 4 PHY 105 Conceptual Physics
- 3 Social Science or Humanities

46.5 Required Technical Courses

- 3 CNG 124 Networking I: Network +
- 3 EIC 106 Power Theory & High Volt Appar
- 1.5 EIC 222 Instrument. & Process Control
- 3 ENT 238 Industrial Fluid Power and Controls
- 3 ENY 101 Introduction to Energy Technologies
- 3 ENY 103 Renewable Energy worker Safety
- 3 ENY 104 Basic Wind Turbine Technology
- 3 ENY 280 Internship
- 3 ELT 101 Survey of Electronics
- 3 ELT 106 Fundamentals of DC/AC
- 3 ELT 138 Power Control Devices
- 3 ELT 252 Motors and Controls
- 3 ELT 257 Sensors and Transducers
- 3 ELT 258 Programmable Logic Controllers
- 3 MAC 256 Industrial Components
- 3 MAC 265 Mechanical Components

Accomplishments: Trainers Built and In use





Accomplishments: Articulation Agreements with Laramie County Community College and Northeastern Junior College

■ NJC

- WTG 210 WTG Airfoils & Composites (2)
- WTG 220 WTG Troubleshooting and Repair (4)
- WTG 289 Wind Tech Capstone (2)

■ LCCC

- WTG 110 Wind Turbine Power & Controls (4)
- WTG 210 Wind Turbine Airfoils & Composites (2)
- Wind Turbine Schematics



Accomplishments:

State Energy Sector partnership Training Scholarships Approved

- Energy Maintenance Technology Program – Wind Turbine
- Prepares the student for a career as a wind turbine technician in utility-scale wind turbine generating facilities. Students learn to perform general maintenance, operations and inspections on wind turbines and related facilities; conduct electrical troubleshooting, repair and replacement; maintain mechanical/power trains, troubleshoot hydraulic systems; conduct visual blade inspection and physical blade repair, bolt torque testing and installation, and testing of hardware and software.
- Associate of Applied Science Degree: 63.5 credit hours or approximately 2 years. Occupational Certificate: 30 credit hours or 2 semesters.
- Associate of Applied Science: Tuition: \$5,607; Fees: \$910.15; Books: \$1,400; Total: \$7,917
- Occupational Certificate: \$2,649; Fees: \$434.88; Books: \$750; Total: \$3,833.88.



Challenges

Challenges from our first year still remain!

- Jobs are outside our service area, but there is little training available near the wind farms.
- Wind technician jobs are still rare, and the overlap in skill sets with industrial maintenance technician jobs is not well understood.
- Specific wind technology training equipment is expensive.

New Challenges that have become clear during the second year:

- Wind production has not expanded nearly as rapidly as projected.
- We will need to meet with the advisory committee on *their* turf. We may be able to offer continuing education to their employees on our turf.

Lessons Learned

- There is a dance between new industry development and training opportunities development.
- MentorLinks has given us the opportunity and resources to prepare ourselves for quick action when the industry takes off.
- In this economy, it's not all about our service area!



What's Next?

- Cultivate partnerships through participation in industry networks. Identify and coalesce the advisory committee.
- Commit Perkins money or pursue ATE funding for equipment/lab development.
- Expand recruitment as the jobs materialize.

