

*A Model for Collaboration:
CERET's Renewable Energy
Technology Certificate*

Barbara Anderegg
Co-Principal Investigator
September 21, 2010

Consortium for Education in Renewable Energy Technology, NSF-DUE 0903293



Ken Walz, Principal Investigator
Madison Area Technical College

Barbara Anderegg, Co-Principal Investigator
Madison Area Technical College

Debra Rowe, Co-Principal Investigator
Oakland Community College

David Shonkwiler, Dean
Madison Area Technical College

Partnerships for Education in Renewable Energy Technology, NSF-DUE 0501764



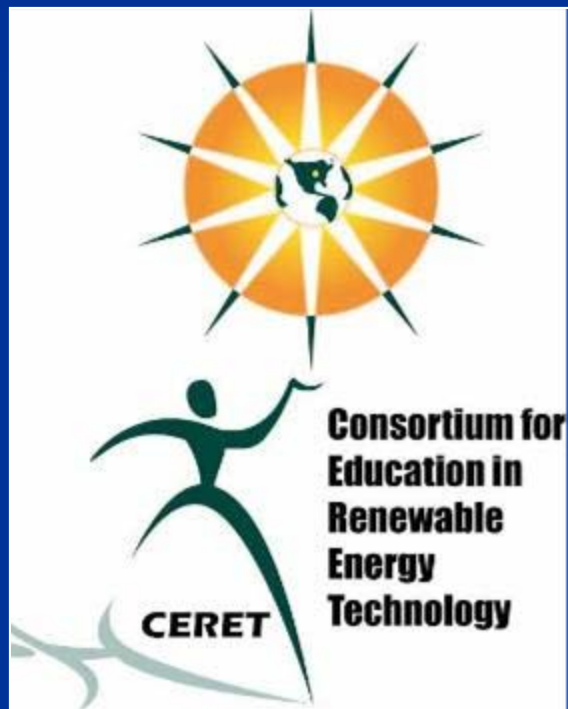
Barbara Anderegg, Principal Investigator
Madison Area Technical College

Ken Walz, Co-Principal Investigator
Madison Area Technical College

Debra Rowe, Senior Personnel
Oakland Community College

David Shonkwiler, Dean
Madison Area Technical College

How do two-year college programs change to reflect new and emerging technologies such as renewable energy?



- Bring all stakeholders together and let them retain their own identity
- Let each partner institution bend a little toward the greater good
- Provide a strong link to the workforce
- Disseminate the model

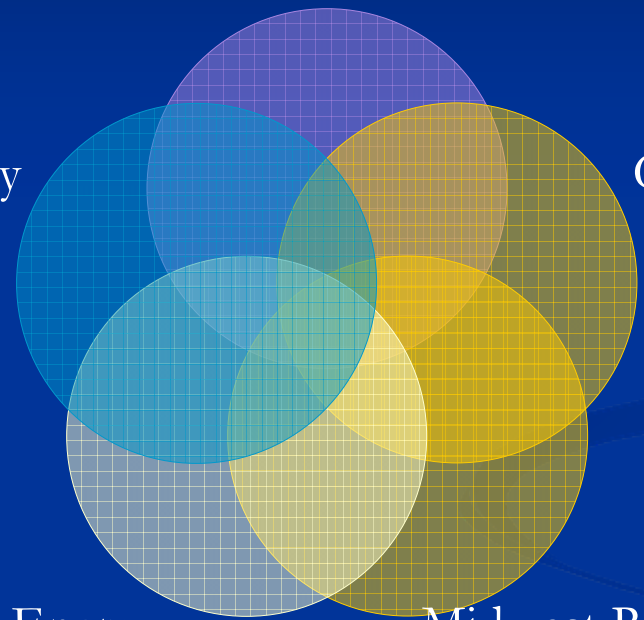
Madison Area
Technical College

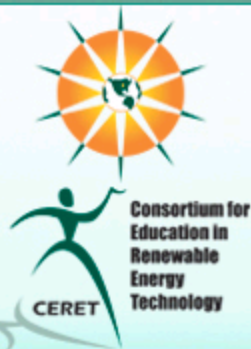
Brevard
Community
College

Oakland
Community
College

Solar Energy
International

Midwest Renewable
Energy Association





CERET

Consortium for Education in Renewable Energy Technology



Mission Statement—

Increasing the availability and use of renewable energy through a world-class Consortium for Education in Renewable Energy Technologies

Certificate

= Online

Face-to-Face =

Course Number	Course Title	Credits	Hours / Week Lecture—Lab
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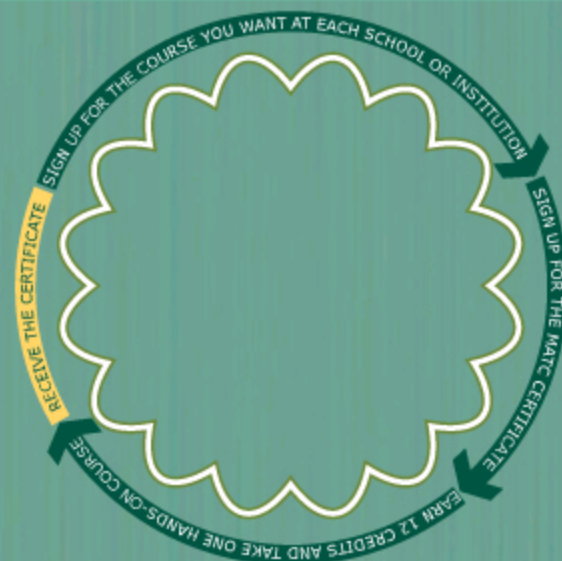
Choose at least one of the following classes

10-468-100	Solar & other Renewable Energy Systems	4	4-0
10-468-110	Energy Management	4	4-0

At
Least 4
credits

Plus at least 3 credits from among these classes

10-468-120	Alternative Fuel and Electric Vehicles	3	3-0
10-468-130	Photovoltaic Design	2	2-0
10-468-134	Advanced Photovoltaics	2	2-0
10-468-140	Sustainable Home Design	2	2-0



Resources

▶ CERET Resolution

▶ CERET Workshop



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10-468-110	...	4	4-0



<http://www.ceret.us>

10-468-100	Solar & Other Renewable Energy Systems	4	} at least 3 cr.
10-468-110	Energy Management	4	
20-623-290	Renewable Energy for Internatl. Develop.	3	

10-468-120	Alternative Fuel and Electric Vehicles	3	} at least 3 credits
10-468-130	Photovoltaic Design	2	
10-468-134	Advanced Photovoltaics	2	
10-468-140	Sustainable Home Design	2	
10-468-150	Introduction to Wind Energy	3	
10-468-160	Introduction to Biomass Energy	3	

10-468-121	Introduction to Ethanol Fuel	1	} at least 1 face-to-face course
10-468-130	Introduction to Biodiesel Fuel	1	
10-468-123	Intro to Hybrid Electric Vehicles	1	
10-468-131	Basic Photovoltaics and Site Assessment	1	
10468-132	Intermediate Photovoltaics	1	
10-468-133	Advanced Photovoltaics Installation	1	
10-468-141	Solar Domestic Hot Water and Space Heating Systems	1	
10-468-142	Solar Domestic Hot Water Site Assess.	1	
10-468-151	Wind Site Assessor Training	1	
10-468-152	Wind Systems Repair/Maintenance	2	
10-468-153	Wind Systems Installation	2	
10-468-161	Anaerobic Digester Technology	1	
10-468-162	Wood Combustion Heating Systems	1	

For a total of 12 credits

“Beyond the cadre of highly skilled engineers and innovators... and a limited number of green-collar workers in just-invented jobs, the new energy economy will be built and sustained by middle-skill workers in traditional occupations.”

Sarah White, Center on Wisconsin Strategy

Greening of the World of Work: Implications for O*NET-SOC and New and Emerging Occupations Report

- Existing green occupations in greater demand
- Existing green occupations with significant change
- New and emerging green occupations

<http://www.onetcenter.org/reports/Green.html>

Existing programs that pair with the Renewable Energy Certificate

- Agriscience/business
- Architecture Tech
- Automotive
- Biotechnology
- Construction and Remodeling
- Civil Engineering Tech
- Diesel Equipment
- Electrical Engineering Tech
- Electrical Apprentice
- Electronics
- Industrial Maintenance



CERET

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How to Enroll in Certificate Courses—

Review the [Renewable Energy Certificate](#) description.

Find the courses offered each semester.

Register with and pay tuition directly to the host institution offering each course.

The host institution will issue your grade when you complete the course.

Complete the Renewable Energy Certificate form and submit it to **Barb Anderegg**

When you enroll in an online course, please inform the online instructor that you are participating in the Consortium for Education in Renewable Energy Technology (CERET) certificate. As you complete each course, notify **Barb Anderegg** who will transcribe progress toward the certificate.

Complete 12 credits, including at least 1 hands-on course, to receive Madison Area Technical College's Renewable Energy Certificate. Note: MATC will not issue individual grade reports as you complete each course.

[Download the Certificate Application Form](#)

Integrating Renewable Energy with Traditional AAS Degree Programs

Sample Certificate Course Selection:

Photovoltaic Emphasis

480-100	Introduction to Renewable Energy	4 cr.
481-140	Sustainable Home Design	2 cr
482-130	Photovoltaic Design	2 cr
482-131	Basic Photovoltaics & Site Assessment	1 cr
482-132	Intermediate Photovoltaics	1 cr
482-133	Advanced Photovoltaics	2 cr

Related AAS degree programs: *Architectural Technician, Electrical Engineering Technology, Industrial Maintenance Technician, Construction and Remodeling*; also *Electrical Apprentice*

- Each institution collects fees, accumulates FTEs, and issues grades for its own courses
- Thus each institution retains its own intellectual property
- Seasoned renewable energy instructors from Solar Energy International (SEI) and Midwest Renewable Energy Association (MREA) teach some courses
- Madison Area Technical College issues the certificate upon completion of 12 credits

- Online courses reach students who otherwise have no access to renewable energy instruction
- The certificate provides an entry path to the renewable energy field for new students, for those switching careers, and for entrepreneurs
- The certificate provides technical background for tradespeople and professionals seeking career re-training in renewable energy
- There is great value in veteran RE installers and instructors who are familiar with the workforce



Spring, 3 credits
Instructor:
Josh Kaurich



THE UNIVERSITY
of
WISCONSIN
MADISON

Introduction to Biomass Energy

**Renewable Energy Production from
Crops, Wood, and Organic Matter**

6:30 pm—8:30 pm Mondays

Plus one hour per week of online instruction

January 14 to May 12, 2008

Course information: 10-468-160 3 credits To register: Course # 54943

Certificate Student Demographics

State of Residence:

AL, AZ, CA, CO, DC, FL, GA, HI, IL, IN, IA,
KY, MA, MD, MT, MI, MN, MS, NC, NH, NJ,
NM, NY, OH, OR, PA, TN, TX, VA, WA, and
WI

Canada, Estonia, South Africa, Israel

Growth Rate of Certificate Students

Academic year	Number of students
2006-2007	42
2007-2008	61
2008-2009	189
2009-2010	160

Disseminating the Model

~ 25 schools have asked for help

Implementing this model at their institutions

They can create their own certificate
(especially their own face-to-face courses)
and accept certificate courses as transfer
courses

We ask them to post their certificate, course,
or program on the IREC and ATEEC directories

Face to Face Certificate Courses

10-468-121	Introduction to Ethanol Fuel	1
10-468-130	Introduction to Biodiesel Fuel	1
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10-468-152	Wind Systems Maintenance	2
10-468-153	Wind Systems Installation	2
10-468-161	Anaerobic Digester Technology	1
10-468-162	Wood Combustion Heating Systems	1

- Drupal portal that allows students password entry to view their own progress towards the certificate
- Administer the site through a web-based interface that allows content and user management, report generation and site configuration

- WI Workforce Development Boards are reimbursing students to take the certificate
- Southwest WFDB is pairing the certificate with a 6-month electro-mechanical certificate at Blackhawk Tech College

Renewable Energy Train the Trainers Academies

CERET is currently in the planning stages for a series of new courses targeting high school and two year college instructors

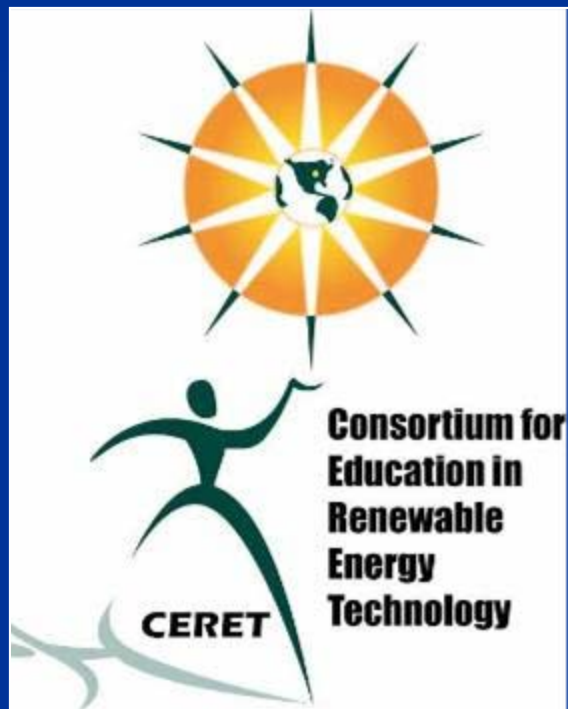
- Summer academies meet teacher schedules
- Graduate credit available
- Stipends provided
- Emphasize hands-on experience
- Solar electric, solar thermal, and biofuels
- Instructors from MREA, SEI, and MATC

Intended Outcomes:

- Participating teachers will be able to incorporate new knowledge into existing classroom and teaching practices
- Interaction between HS and college faculty will cultivate a pathway for students entering technical careers in renewable energy



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*For More Information on the Consortium
for Education in Renewable Energy
Technology (CERET) :*

www.ceret.us

Barb Anderegg

banderegg@matcmadison.edu

608-246-6812