



Solar Powering Your Community

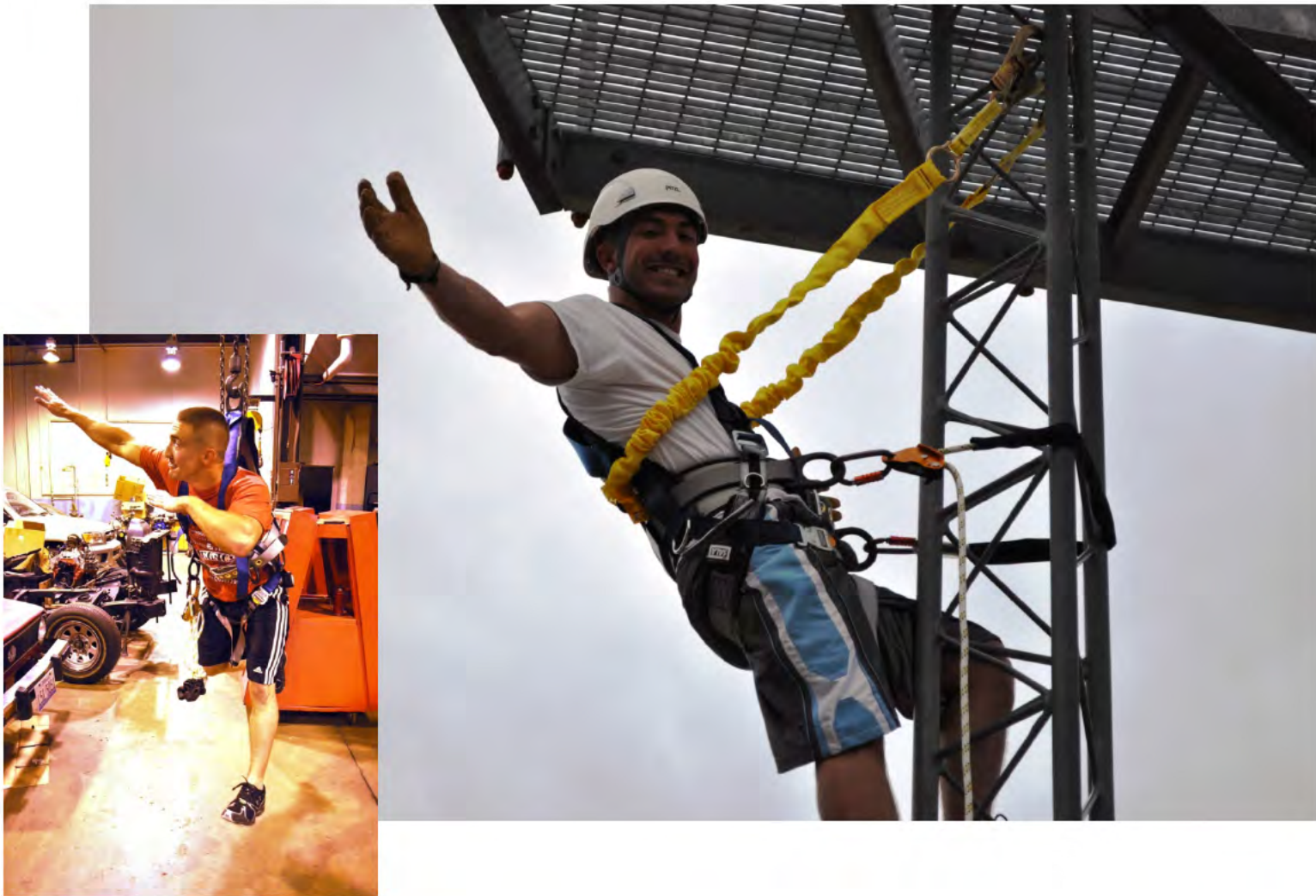
*Kankakee Community College
Renewable Energy Technology Training Program*

**Timothy J. Wilhelm, P.E., NABCEP-Certified Solar-PV Installer, ISPQ-Certified Master Trainer
Program Coordinator, *Kankakee Community College*
Electrical Technologies Program**

Jake Schultz – KCC Small Wind Energy Course



Jake Schultz – KCC Small Wind Energy Course



Jake Schultz -- Today



Jake Schultz -- Today



Ryan Duncan – KCC Small Wind Energy Course



Ryan Duncan – KCC Small Wind Energy Course



Ryan Duncan -- Today



Ryan Duncan -- Today



It's been fairly easy to get students placed
in wind-industry jobs in the Midwest;

BUT...

BUT, what about SOLAR jobs?



KCC Solar-PV Students – Student Project

BUT, what about SOLAR jobs?



KCC Solar-PV Students – Student Project

PART 1 – Project REvamp

The Chicken or the Egg?

- We can “feel” an impending energy crisis...
- We “sense” the need to create a more sustainable energy paradigm...
- We “intuit” the necessity of training a new, renewable energy technician workforce...
- BUT...look in the Midwest Want Ads...almost zero jobs for solar technicians.
- **How do we ethically train a workforce for jobs that don't exist?**

The KCC Strategy

- We abandoned our Electronics Technology and Industrial Machinery Maintenance programs.
- Modified our very successful Industrial Electrical program, transforming it into...
- a single *Electrical Technology* program, with multiple tracks of specialization.
- Understand and accept that most **Renewable Energy Technology Training** is built on a solid foundation of **Electrical Technology**.

The KCC Strategy, continued...

- KCC's new Electrical Technology Program has a **common core of freshman-level courses.**
- Sophomores select a specialized track of study for their 2nd year:
 - Industrial Electrical Technology
 - Industrial Machinery Maintenance
 - Instrumentation and Process Control (Electronics)
 - **Renewable Energy Technology**

KCC's R.E. Focus Track

- KCC's Renewable Energy Technology track includes four new courses:
 - Survey of Renewable Energy Technology
 - Solar-Thermal Technology
 - Solar-Photovoltaic Technology
 - Small-Wind Energy Technology
- The first course has multiple target-audiences.
- The three latter courses are for Electrical Technology students, and are all based on the NABCEP competencies.

What Does the R.E. Graduate Get?

- Those who complete the program, focus-tracked in R.E. Technology, earn...
 - An A.A.S. Degree in Electrical Technology
 - A Master Certificate in Renewable Energy Technology.
- Successful graduates are **fully qualified for entry-level positions in many electrical venues;**
BUT...
- They possess a unique skills-set that puts them ahead of the pack as new R.E. jobs develop!

3rd Party Accreditation and Certificates!

- KCC has an IREC/ISPQ- Accredited Solar Training Program.
- KCC is a NABCEP-approved PV Entry Level Provider and testing center...

Our Strategy Gets NSF Support!



PART 2 – Project C4

The Concept of “Natural Law”

The “laws” that govern the natural machinations of the physical universe are...

- Absolute...
- Inescapable...
- Immutable...
- Never-ending...

and, they apply across all relevant venues.

The Law of “Cause-and-Effect”

This is the foundational Natural Law...

- For every action there is an equal and opposite reaction...
- Do unto others as you would have them do unto you...

The Law of “Inertia”

- Objects in motion tend to stay in motion...
- Objects at rest tend to stay at rest...
- QUIZ:

 is the quantitative measure of inertia.

How do you get the resting mass
to move?

- Apply a “Force!”

Force = mass x acceleration

“Hey, Wilhelm...

What the hell does this have to do
with Solar Market Development?!?”

Community Colleges

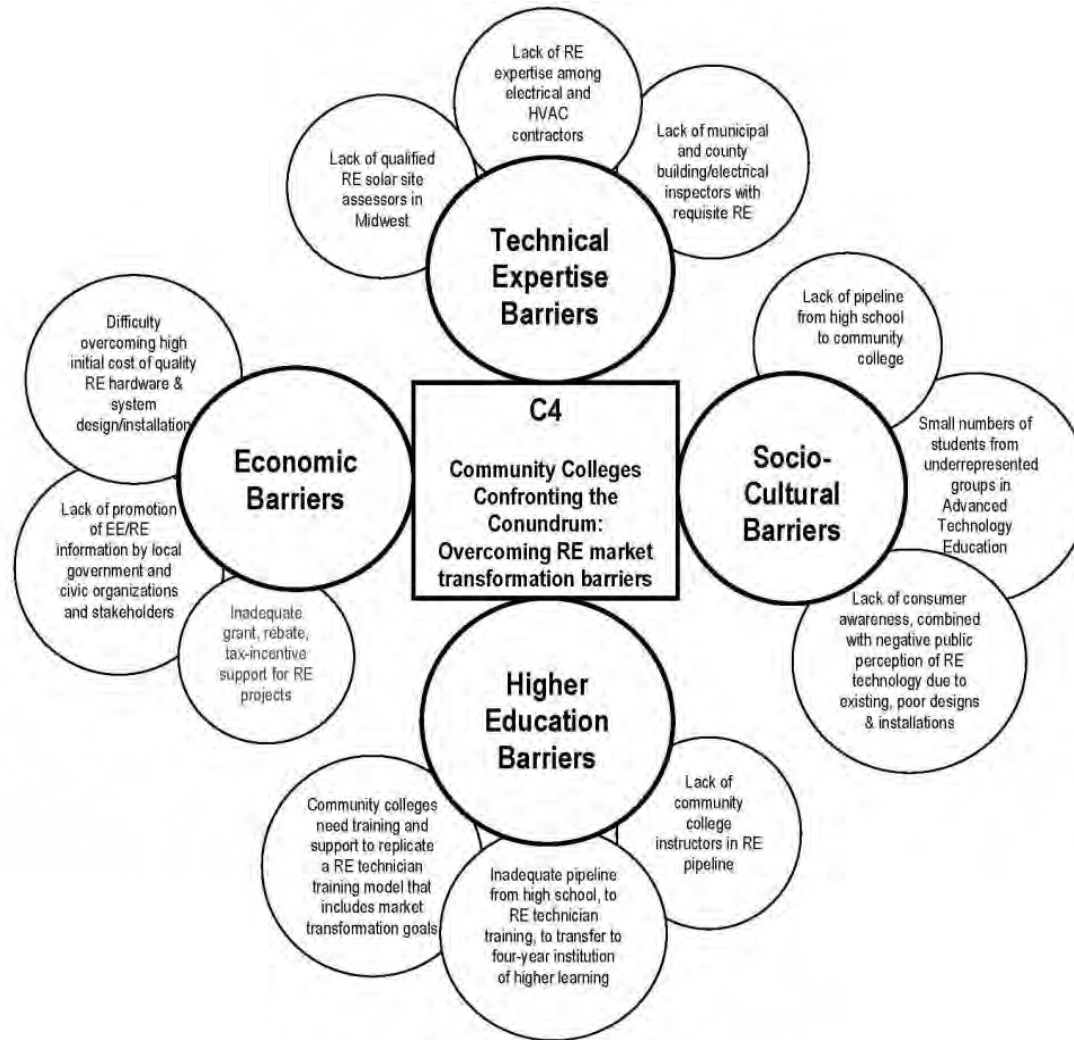
Confronting the Conundrum

- Do we train Midwest solar professionals for jobs that don't yet exist? Or...
- Do we wait for the Midwest solar job market to develop and stabilize; and, **then** train solar pros?

NEITHER!

- We train Midwest solar professionals, **now**; and, we become change-agents affecting local, solar-market development!

Identify the Market Barriers



PV Market Barriers -- C4 Activities

- Technical Expertise Barriers
 - Lack of PV interest and expertise among existing electrical contractors
 - C4 works with existing electrical contractors, attracting and supporting full-time electricians into KCC's training
 - Lack of municipal and county electrical inspectors with solar-PV expertise
 - C4 develops a and offers a seminar for local electrical inspectors
 - Lack of qualified solar-PV site assessors in the Midwest
 - C4 incorporates the ISPQ/MREA solar site assessment training and certification into KCC's training program
- Socio-Cultural Barriers
 - Lack of consumer awareness and/or poor public opinion of solar-PV based on existing bad-example projects
 - C4 offers free solar site surveys and assessments / C4 proactively generates positive PR
 - Lack of pipeline from high school to community college RE programs
 - C4 includes a high school outreach component
 - Small numbers of students from under-represented groups in ATE programs
 - C4 includes an outreach component to under-represented groups
- Economic Barriers
 - High initial cost of solar-PV hardware and of site surveys and system designs
 - C4 offers free solar site surveys and assessments / C4 informs the public about available grants, tax credits, etc.
 - Inadequate grant, rebate, tax-incentive support for solar-PV projects / lack of fair parity of solar-PV vs. utility
 - C4 informs the public about available grants, tax credits, etc. to most advantage of what is being offered
- Higher Education Barriers
 - Lack of qualified community college instructors in the solar-PV pipeline
 - C4 partners with the MREA/MSTN to provide solar-PV instructor training for C4 replication sites
 - Lack of an existing model for incorporating solar-PV training with a market transformation component
 - C4 includes the development of a C4-Replication course to be offered at the C4 replication sites

The C4 Strategy

1. Make the MREA Solar Site Assessment Certification part of our PV course.
2. Offer free site assessments to vetted public – student projects.
3. Partner with a cooperating, established electrical contractor – give them free tuition to the PV course...work with them to earn NABCEP PV-Professional Sales Certification.

C4 Strategy, continued...

4. Market Development Coordinator work to help cooperating contractor to turn one or more site assessments into site projects.
5. Students work with contractor on site project.
6. Area permitting agents and electrical inspectors given free training on inspecting solar-PV installations.
7. Work with funding agencies to get better support for projects.

C4 Strategy, continued...

8. Work with campus radio station, local newspaper and TV stations for program PR and guerilla marketing.
9. Establish and use industry advisory committee.
10. Establish and use a relevant “community of practice.”
11. Establish constructive relationship with local electrical hardware supplier.

C4 Strategy, continued...

12. Offer a “RE Survey” course to general public.
13. Recruit from under-represented groups for new students.
14. Recruit from under-represented groups for new projects – seek grant funding.
15. Establish KCC as working demonstration site.
16. Replicate C4 at other community colleges throughout the Midwest.



PART 3 – SOLAR-PV Today, Solar-Thermal and Small-Wind Tomorrow



THE DAILY JOURNAL



September 6, 2012

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SPORTS



Grant gives KCC big lift

National Science Foundation funds widen career paths for students

By Nicole Leonhardt
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Jake Schultz's job lifts him upward, nearly 300 feet off the ground.

For the past year, the 26-year-old Kankakee resident has worked as a repair technician for General Electric. When a wind turbine breaks at the company's wind farm near Dwight, Schultz finds the problem and fixes it.

"I really like this job and the atmosphere," Schultz said. "It's a new technology that's good for the environment."

Schultz secured the job after amending Kankakee Community College's electrical technology program for two years. A program that instructor Tim Wilhelm began revamping in 2008, with the aid of a \$150,000 grant from the National Science Foundation.

Wilhelm altered the program so students would learn renewable energy technology, along with electrical technology, making them good applicants for electrician jobs as well as wind turbine repairmen, and solar panel installers, to name a few careers in the renewable category.

The program went over



The Daily Journal/Mike West
Kankakee Mayor Nina Epstein will run for a second term in office next spring.

Epstein to seek 2nd term

By Lee Provost

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Nina Epstein said time has passed quickly since she was elected Kankakee mayor, and she has no plans of slowing down now.

Epstein, 54, in the final year of her first mayoral term, confirmed Wednesday she will run for a second term in next spring's municipal election. She will formally announce her candidacy at a 5 p.m. gathering next Wednesday at the Farmers' Market gazebo in downtown Kankakee.

"I love this job. These four years are going very quickly," she said. "There is so much in the works and I'd like to see some of these projects come to a conclusion."

Epstein is the first woman to serve as Kankakee mayor.