

# Programs to Develop 21<sup>st</sup> Century Talent

Pathways to STEM Based Careers

I-STEM Resource Network Feedback Loop

White County Instructional Center

State of the Workforce Report and Roll Out

Manufacturing Skill Standards Certificate

Guitar Manufacturing Camp

Project Lead the Way

New Tech High

Maturity Matters

Project Complete

Indiana InternNet

REACH Centers

Tri County High School Alternative Energy Program

Sustainable Agriculture Workforce Development Survey

Western Indiana Sustainable Energy Resources

Retraining Indiana Construction Workers for Road and Bridge Construction

Future of Conventional and Renewable Electrical Energy



# ALTERNATIVE ENERGY AT TRI COUNTY HIGH SCHOOL WOLCOTT, IN



Their motto states:

**"One of the smallest ,  
striving to be the best"**

Tri County High School  
developed an alternative  
energy curricula and built a  
wind turbine.

# **Tri County High School Receives Grant for Wind and Solar**

**Vision and perseverance are paying off for Tri-County schools and students. They received grants to install solar panels and a 65 foot windmill at the high school that are now in operation.**

**The new equipment is being used as both educational tools in the fields of science, math and agronomy as well as offsetting the energy costs at the school. The windmill alone offsets approximately 1/10th of the school's energy use. The following training opportunities were created during the process:**

**105 Students Trained**

**10 Teachers Trained**

**9 New Curricula**

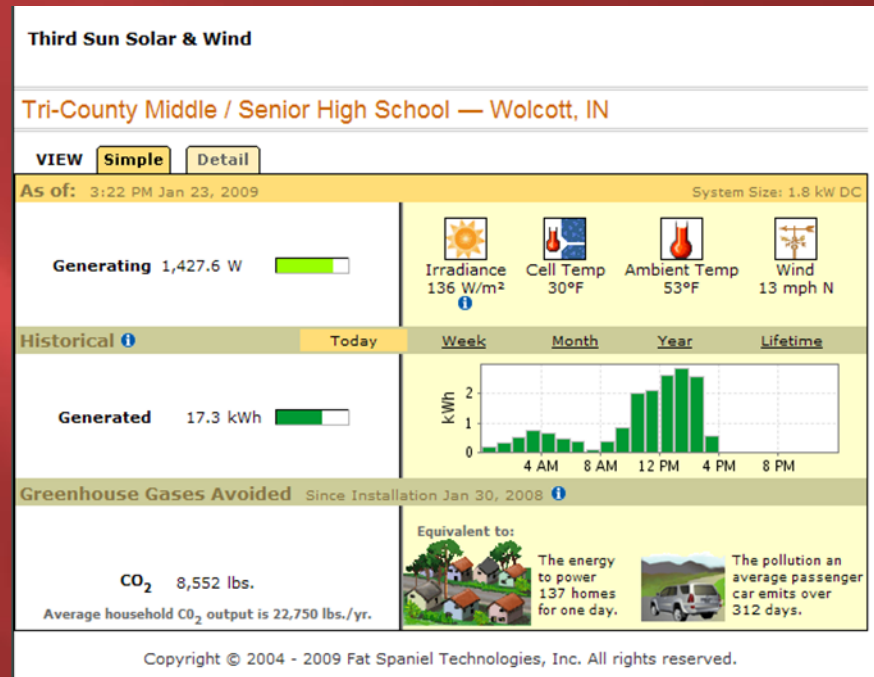
# Tracking the Energy Generated

A company experienced in setting up alternative energy arrays for educational, residential, and business applications and gave technical support throughout the construction process.\*

The output varies from month to month depending on outside conditions.

Tri County is currently in a wind corridor that can be expected to produce winds between 12 and 15 mph at heights of 50 meters. The system is expected to perform on the high end of the curve for the majority of calendar days.

\*Third Sun Solar and Wind Power, Ltd



There is constant tracking on the school website.

[Energy Tracker Website](#)

(website not supported by WIRED funding and included here for information purposes only.)

# PURDUE UNIVERSITY

College of Technology

Advanced Manufacturing Summer Camp

## GUITAR WORKSHOP

**Pssst. Hey, kid.**

**Wanna spend your summer  
vacation learning about  
advanced manufacturing?**

**NO?**

**How about 10-hour days doing math  
and science?**

**Didn't think so.**

**Ok, then, how does guitar fantasy  
camp sound?**





# Advanced Manufacturing Summer Camp Guitar Workshop 2008

**17** students from the region learned advanced manufacturing skills while making their own guitar.



This program was so successful, it is now being “kitted” so other schools and more students can have the same advanced manufacturing experience.



Indiana **Wired**



Workforce Innovation in Regional Economic Development  
**TALENT DRIVING PROSPERITY**

# Manufacturing Skill Standard Council certificates

**‘the gold standard in portable  
manufacturing certificates’**

360 – Individuals beginning training  
248 – Completed training  
174 – Received Certificates





**Prepare** businesses for the demographic reality of the mature workforce

**Promoting** skill development in mature and aging workers

**Create** learning opportunities to support employment of older workers

- \* Thousands of hits on the Lifelong Learning Systems website

- \* 7 Workshops conducted with employers impacting **6400** employees



# New Tech High

**A New Kind of Workforce Model Drives a New Kind of Education**

An experiment in education that answered the question:

**Can a more or less typical high school in rural Indiana that graduates only about 79% of its students be transformed into a training ground for America's 21<sup>st</sup> Century workforce?**





# New Tech High (Rochester, IN)

Based on the successful New Tech High in Napa, California, Rochester refashioned its entire freshman class curriculum into a New Tech model that is

**projects oriented and technologically-enabled,**  
with an emphasis on the STEM subjects of  
**Science, Technology, Engineering and Math.**

**It's a new kind of education** designed to promote the kind of "soft skills today's employers are demanding, such as collaboration, teamwork, independent thinking, listening and knowing how to analyze and communicate complex issues.

*Connecting the Dots between Education and  
Economic Development*

See more about the Rochester High School Transformation to  
New Tech High:

[http://www.youtube.com/New\\_Tech\\_High](http://www.youtube.com/New_Tech_High)

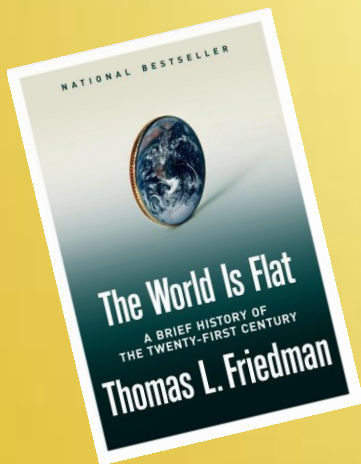
# What employers are seeking:



## A CHANGING WORKPLACE

**Students Now Compete in a Global Environment**

**To Earn A Living Wage, Our Students Will Need to Use Their Heads**





# ZEBRA NEW TECH HIGH LEARNING OUTCOMES

- TECHNOLOGY LITERACY
- COLLABORATION
- CRITICAL THINKING
- ORAL COMMUNICATION

- WRITTEN COMMUNICATION
- CAREER PREPARATION
- CITIZENSHIP AND ETHICS
- CURRICULAR LITERACY  
(CONTENT STANDARDS)





# New Tech High (Rochester, IN)

The objectives of Rochester's New Tech High are to realize an increase in high school attendance, graduation, enrollment and completion of post-secondary degrees along with an increase in academic achievement and the retention of a skilled and educated workforce.

According to Rochester Superintendent, Student engagement '**has exploded**' with more involvement, less absenteeism and fewer disciplinary actions needed.

# The Results

ZEBRA NEW TECH  
HIGH

**3<sup>rd</sup> year of enrollment**

**592** – Students enrolled (97%)

**23** – Teachers trained in STEM

**16** – Teachers trained by NTH  
foundation

**Rochester is Gaining National  
Attention for their efforts and  
willingness to share what  
they've learned.**

**It was the first to fully-  
implement NTH in the State of  
Indiana and the Nation.**

**500** – Individuals toured NTH





# **PATHWAYS TO STEM BASED CAREERS:**

# **PATHWAYS TO STEM BASED CAREERS**

**Supporting Employers in the rapidly changing world of manufacturing technology**

- Fill the worker pipeline with appropriately skilled individuals**
- Keep incumbent workers' skills up to date**
- An Emerging Sustainable Energy field**



# EMERGING AND INCUMBENT WORKERS:

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- ✘ Summer Technical Middle College
  - + Advanced Manufacturing with MSSC Certification
- ✘ ‘Double UP’ (or early college) programs
  - + Allows students to take classes on campus
- ✘ Internships for both Faculty and Students
  - + To provide relevant work experience
- ✘ Scholarships provided to incumbent and dislocated workers in Advanced Technology

# SUSTAINABLE ENERGY

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## **A new Associates in Applied Science degree in Sustainable Energy:**

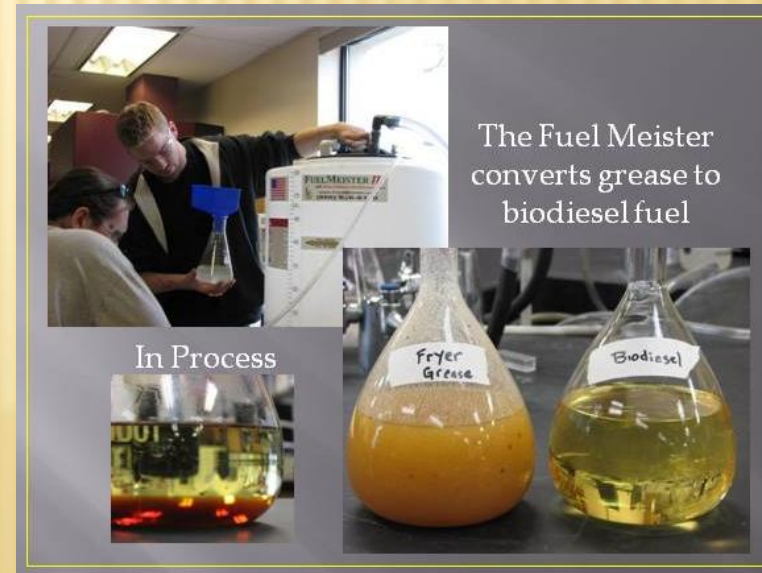
Ivy Tech became the first college or university in Indiana to have such a program. The Lafayette campus will offer the course first and the new curriculum will rapidly extend to other Ivy Tech Locations in the State.

**~50 Students** have declared Sustainable Energy as  
**their major.**

# BUILDING CAPACITY

Instructors have been added through the grant and many of these positions will be sustained after the WIRED grant.

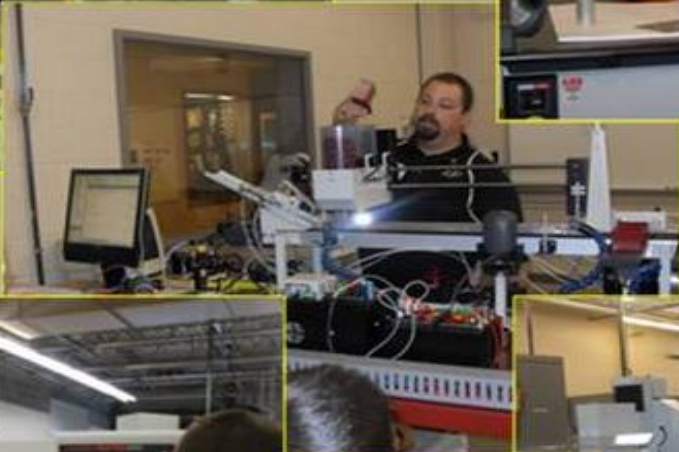
Specialized state-of-the-art Advanced Manufacturing equipment has been purchased that will enhance learning and prepare students for new opportunities.





**Flexible Advanced Manufacturing System, Design Prototype 3D Modeling System for CAD, a Turning and Milling Center and Robotics equipment.**

Building Capacity ~ Now and in the Future



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# K o k o m o

Two Fanuc LR-Mate 200iC Robots, one with a vision package and one with welding, and Vision software for the robotics lab.

2 Haas GT-10 CNC Lathes with tooling.

2 Haas Mini Vertical Milling Centers with tooling.

AMATROL AC/DC Electrical with virtual simulation software and lab manuals.



# **Results and Sustainability:**

**~3000 Students**

**have participated in various programs as part of the Pathways grant with thousands more to benefit from the specialized equipment in years to come.**



# Additional Ivy Tech programs to build 21<sup>st</sup> Century Talent:

## Ivy Tech Kokomo – Logansport

### Industrial Welding Certification

This grant worked to identify specific welding competencies needed by our industry partners to develop training programs and certification options for emerging workers and incumbent workers. These competencies will be added to our training options offered at the new welding lab on the Ivy Tech Logansport campus.

## Ivy Tech Lafayette –

### Battery Technician and Vehicle Tech Training Program



With this WIRED-funded initiative designed to increase capacity in this new field, the BTEVP program allowed Ivy Tech to develop new electric vehicle courses that will lead to a certificate degree and that has now been approved by the Automotive Program Statewide Curriculum Committee and the Regional Academic Officer's Committee (RAOC).





# Project Complete

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Helping college “Stop-outs” attain their degree.

Indiana University  
Kokomo



# The Scholarships

Project Complete Scholarships were offered to former IU or Ivy Tech students, “stop outs” within the WIRED region.

Offers were to all former IU students who had at least 90 credits and at least a 2.50 GPA. Awards were for \$500 per semester for up to four semesters to complete a first bachelor degree.

Similar offers were made to Ivy Tech students to work towards an associates degree.

At IU K 16 students enrolled in courses after initially accepting the scholarship . Ten students persisted and 3 degrees have been issued.

An additional 33 students contacted Ivy Tech to participate with 11 students enrolling and 2 degrees issued.

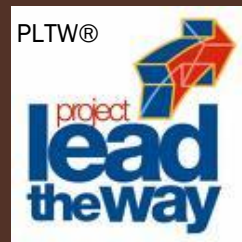
Results are pending as individuals are encouraged to continue in the quest for a degree.





## *Connecting the Dots between Education and Economic Development*

### Project Lead The Way



For more information about the Indiana WIRED  
Project Lead the Way initiative, visit this site:

<http://www.youtube.com/PLTW>



# THE ISSUE & A SOLUTION

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## Issue:

Insufficient number of students with strong preparation in science, technology, engineering, and math (STEM) education at the K-12 through all levels of post secondary education to compete in a technology driven global economy.

## Solution:

A nationally recognized pre-engineering and engineering technology program called **Project Lead The Way**.

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NCI WIRED, representing 14 counties in North Central Indiana, increased the number of PLTW schools from 21 to 56 — a **167%** increase with over **13,000** students enrolled through school year 2009-2010.

Indiana now leads the nation in the number of Project Lead The Way schools.

# NCI WIRED GRANT OPPORTUNITY

1. A \$15,000 incentive grant to implement Project Lead The Way made available to every High School and Middle School in the NCI WIRED region.
2. A \$20,000 incentive grant to High Schools currently offering Project Lead The Way for adding Computer Integrated Manufacturing to their curriculum.
3. Assistance with Teacher training.

# APPENDIX A: PROJECT LEAD THE WAY PARTICIPATION SUMMARY

## Indiana **WIRED** Program - Project Lead The Way Initiative

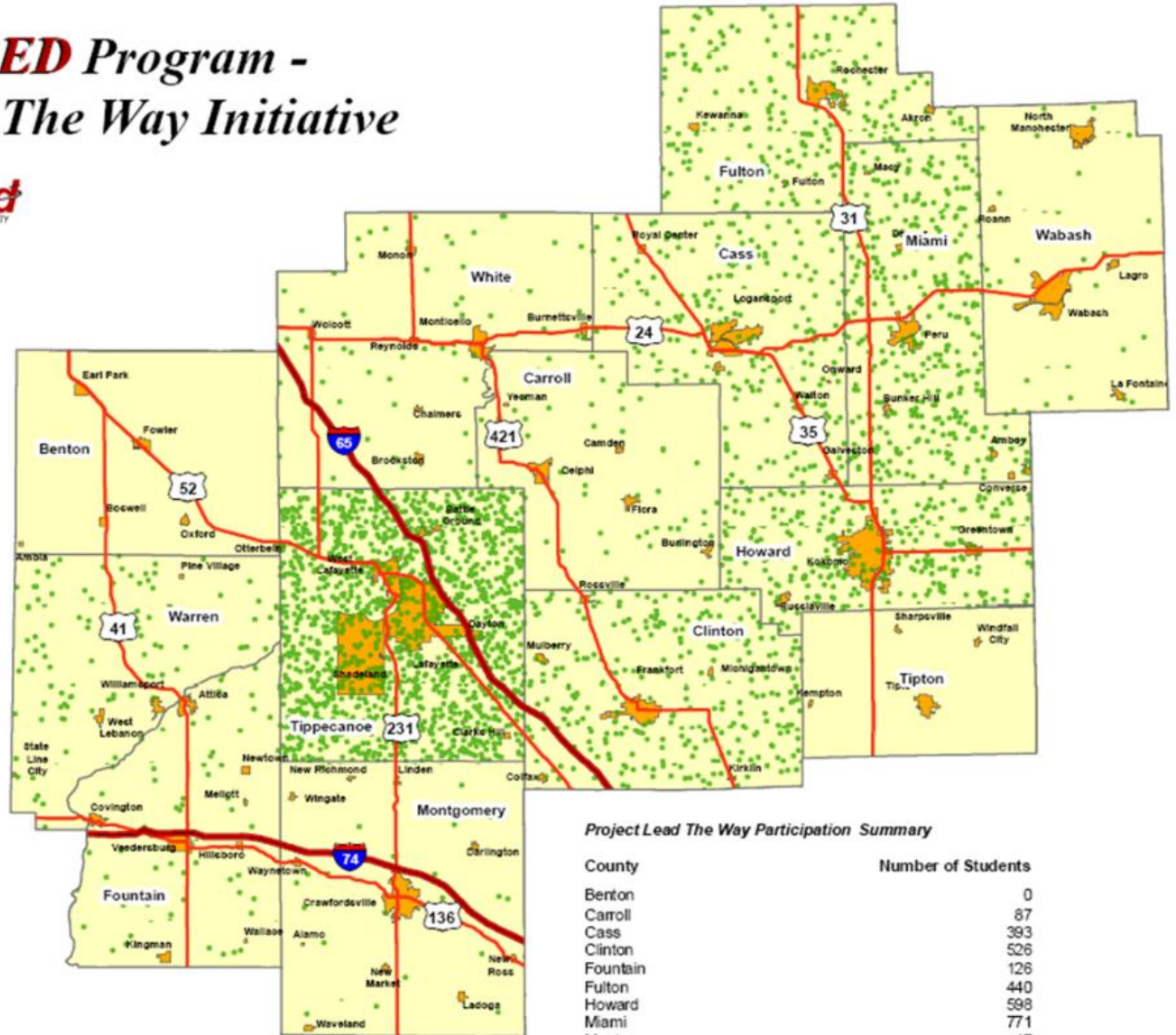
Indiana **WIRED**  
Weather Resilient in Regional Economic Development - TALENT SPRING PROMISES

**PCRD**  
Purdue Center for Regional Development

-  Interstates
  -  US Highways
  -  Incorporated Areas
  - Project Lead The Way (Dot Density)**
  -  1 Dot = 2 Students
- NOTE: Dots do not represent geographic locations.



1:800,000



*Project Lead The Way Participation Summary*

County	Number of Students
Benton	0
Carroll	87
Cass	393
Clinton	526
Fountain	126
Fulton	440
Howard	598
Miami	771
Montgomery	47
Tippecanoe	2830
Tipton	0
Wabash	70
Warren	171
White	98

Map developed by the Purdue Center for Regional Development



# APPENDIX B: PARTICIPATING SCHOOL DISTRICTS

## Indiana **WIRED** Program - Project Lead The Way Initiative

**IndianaWired**  
Workforce Innovation in Regional Economic Development • TALENT DRIVING PROSPERITY

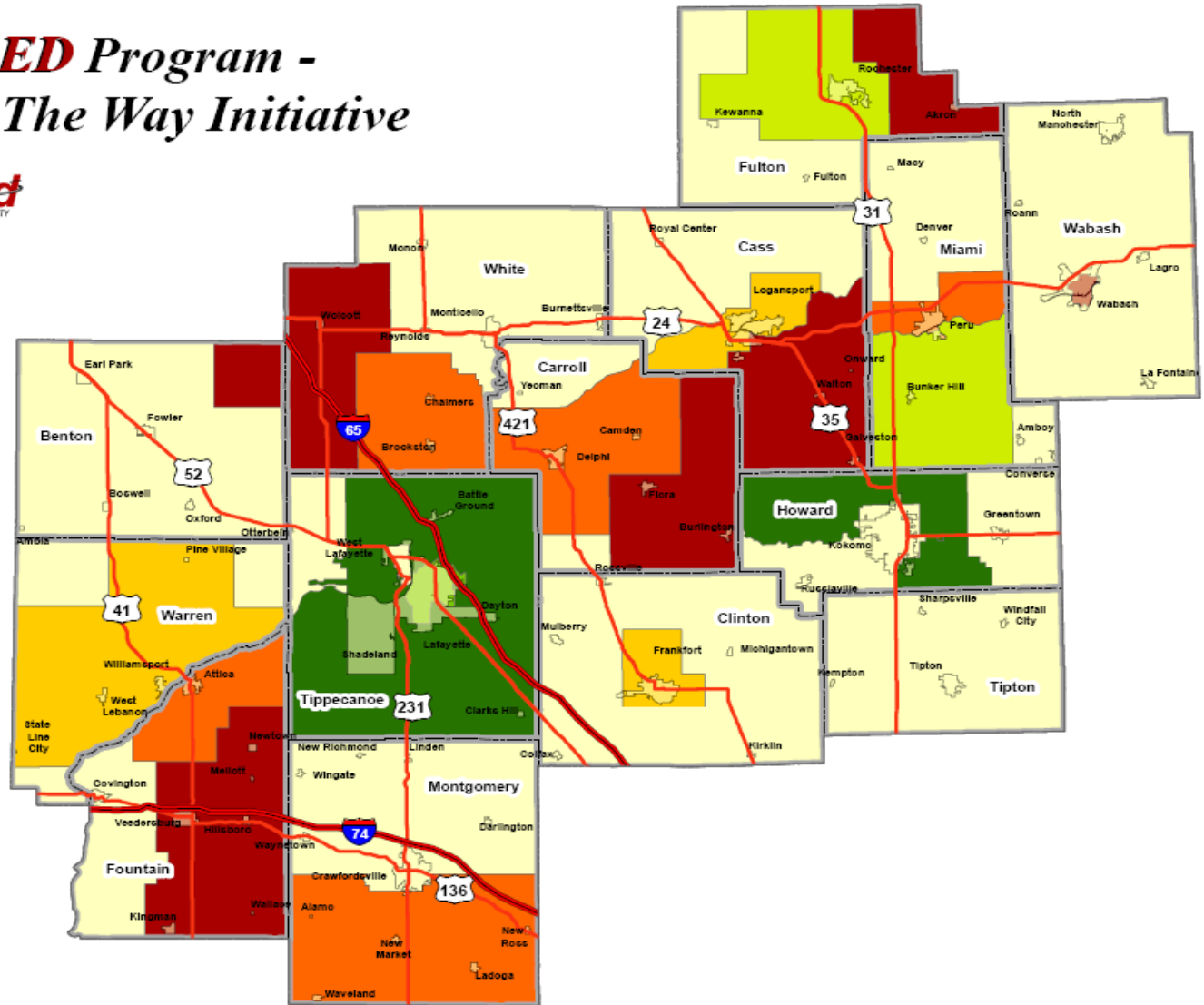
**PCRD**  
Purdue Center for Regional Development

### Participating School Districts Student Participation Rates

- Less than 12.5%
- 12.6% to 25%
- 26% to 37.5%
- 37.6% to 50%
- 51% to 62.5%
- Greater than 62.5%
- Incorporated Areas
- Interstates
- US Highways



1:800,000



Map developed by the Purdue Center for Regional Development

# PLTW SCHOOLS:

## PLTW SCHOOLS

### BEFORE 2007 WIRED GRANT

School Name	County
Bon Air Middle School	Howard
Carroll High School	Carroll
Central Middle School	Howard
Century Career Center/Logansport HS	Cass
Crawfordsville High School	Montgomery
Delphi Community High School	Carroll
Eastern High School	Howard
William Henry Harrison High School	Tippecanoe
Kokomo Area Career Center / Kokomo High School	Howard
Lafayette Jefferson High School	Tippecanoe
Lafayette Park Middle School	Howard
Maple Crest Middle School	Howard
McCutcheon High School	Tippecanoe
North Montgomery High School	Montgomery
Northridge Middle School	Montgomery
Roosevelt Middle School Monticello	White
Rossville High School	Clinton
Southmont High School	Montgomery
Southwestern MS	Tippecanoe
Tri-County Middle School	White
Twin Lakes High School	White

## 36 PLTW SCHOOLS ADDED THROUGH WIRED GRANT

School Name	County
Attica High School	Fountain
Attica Junior High School	Fountain
Carroll Jr. High School	Carroll
Frankfort High School	Clinton
Frankfort Middle School	Clinton
Delphi Middle School	Carroll
Frontier High School	White
Frontier Junior High School	White
Lafayette Tecumseh Jr. High School	Tippecanoe
Columbia Middle School	Cass
Lincoln Middle School	Cass
Maconaquah High School	Miami
Maconaquah Middle School	Miami
Seeger High School	Warren
Seeger Jr. High School	Warren
Northwestern Middle School	Howard
Peru High School	Miami
Peru Jr. High School	Miami
Rochester Community High School	Fulton
Rochester Community Jr. High School	Fulton
Southmont Jr. High School	Montgomery
Fountain Central High School	Fountain
Fountain Central Jr. High School	Fountain
Lewis Cass High School	Cass
Lewis Cass Jr. High School	Cass
Taylor Middle School	Howard
Battle Ground Middle School	Tippecanoe
East Tipp Middle School	Tippecanoe
Klondike Middle School	Tippecanoe
Wainwright Middle School	Tippecanoe
Wea Ridge Middle School	Tippecanoe
Tippecanoe Valley High School	Kosciusko
Tri-County High School	White
Wabash High School	Wabash
Wabash Middle School	Wabash
Western Boone High School	Boone



# REACH Centers

(Regional Employment Assessment Center for Hiring)  
and

# REACH Consultants

Services for Business & Local Economic Developers

Designed to improve two specific workforce needs in the region, the REACH centers addressed the following:

- How to improve the match between employer's needs and workers' skills in order to grow and support regional business attraction, expansion and retention;
- Broker the Region's highly skilled workforce.

In response to state and national interest, the success of the first REACH Center in Lafayette and the move towards Regional integration, the REACH Center concept was replicated in Kokomo.





Two REACH centers were established in NCI's two largest population areas.

First in the largest area in the region:  
Lafayette/West Lafayette – 88,362  
Tippecanoe County

Replicated in the 2<sup>nd</sup> largest:  
Kokomo – 46,074  
Howard County



## SERVICES TO EMPLOYERS –

WorkKeys Testing  
Employment verification and  
background checks  
Workplace readiness skills  
Job Skills Assessment  
Test-Taking  
Interviewing  
(fully described in the Appendix)

**News Update** – REACH (Regional Employment Assessment Center for Hiring) helps with Subaru of Indiana Automotive, Inc. hiring needs.

[Click here to read the full case study by SIA.](#)

(Included as a Separate PDF Document SIA Case Study)

The REACH center focuses on the redesign of business services in the Workforce Developments system by providing customized quality products to employers. These services will include customized recruitment, regional labor market information, business training opportunities, employment verification, business seminars, grant funding information, marketing, background checks, reference checking, drug testing, customized screening services and additional innovative solutions as determined by the business community through business intelligence gathering.



*FOR PROSPECTIVE EMPLOYEES*

*Sending the message:*

*WHAT'S YOUR SKILL LEVEL?*

*Employers want to know!*

Through REACH we are able to identify the skill levels necessary for both entry level and high performance level positions for successful employment (hiring and promotion) and then match the employees to the skill requirement.

The REACH Centers and the associated Business Service Consultants successfully supported the NCI WIRED vision of transforming our regional workforce system in collaboration with Tecumseh Area Partnership, North Central Indiana's Regional Operator, and the Local Economic Development Officials.

## RESULTS

**~10,500 job candidates assessed**

**Over 3600 workers placed**

**~150 employers using REACH services**



Our region had vastly underutilized Training Acceleration Grants (TAG) provided by the Indiana Department of Workforce Development (IDWD) which were designed to assist companies in training workers.

Through the REACH Centers and Consultants, over **\$1.5 M** increased training funds were brought to the region including **\$530,941** in Training Acceleration Grant (TAG) funds.

Initial activities focused on connecting businesses to resources for incumbent worker training. Later more emphasis was placed on connecting employers to a high quality workforce using the newly integrated Work One system and the use of additional screening tools at the REACH centers.

Business consultants are an important link in evaluating each employer's level of need in relation to the overall growth of the regional economy. Business Consultants continue to link the workforce development system to counties and communities.

Business Consultants also implemented a new service strategy model using Business Retention and Expansion software and contacted nearly 200 companies.



# White County Instructional Center

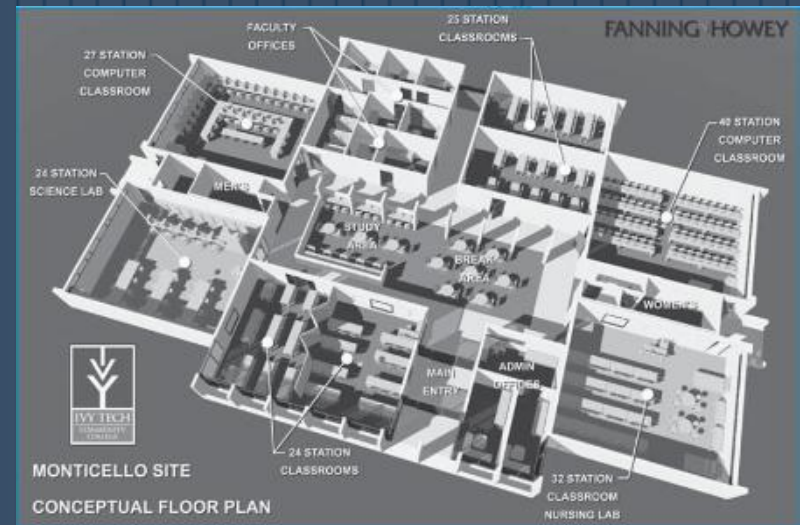
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An old medical arts building  
A determined group of civic leaders  
Partnerships with WIRED and Ivy Tech  
EQUALS

**A state of the art training facility**



221 students enrolled  
16 college credit courses offered  
290 students enrolled in WorkOne classes  
15 incumbent workers trained





**Additional programs to  
develop  
21<sup>st</sup> Century Talent**





### An essential connection.

Wiser is an essential connection between our state's abundant energy resources and the future of a sustainable economy in Western Indiana.

Today, 91% of our energy dollars leave the state. To make things worse, most of the electricity we generate in state burns limited fossil fuels.

But there are possibilities. Wiser sees a future in which energy is produced locally and sold to the rest of the world—sustainable, clean energy that's here to stay.

As energy flows out, dollars flow in, bringing jobs and improving the standard of living. That's economic development based on abundant, not limited, resources.

Wiser knows the technologies, sees the opportunities, and can help you make a profitable, sustainable future a reality.



**WIRED funding supported the formation of Wiser. Their mission: to help make sustainable energy an engine that drives our region's economy.**

With the growth of renewable energy production, Western Indiana plays an important role in our country's goal of energy independence. Increased solar energy, wind energy, geothermal heat, biomass energy and energy efficiency improvements will all require knowledgeable, well-trained workers.

**Purdue College of Technology:** Strengthen the career pathway for renewable and advanced energy for the existing Bachelor of Science in Electrical Engineering Technology (EET) at the Purdue University College of Technology at Kokomo in collaboration with the College of Technology at West Lafayette. This project focused on the development and integration of new energy topics in existing Electrical and Computer Engineering Technology (ECET) courses across the curriculum.

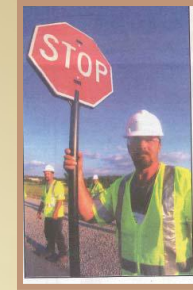
A workshop was developed and delivered to approximately 25 STEM teachers (high school, community college, and university STEM faculty) on November 20, 2009. The workshop was entitled **—Future of Conventional and Renewable Electrical Energy: What Should Students Know?—**

The workshop was sponsored by Delphi Electronics and Safety, Duke Energy, and Purdue University.

The College of Technology recently received approval for a BS in Engineering Technology. This degree will be offered at Statewide locations in Kokomo, South Bend, and Anderson. These three locations represent regions of the State of Indiana that have been hit hard by a depressed automotive industry. Another funded study is needed to develop a concentration in the broader area of energy for this new degree.

# Retraining Indiana Construction Workers for Road and Bridge Construction

- A joint team of Ivy Tech and Purdue faculty and staff recognized the need for workers to be trained on a job skill that would provide immediate job opportunities. They created a class offering an introduction to road and bridge construction along with practical construction knowledge, employment information, and a 10-hour safety training certification through the Occupational Safety Health Administration (OSHA).
- Future collaborations between Purdue and Ivy Tech are being planned in the area of road and bridge construction worker training.



## Sustainable Agriculture Workforce Development Survey

WORKFORCE NEEDS - ORGANIC FARMING: A research grant to determine the workforce implications of organic farming within the NCI region was conducted by Ivy Tech with WIRED funding.



## State of the Workforce Report and Roll Out:

Provided a complete and thorough review of the current workforce situation and trends in the NCI WIRED region that could inform decision making for new curriculum development, economic activities and incumbent workforce skill advancement.

Work continued with Workforce and Economic Development officials, colleges and universities, elected officials and all civic leaders to develop workable strategies using the information contained in the Workforce Report.



High school and college students were connected with Indiana employers for valuable internship experiences.

## **Independent Colleges of Indiana I-STEM Resource Network Feedback Loop**

Informed high school administrators of “Indiana Grade Report” website and new website project;

Educated high school administrators of trend data available with tools that are useful to improve curriculum for student success in their secondary education;

Collaborated with high school administrators on new website project.

Discussed importance of literacy and STEM education to improve student success in each stage of their education and workforce in Indiana.