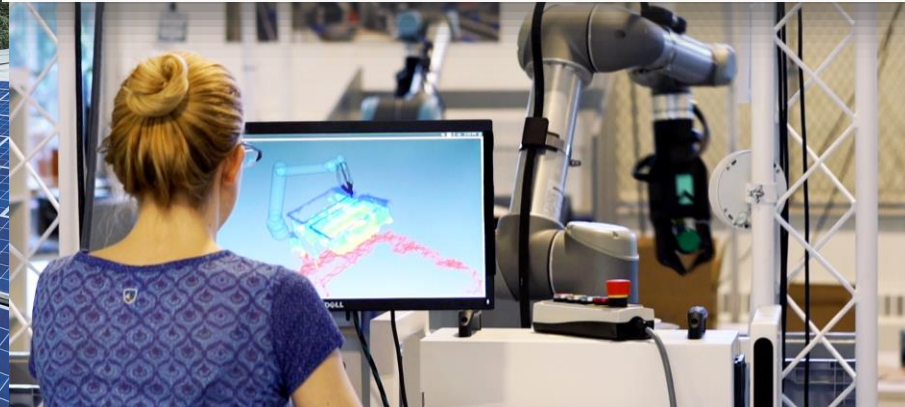




get into
energy

MICHIGAN ENERGY WORKFORCE
DEVELOPMENT CONSORTIUM



Energy Education: Creating a Bright Future for the Next Generation!

Presenters:

Andrew Maurer, Oakland Schools Technical Campuses

Deborah Majeski, DTE Energy

June 28, 2023 – MEWDC Summit

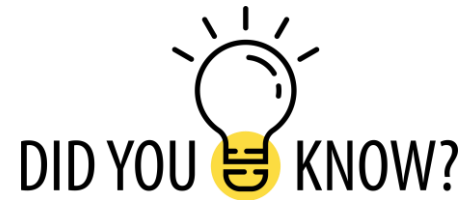


Agenda

- Energy Careers Statistics
- Why an Energy Cluster?
- Energy Industry Fundamentals (EIF) 2.0
- Key Occupations in Energy Cluster and Projected Annual Openings
- Energy Education Programs
- Solar and Renewable Energy Programs
- OSTC Energy Program Specifics
- Idea Generating to Enhance Energy Programs
- Questions and Answers



Energy Careers Statistics



- More than 7 million people work in energy
- As of today, energy companies across the US have 11,724 job openings
- Energy jobs pay 34% higher, on average, than the national median hourly wage
- Energy accounts for 4.8 of the Gross Domestic Product of the United States



Why An Energy Cluster?



- In 2016 MEWDC obtained Michigan's Board of Education adoption of a 17th career cluster in Energy
- Energy jobs tend to get hidden in other clusters, such as Architecture and Construction
- By integrating an Energy career cluster, there is an increased awareness among secondary and post-secondary students of the knowledge and skill sets required for energy jobs
- With the importance of our country's clean energy future, it's important to have a cluster that focuses on the job growth expansion and impending retirements
- Supports statewide goal to raise the percentage of Michigan adults with a post-secondary credential to 60% by 2030

Energy Industry Fundamentals (EIF) 2.0



Present State:

- Curriculum developed 10+ years ago
- Paperback book format originally, converted to online pdf option in 2020
- 130-hour course (6 modules)
- End of course assessment*
- Certificate-based program*
- Target audience of secondary and post-secondary levels*

*remains the same

Future State:

- Ready for launch in select pilot locations in June 2023
- Online, interactive format
- 120-hour course (4 units x 4 chapters)
- 30-40 hour abbreviated bootcamp
- More industry recognized
- Pathway to stackable credentials
- Articulation agreement template
- Available to public by August 2023

Goals of EIF 2.0 Modernization



- Process driven by steering committee and subject matter experts
- Defining the diversity within the energy industry from a 30,000-foot view
- Exploring the plethora of career paths available
- Participants will see themselves as guiding the clean energy future

State of Michigan Key Occupations in Energy Cluster and Projected Annual Openings

Key Occupation	Cluster Employment	Michigan Employment	Cluster Wage Range	Annual Openings
Construction Laborers	2,640	21,850	\$14-\$22	3,340
Control & Valve Installers and Repairers	1,100	1,760	\$22-\$39	120
Cost Estimators	1,040	6,640	\$22-\$39	710
Electrical & Electronics Repairers, Powerhouse, Substation, Relay	1,460	1,550	\$35-\$48	100
Electrical Engineers	1,640	10,280	\$33-\$50	780
Electrical Powerline Installers & Repairers	3,980	4,260	\$29-\$45	420
Electricians	14,750	22,780	\$20-\$35	2,580
1st-Line Supv. of Construction Trades/Extraction work	2,390	11,550	\$24-\$38	1,410
1st-Line Supv. of Mechanics, Installers, Repairers	1,710	14,680	\$24-\$41	1,380
Heating, AC, Refrigeration Mechanics/Installers	6,540	8,970	\$17-\$29	1,020
Logisticians	1,530	8,000	\$27-\$48	820
Plumbers, Pipefitters, Steamfitters	7,520	12,250	\$22-\$36	1,620
Power Plant Operators	1,470	1,720	\$32-\$46	160
Refuse and Recyclable Material Collectors	1,790	4,400	\$16-\$22	550
Sheet Metal Workers	1,510	3,210	\$19-\$32	420



Top 15 key occupations in the energy cluster in this table



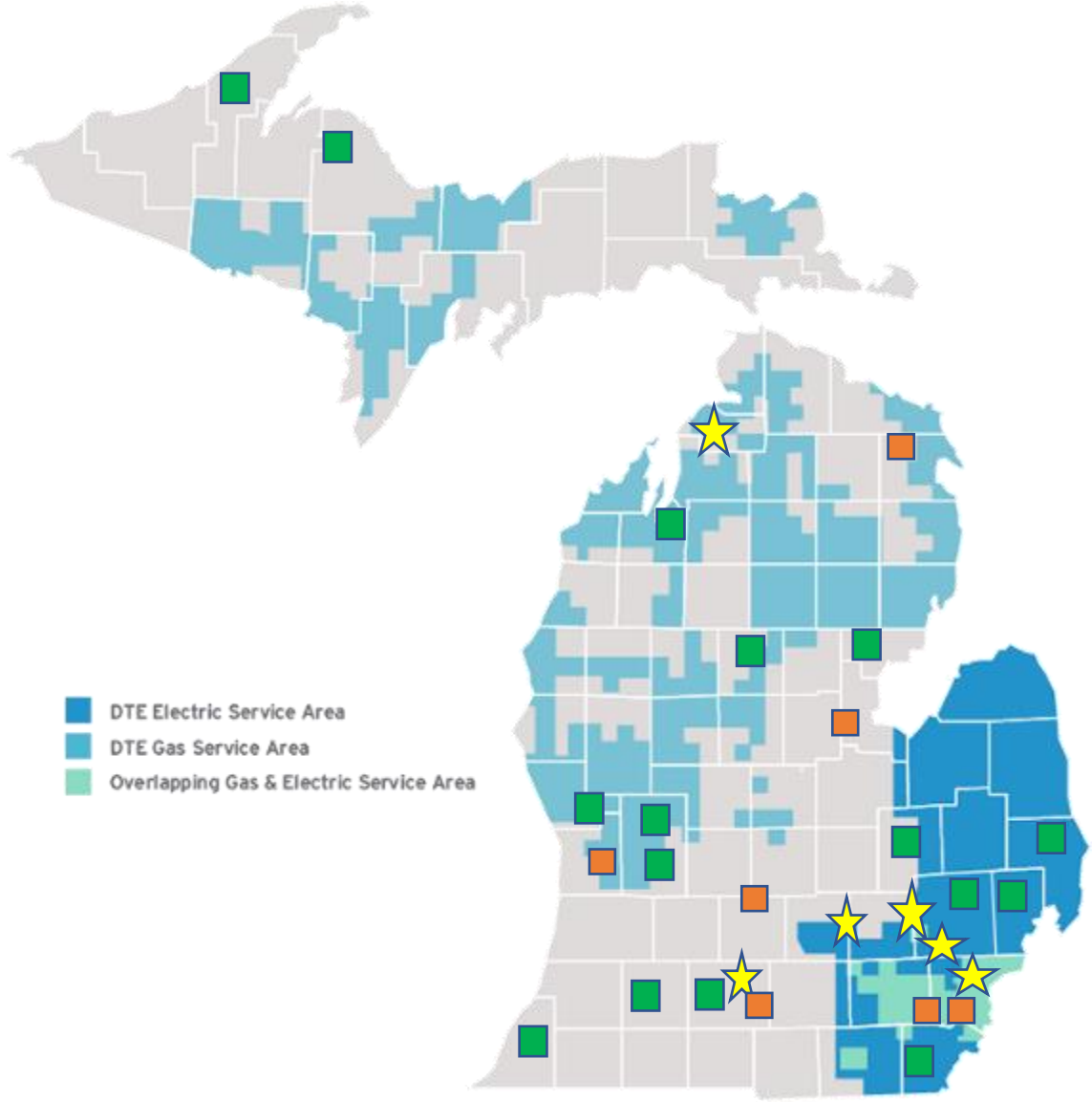
Determined by two criteria: share of the cluster's total employment and share of the state's employment for that occupation




Volume of these jobs in the cluster is large, representative of the average wage and demand for the cluster

Sources: 2019 Energy Cluster Publication: Cluster employment, Michigan employment, and Wage range: Occupational Employment Statistics, Michigan Bureau of Labor Market Information and Strategic Initiatives (2017); Annual Openings: Long-term Occupational Projections (2016–2026), Michigan Bureau of Labor Market Information and Strategic Initiatives; Typical Education and Training: Bureau of Labor Statistics; Michigan's Occupational Supply and Demand and the Talent Gap: Linskey, Evan. 2018. "An Analysis of Occupational Supply and Demand in the Michigan Labor Market." Michigan's Labor Market News, Vol. 74, Issue 10.

Energy Education Programs in Michigan



 Active High School/Career and Technical Education Energy Programs with Energy Industry Fundamentals (EIF):

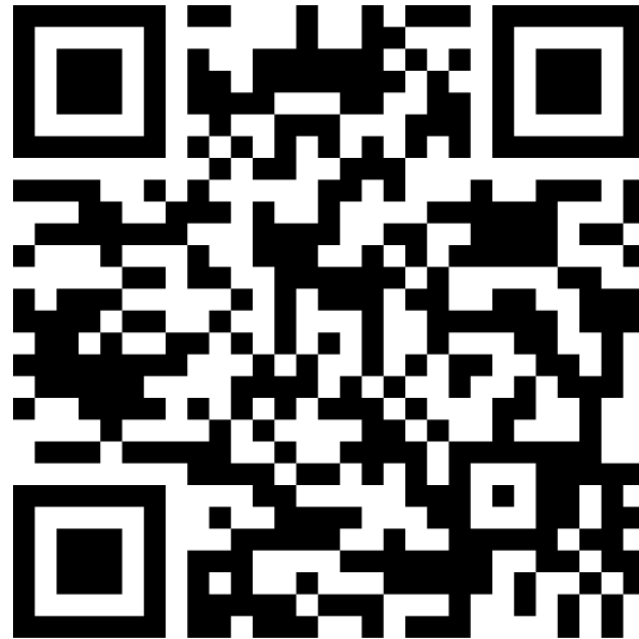
- Boyne City High School
- Hartland High School
- Oakland Schools Technical Campus (OSTC) Northwest (Clarkston)
- Oakland Schools Technical Campus (OSTC) Southeast (Royal Oak)
- Parma Western High School
- Randolph Career & Technical Center (launching in fall of 2023)

 Post-Secondary Energy Programs with EIF:

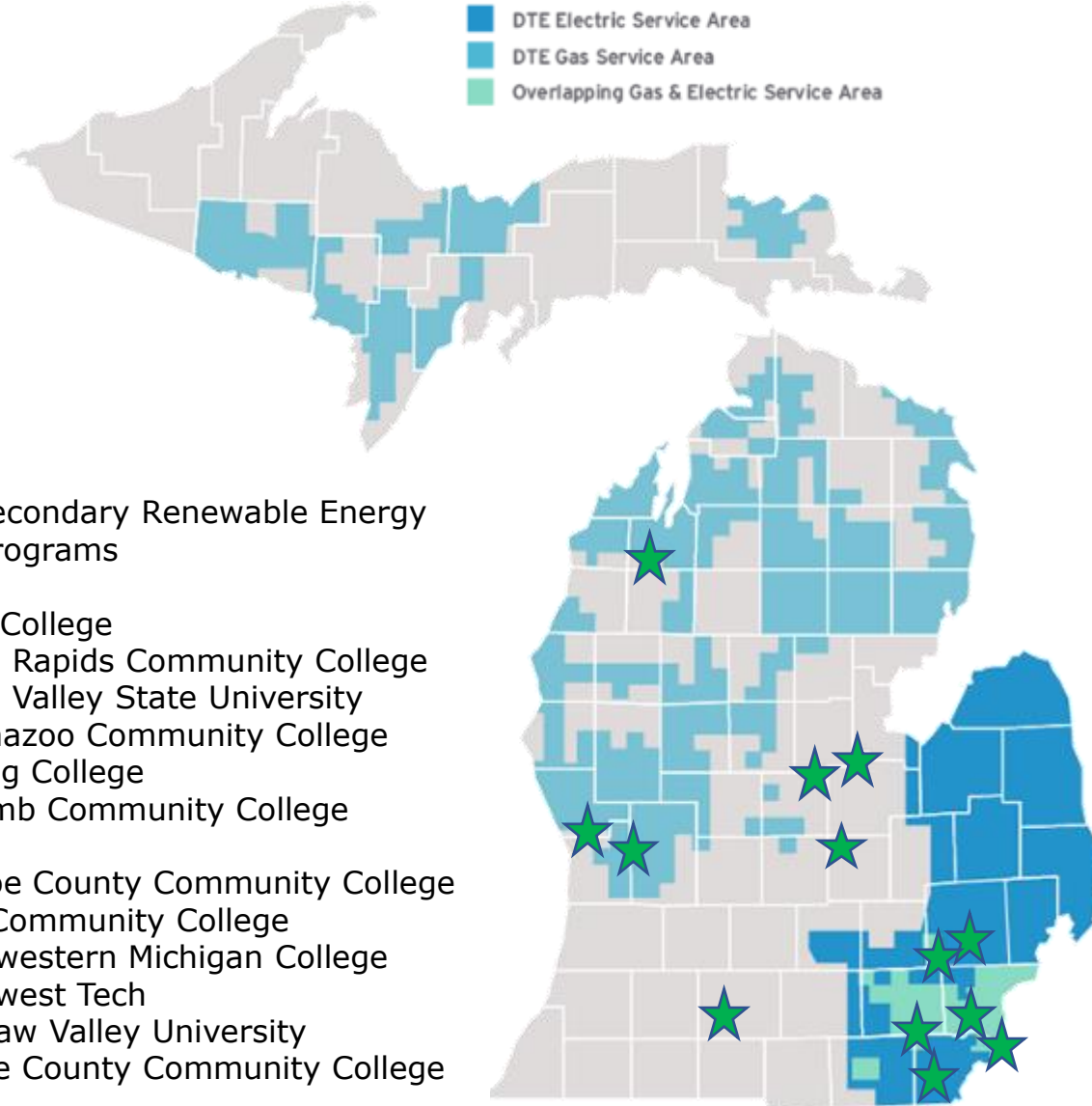
- Alpena Community College
- Grand Rapids Community College
- Henry Ford College
- Jackson Community College
- Lansing Community College
- MIAT College of Technology
- Mott Community College

 Post-Secondary Energy Programs without EIF

Interactive Poll: How many post-secondary training institutions are offering renewable training programs across the State of Michigan?



Solar and Renewable Energy Programs and Pathways



★ Post-Secondary Renewable Energy Training Programs

1. Delta College
2. Grand Rapids Community College
3. Grand Valley State University
4. Kalamazoo Community College
5. Kellogg College
6. Macomb Community College
7. MIAT
8. Monroe County Community College
9. Mott Community College
10. Northwestern Michigan College
11. Northwest Tech
12. Saginaw Valley University
13. Wayne County Community College

Interested in a career as a Solar Technician or Wind Technician?

The Roadmap to an Exciting Career



For more information visit
getintoenergy.org/careers-in-renewable
 or scan this code

TRAITS THAT WILL HELP YOU BE SUCCESSFUL:

- Interpersonal Skills
- Problem Solver
- Dependable/Reliable
- Physical Stamina
- Enjoys the Outdoors
- Mechanical Acumen

SOLAR TECH OR WIND TECH

- Competitive Wages and Benefits Package
- Stable Employment in a Growing Industry
- Continuous Learning and Exposure to Innovative Technology
- Diverse Work Environment

START HERE

COMMUNITY COLLEGE/ TRADE SCHOOL

- Associate Degree or Higher
- Sustainability Theory
- Energy Policy
- Learn about Energy Science

START HERE

CAREER & TECHNICAL EDUCATION (CTE)

- Diploma/GED or Equivalent
- Introduction to Energy Industry Fundamentals (EIF)
- Gain an Understanding of Renewable Energy

OR

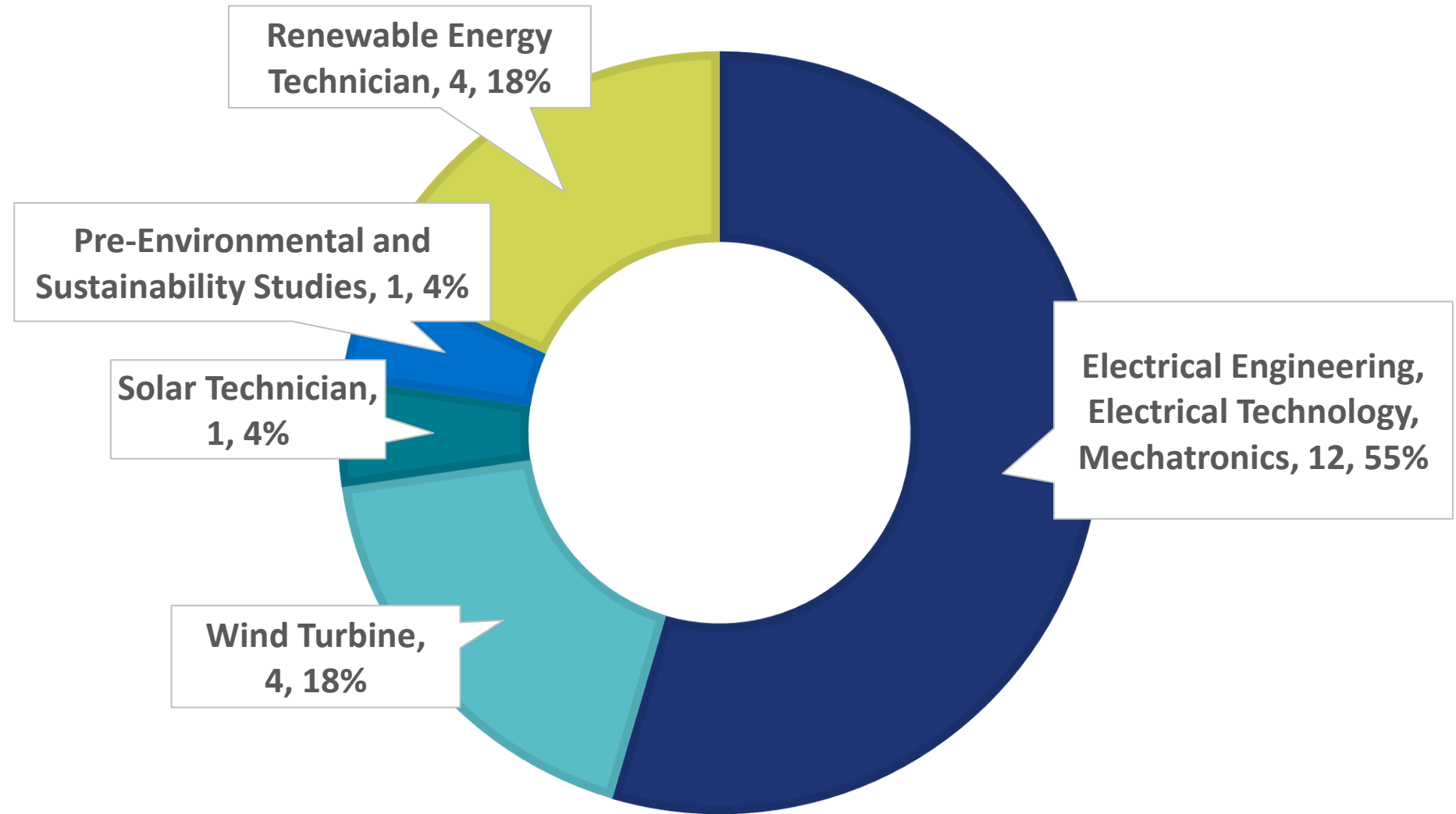
HIGH SCHOOL

- Diploma/GED or Equivalent

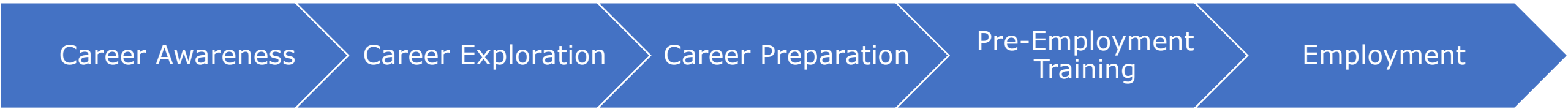
You can begin your career journey from any starting point

Research Wind and Solar Tech Training Programs in Michigan

Through benchmarking efforts, we identified Post-Secondary Renewable Training Programs in Michigan by Category



The Power of Partnerships for Renewable Energy Career Pathways



High School Career and Technical Education

Career Training

Employment Opportunities



RANDOLPH CAREER AND TECHNICAL CENTER
Students Rise. We All Rise.



Example of Specific Energy Technology and Wind Power Technician Training Programs offered at MIAT



[Canton, MI 2022 – MIAT](#)



ENERGY TECHNOLOGY

Growth and diversification in the energy industry is creating job openings for more energy technicians in a wide variety of roles. Get the technical skills you need to join this industry with a certificate or an associate degree from MIAT!



WIND POWER TECHNICIAN

You can gain the skills for an exciting career constructing, servicing, and repairing wind towers with a certificate from MIAT!

Underdevelopment: Career Exposure Curriculum for Secondary and Post-Secondary Educational Institutions offering an Energy Program

Outline for Stand-Alone Renewable Lessons:

1. Introduction to renewables
2. Focus on solar energy
3. Visit from solar industry representative
4. Hands-on activities workshop
5. Focus on wind energy
6. Visit from wind energy industry representative
7. Take a virtual tour



DTE Virtual Field Trip to Learn about Renewable Energy and Educator Companion Guide



[DTE Virtual Field Trip to Learn about Renewable Energy - YouTube](#)

Educator Companion Guide Key Learning Objectives:

Students will be able to:

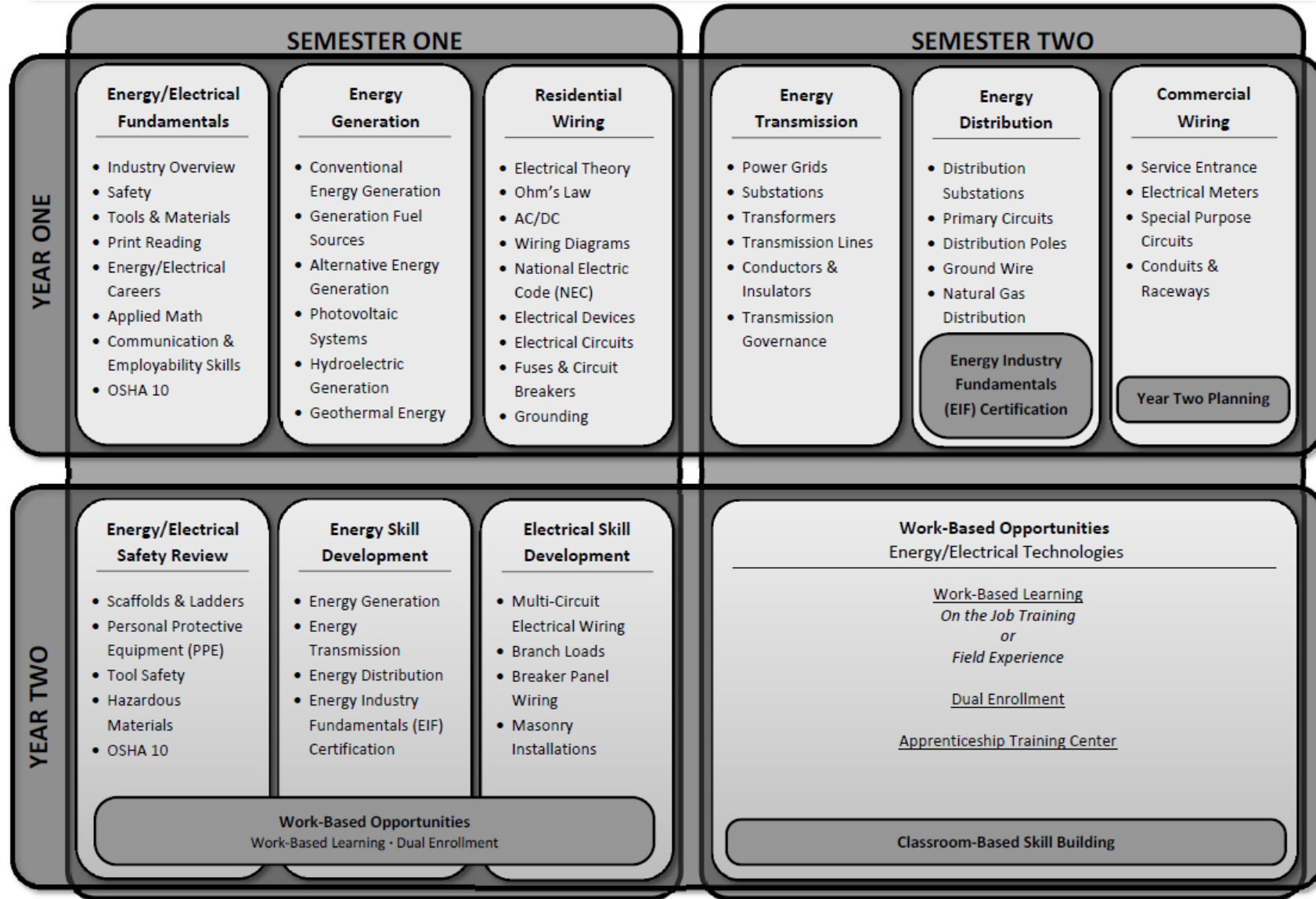
- Explain how we generate energy from the wind and sun
- Describe how this energy travels along the power grid
- Imagine new ways to generate more energy from the wind and sun
- Understand the importance of addressing climate change
- Identify ways they can use energy more efficiently and reduce their carbon footprint
- Explore how individuals, businesses, nonprofit organizations and government can work together to create a more sustainable future
- Learn about different careers in the clean energy sector

[FINAL Teachers Guide for Virtual Renewable Field Trip.pdf
\(dteempowermi.wpenginepowered.com\)](#)

Interactive Poll: Current concepts in education?



OSTC Energy-Electrical Technology Program Highlights



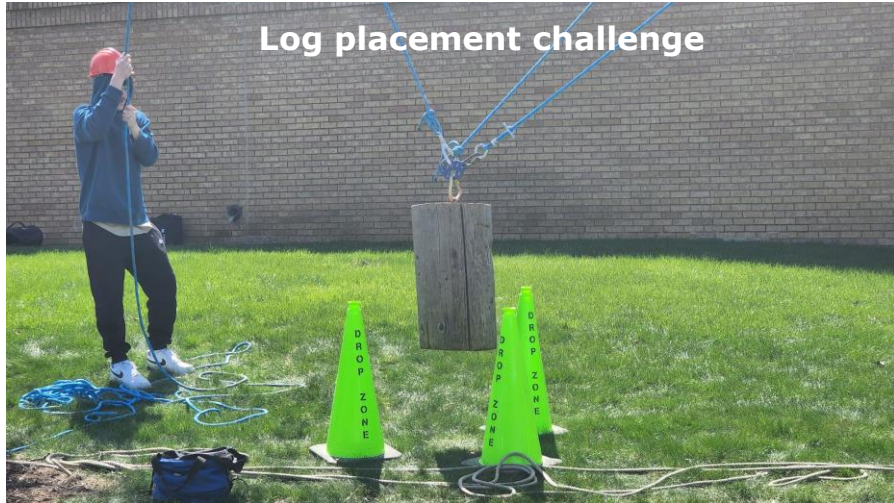
2023 Line Clearance Tree Trim (LCTT) Exposure for Energy Technology High School Students

- After a successful launch in 2022, OSTC requested a second LCTT career exposure session in 2023
- IBEW Local 17 instructors from Wright Tree Service provided five hours of instruction, which included:
 - Overview of the line clearance tree trim industry
 - Safety training/PPE
 - Job specific training, such as knot tying, tree characteristics, climbing techniques

Location	2021-22 Program Enrollment	2022-23 Program Enrollment	Students Signed Book with L17
OSTC-SE (Royal Oak)	39	33	2
OSTC-NW (Clarkston)	45	32	3



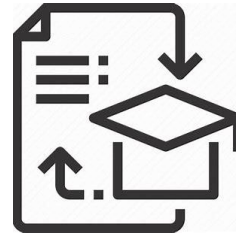
Additional LCTT Exposure Pictures



Energy Trades Program launching at Randolph Career & Technical Center in the Fall of 2023



CTE Standards/Energy Program Curriculum



EIF Curriculum & Content Delivery and Schedule



Instructor Training



Advisory Board



Equipment and Classroom Materials



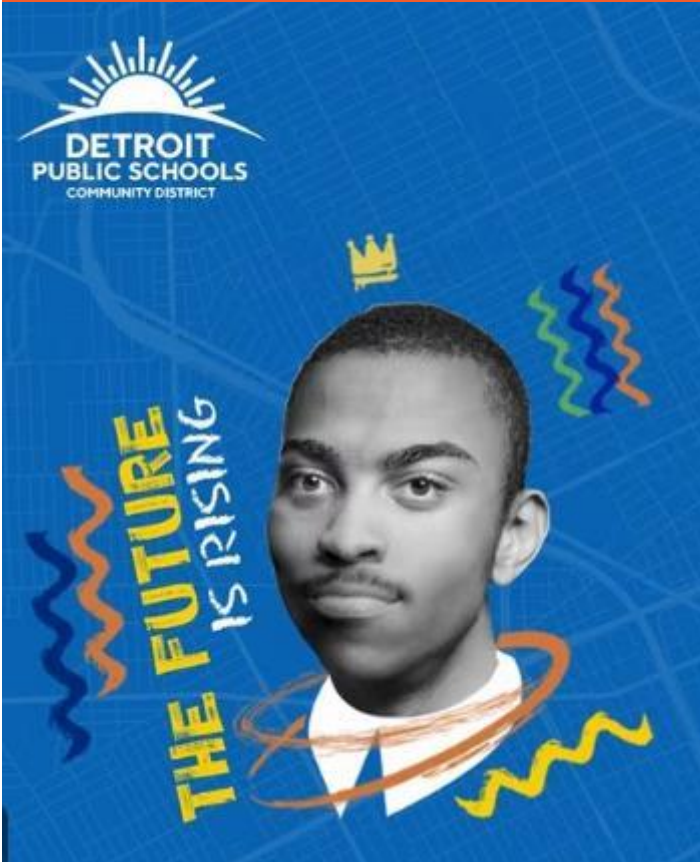
Student Recruitment and Energy Awareness

About Randolph Career & Technical Center



RANDOLPH CAREER AND TECHNICAL CENTER

Students Rise. We All Rise.



- Students who attend all 23 DPSCD high schools can enroll at Randolph CTC
- Only high school technical center in Southeast Michigan with a clear focus on construction trades
- Strong partnership with key stakeholders and local unions
- Provide wrap-around services for special population students
- Programs offered include (taught by industry experts):
 - Construction Trades (masonry, plumbing, and carpentry)
 - HVAC
 - Electrical
 - Energy Trades (Line Worker Emphasis)
- Alignment to post-secondary institutions
- All programs have advisory boards and strong partnerships
- Work-based learning opportunities with internships and pre-apprenticeships

Randolph CTC Energy Trades Program Student Recruitment



- “CTE and Me” Tours at Randolph CTC (10th grade district-wide tour of CTE offerings)
- Guest speakers from energy experts
- Randolph CTC alumni employed at DTE volunteer at career readiness events
- Manufacturing Career Day, includes Energy
- Energy Trades Program presentation to DPSCD Counselors
- DTE’s Energy Explorer Trailer at Randolph CTC

[Randolph CTC / Home Page \(detroitk12.org\)](http://detroitk12.org)



Interactive Poll: Idea Generating to Enhance Energy Programs



Pillar 2: Education, Standards, Data Management

Define technical standards and provide information on critical job roles in the energy industry based on real-time demand data; develop educational programs.



Name	Organization	Title
Core Team		
Deborah Majeski	DTE	Pillar 2 Chair, Manager - Workforce Development
Kristie Kelly	CEWD	Workforce Development Director
Andrew Maurer	Oakland Schools Technical Campuses	Career Readiness Consultant
Amy Lee	MCCA Center for Collaborative Programs	Executive Dean
Deb Lyzenga	Michigan Department of Labor and Economic Opportunity	Division Administrator
Dr. Valerie Milton	Michigan Department of Education	Research Consultant
Monique Holliday-Bettie	DTE	Manager - Workforce Development & Analysis
Karen Wilson-Anderson	DTE	Workforce Development Consultant
Pat LeBlanc	DTE	Program Manager
Support Team		
Daniel Arini	DTE	Detroit Challenge Fellow
Jon Johnson	DTE	Program Manager
Nathan Schooner	DTE	Detroit Challenge Fellow



Andrew Maurer

Career Readiness Consultant
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Deborah Majeski

DTE Energy | Manager, Workforce Development
MEWDC | Vice-Chair Education, Standards,
Data Management

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Interactive Poll: On a scale from 1-5, with 1 being unsatisfied and 5 being very satisfied, how satisfied were you with the session overall?

