

“Sign o’ the Times:” Aligning Degree Production and In-Demand (Green) Middle Skill Occupations

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Presentation Highlights

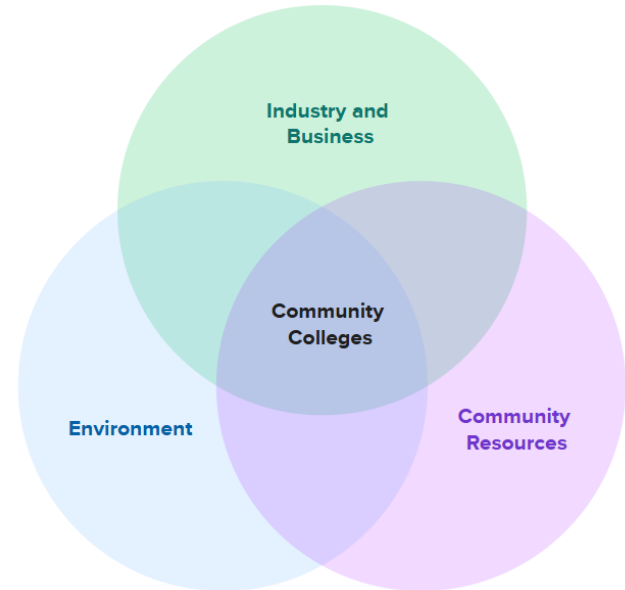
- Framing & Context: Community Colleges and Middle-Skill Labor Shortages
- National & State-Level Perspectives on Green Workforce Development
- AIREA Data Explorer
- Policy & Practice Implications

Community Colleges

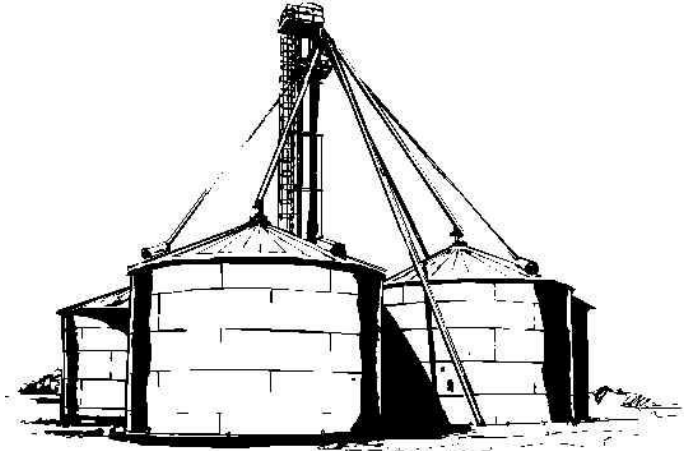
- A Natural Partner in Skilled Labor
 - Trusted local resource for employers
 - Flexible, career-focused programs
 - Serve a crucial transfer function for baccalaureate earners
 - Adapt curricula to meet evolving industry needs
 - Leverage data to inform program development
 - Expand programs in green and technical fields
 - Promote equity in access to high-demand careers
 - Diverse and underserved student populations

Community Colleges

- Driving Regional Resilience
 - Align programs with emerging economic opportunities
 - Support community adaptation to environmental changes
 - Train workers with best practices on campus



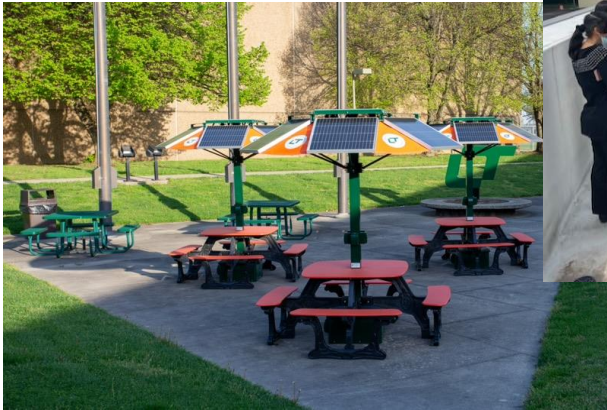
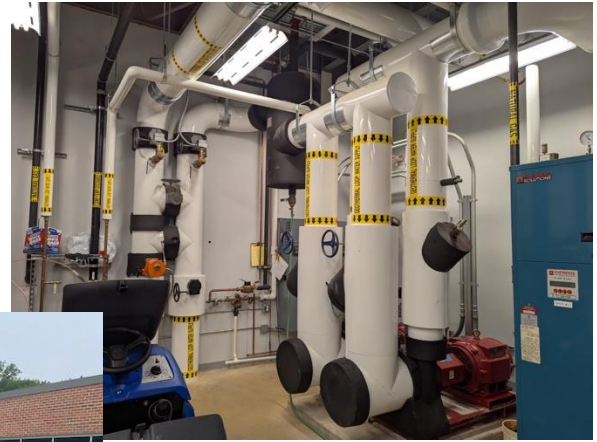
State Level Collaboration



- Support Local & Regional Partnerships with Resources
 - Facilitate collaboration between colleges to cross pollinate successful programs
 - Coordinate policy across education and economic development agencies
 - Develop intergovernmental agreements for workforce alignment
 - Fund innovation in green workforce training
 - Track outcomes to inform future investments



- Formed in 2008 by community college presidents and boards of trustees
- Foster collaboration among community colleges and partners
- Accelerate green workforce training
- Drive the clean energy economy
- 39 Community College districts



Illinois Green Economy Network

Rev UP EV Technology

- Sponsored by the Illinois Community College Board
- Connecting Employers and Colleges
- Career Pathways from secondary education
- Curriculum Development
- Instructor Training



Green Workforce Partnerships

Rivian

- New EV company, retrofitted old decommissioned factory in central Illinois
- Leaning in on partnerships with several community colleges for new workforce

TCCI

- Manufacturing components necessary for EV production
- New factory building with classrooms for the local community college



Green Degrees & Jobs Data Explorer

Green Degrees & Jobs Data Explorer

- Web-based data visualization tool for researchers, policymakers & practitioners
- Answers the questions:
 - Where are community colleges turning out the most graduates for green occupations?
 - Where is there pronounced green workforce demand?
 - Is there alignment between the educational programs student complete and local employment within associated green occupations/industries?

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AIREA Data Explorer

- Web-based data visualization tool for researchers, policymakers & practitioners
- Answers the questions:
 - Where are community colleges turning out the most graduates for **AIREA** occupations?
 - Where is there pronounced **AIREA** workforce demand?
 - Is there alignment between the educational programs student complete and local employment within associated **AIREA** occupations/industries?



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Advanced Infrastructure,
Energy, and Agriculture

AIREA Data Explorer

- AIREA degrees
 - IPEDS completions 2010-2023
 - NCES 2-digit CIP categories
 - (01) Agriculture, Agricultural Operations
 - (02) Natural Resources & Conservation
 - (03) Architecture
 - (14) Engineering
 - (15) Engineering Technologies/Technicians
 - (26) Biological Sciences
 - (40) Physical Sciences
 - (41) Science Technologies/Technician
 - (46) Construction Trades
 - (47) Mechanic and Repair Technologies/Technicians
 - (48) Precision Production
 - (49) Transportation and Materials Moving



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AIREA Data Explorer

- AIREA degrees
 - IPEDS completions 2010-2023
 - NCES 2-digit CIP categories
- AIREA jobs
 - NCES CIP-to-SOC xwalk
 - Lightcast job postings 2010-2024
- Final dataset
 - 422 AIREA CIPs (20%)
 - 283 AIREA SOC's (35%)

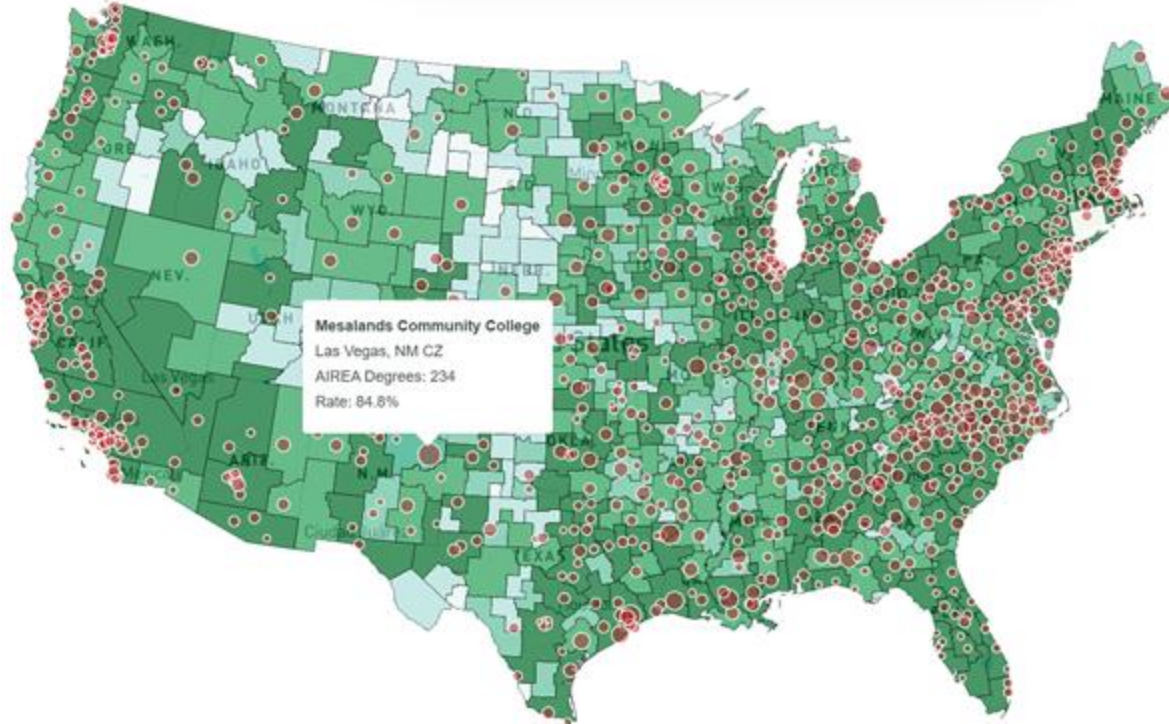


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AIREA Examples

Top community college AIREA awards (CIPs)	Award Level	High-demand AIREA jobs (SOCs)	O*NET Green Job	Entry Education Requirement for SOC
Welding Technology/Welder	Award of less than 1 academic year	Welders, Cutters, Solderers, and Brazers	Yes	High school diploma or equivalent
Biology/Biological Sciences, General	Associate degree	Natural Sciences Managers	Yes	Bachelor's degree
Automobile/Automotive Mechanics Technology/Technician	Award of less than 1 academic year	Electrical and Electronics Installers and Repairers, Transportation Equipment	No	Postsecondary non- degree award
Marine Science/Merchant Marine Officer	Award of less than 1 academic year	Ship Engineers	No	Postsecondary non- degree award

AIREA Data Explorer: Map



AIREA Data Explorer: Degree Completion

	Institution	Total Completions	AIREA Completions	AIREA %
244	South Central Louisiana Technical College-Young Memorial Campus	21,589	15,613	72.3%
336	City Colleges of Chicago-Olive-Harvey College	13,180	10,509	68.2%
800	L.E. Fletcher Technical Community College	5,225	3,034	58.2%
999	Mesalands Community College	2,876	1,622	56.4%
529	South Central Louisiana Technical College	11,077	5,958	53.8%
870	Northwest Louisiana Technical Community College	3,863	1,508	39.3%
613	Mountwest Community and Technical College	8,468	3,271	38.6%
3007	Highlands College of Montana Tech	1,498	477	31.8%
772	Enterprise State Community College	5,954	1,740	29.3%
496	Fletcher Technical Community College	12,044	3,763	31.2%

Showing 1 to 10 of 1,069 entries

Previous 1 2 3 4 5 ... 107 Next

Click on an institution above to see its AIREA completion percentage over time

AIREA Degrees Over Time: Mesalands Community College



AIREA Data Explorer: Labor Market Demand

Commuting Zones by AIREA Job Posting Percentage (All Years)

Click on any Commuting Zone row in the table below to see its AIREA job posting trends and top occupations!

Showing all commuting zones, sorted by AIREA percentage. The top Commuting Zone is selected by default.

Search:

	Commuting Zone	Total Posts	AIREA Posts	AIREA %	Posts per 1000
1	Sanderson, TX	15	10	66.7%	17.6
2	Condon, OR	259	169	65.3%	129.4
3	Winnett, MT	11	7	63.6%	27.4
4	Delta, UT	773	332	42.9%	58.7
5	Jordan, MT	33	14	42.4%	35.2
6	Elko, NV	11,887	4,236	35.6%	128.8
7	Sand Point-Akutan	184	62	33.7%	53.8
8	El Dorado, AR	3,862	1,196	31.0%	57.6
9	Lakeview, OR	535	165	30.8%	64.8
10	Blytheville, AR	4,084	1,235	30.2%	60.5

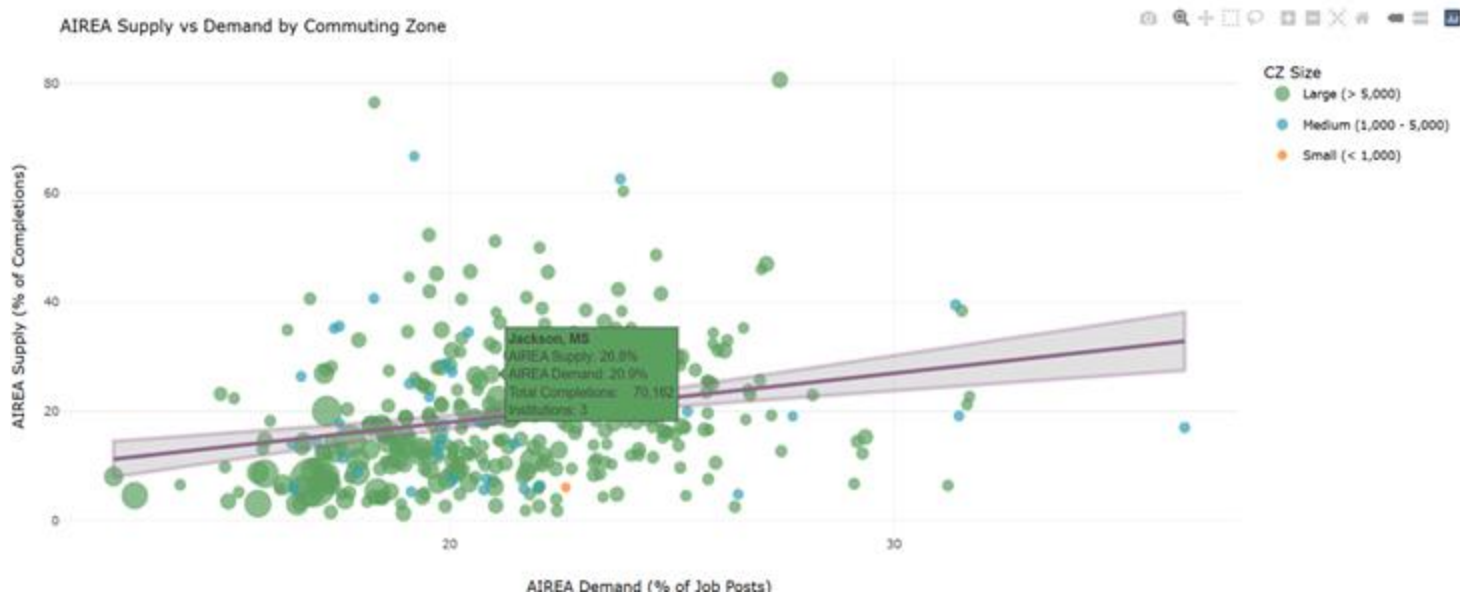
Showing 1 to 10 of 583 entries

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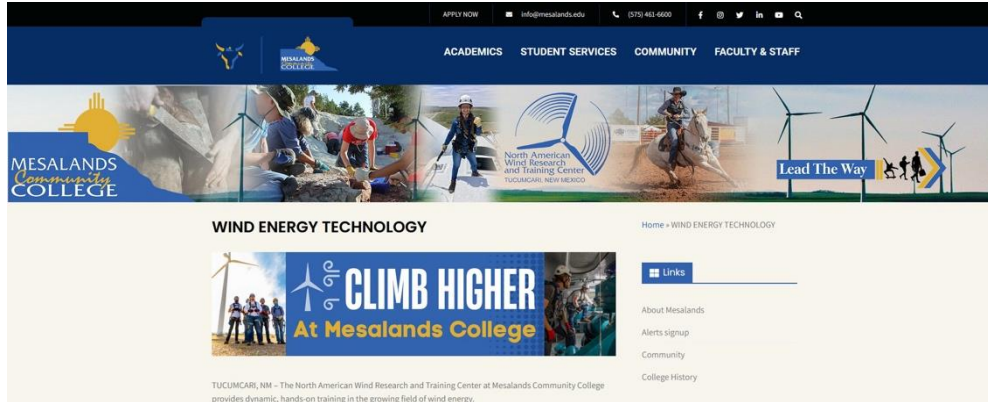
AIREA Data Explorer: Alignment

AIREA Supply vs Demand by Commuting Zone

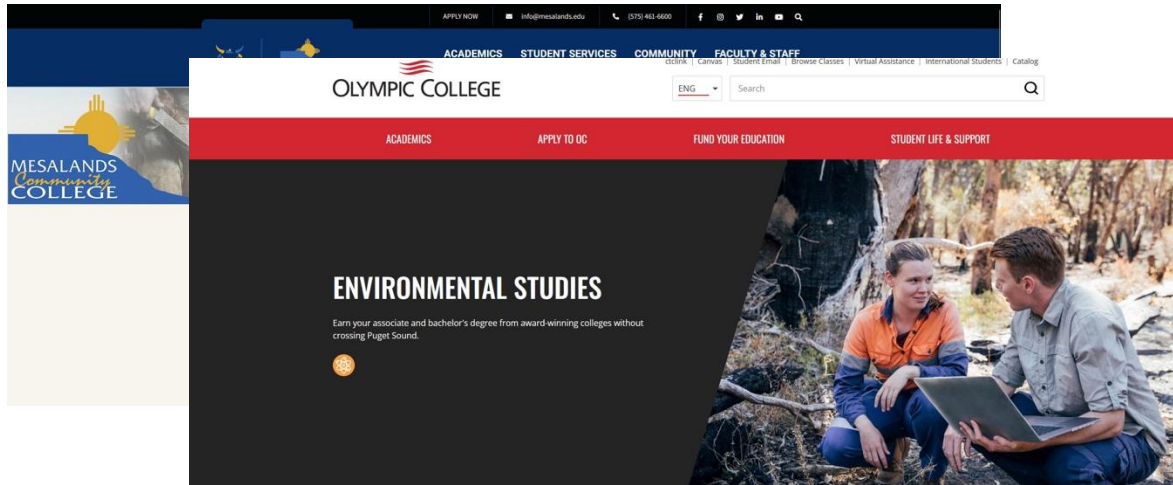
This scatter plot compares AIREA supply (% of completions from community colleges) vs AIREA demand (% of job postings) at the commuting zone level. Each point represents a commuting zone, with size indicating total completions.



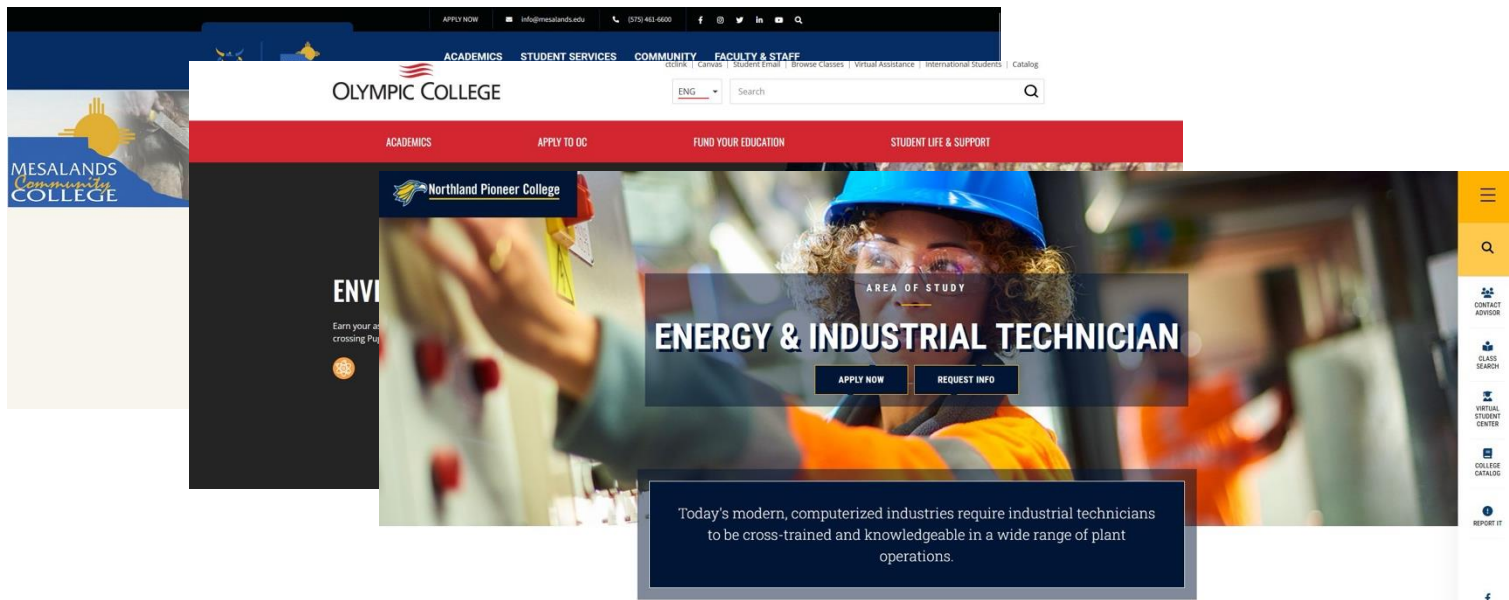
AIREA Data Explorer: Alignment



AIREA Data Explorer: Alignment



AIREA Data Explorer: Alignment



AIREA Data Explorer: Alignment

The image displays a collage of three educational institution websites, primarily focusing on the CT State Community College website, which is overlaid on the others.

Mesalands Community College: The top left portion shows the Mesalands Community College logo and navigation links including ACADEMICS, STUDENT SERVICES, COMMUNITY, and FACULTY & STAFF. A search bar is visible with the text "ENG" and a search icon.

Northland Pioneer College: The middle left portion shows the Northland Pioneer College logo and a large image of a person wearing a blue hard hat, with the word "ENERGY" partially visible.

CT State Community College: The right and bottom portions show the CT State Community College website. The header includes navigation links: Apply, About, Library, myCTState, FREE COLLEGE, and For You. Below the header is a red banner with the text "ACADEMIC CATALOG" and "TUNXIS". A search bar is present with the text "2024-2025 Academic Catalog".

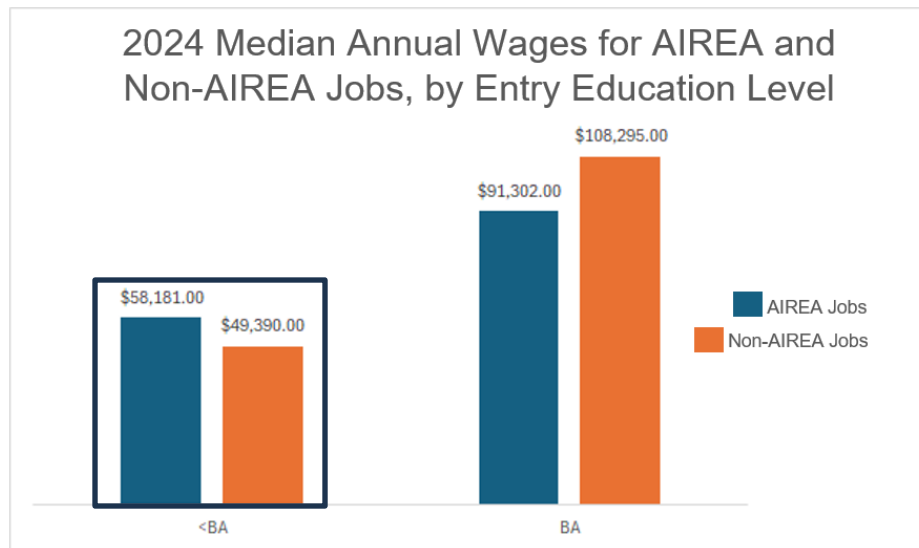
CT State Community College Catalog Search: The search results for "Technology Studies: Energy Management Certificate (ENMC-CC-COT)" are displayed. The location is listed as "Tunxis". The description states: "The Certificate in Energy Management offers students a hands-on curriculum utilizing the college's facilities as a 'living laboratory' to provide a career path that aligns with commercial and/or industrial energy management practices. A traditional Engineering job requires a 4-year degree. The certificate folds seamlessly into the 2-year Tech Studies, Energy Management Option Associate Degree and allows students to complete the required coursework needed to fulfill the duties and responsibilities of an 'Energy Manager', while still maintaining a level of General Education coursework that they could transfer to a 4-year college should that student desire the opportunity to expand their work to a 4-year Bachelor's Degree. This certificate path is more economical for the students of Connecticut to obtain the needed information to be successful in the field, yet they can continue their education at the university level if desired."

Learning Outcomes:

- Demonstrate a basic understanding of energy, its measurement and varied approaches to conserving/saving.
- Demonstrate a basic understanding of commercial building systems and be able to explain their operation, interactions, and their energy use.
- Perform energy analysis on potential conservation measures in commercial/industrial settings, and incorporate both conceptual and technical understanding in their project reports.
- Demonstrate an increased proficiency with spreadsheets, charts, and graphs in Excel.
- Practice technical writing and oral skills and will create technical documents.

Policy and Practice Considerations

- Sub-baccalaureate AIREA degrees represent “credentials of value”
- AIREA “opportunity zones” are often rural and in economic transition
- AIREA Data Explorer seeks to engage stakeholders to support program development, completion and alignment:
 - Increase economic/social opportunity
 - Accelerate innovation
 - Accelerate the decarbonization of the US Economy



Questions

1. Where do you see the greatest opportunity for aligning educational programs with emerging green workforce needs in your region?
2. What barriers exist in your state or institution that limit collaboration between education and industry in green sectors?
3. How might tools like the AIREA Data Explorer inform your policy or funding decisions?
4. What strategies have been most effective in your state for scaling successful green workforce initiatives across institutions?
5. How can we ensure equity and access in the transition to a green economy, especially for underserved communities?