



CCRC WEBINAR

Introducing the Advanced Infrastructure, Energy, and Agriculture (AIREA) Data Explorer:

A Tool to Understand Community College Alignment with Labor Markets

CCRC COMMUNITY COLLEGE
RESEARCH CENTER
Teachers College, Columbia University



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Today's Webinar



Building a
Sustainable
Future Initiative



Landscape
Study



Data Explorer
Tool



Panel
Discussion



Ways to
Stay
Engaged

Building a Sustainable Future Initiative

Convening of National Experts and Leaders



Call to Action

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Community Colleges and the Emerging Green Economy: A Call to Action

To limit the impacts of climate change, the United States set targets in 2021 to reduce greenhouse gas emissions to half of 2005 levels by 2030 and to achieve net-zero emissions no later than 2050. To meet these targets, the federal government has been investing in new energy and transportation infrastructure at a massive scale. These investments, combined with changing industry market conditions and emerging technologies, are predicted to dramatically reshape the workforce. In addition to facilitating the creation of clean energy and related jobs, workers in existing jobs will need to learn new skills and adapt to changing industry practices. In the next ten years, as many as **9 million high-quality jobs** will be created to implement new energy infrastructure and help communities adapt to and mitigate the effects of climate change. Notably, these will include new jobs (e.g., in wind turbine manufacturing) and existing jobs with new skill components (e.g., automotive technician).

What is the role of the nation's community and technical colleges in preparing for this workforce transition? To begin to answer this question, the Community College Research Center (CCRC) hosted a **symposium** on April 6, 2024, that brought together community colleges, workforce development organizations, funders, policymakers, and others to discuss the opportunities and challenges of starting, expanding, and sustaining green workforce programs.¹ Participants shared programs and initiatives already in place at community colleges, discussed funding opportunities, and identified unmet needs and opportunities to strengthen the ways that community colleges are contributing to a sustainable future. In this Call to Action, we share five insights from the symposium with the goal of both supporting work currently underway and galvanizing further efforts in community colleges to prepare workers for the green economy.

¹ Symposium participants included researchers, leaders of 24 community colleges from 19 states, as well as representatives of various foundations, the U.S. Environmental Protection Agency, the Department of Energy, the Department of Education, and 10 national intermediary organizations, including Jobs for the Future and the National Council for Workforce Education.

1. Community colleges are uniquely positioned to prepare students for the green economy.
2. Green jobs are already here.
3. There are strong economic arguments in favor of green jobs training.
4. Green jobs have the potential to advance income and racial equity.
5. This is a good time for investment.

Community Colleges and the Emerging AIREA Economy: Landscape Study

From “Green” to AIREA Jobs

Agriculture

- Precision agriculture technician

Energy

- Electrical line worker

Infrastructure

- Construction manager

Landscape Analysis



What are AIREA Credentials?



What are AIREA Jobs?



Where are AIREA Jobs?

Data Sources

AIREA Credentials: Integrated Postsecondary Data System (IPEDS)

We collected and analyzed all community college AIREA credentials between 2010-2023 using IPEDS

AIREA Jobs: Lightcast Job Postings

Lightcast collects and analyzes occupation-level job postings. We used AIREA job postings between 2010-2023

AIREA Opportunity Zones: U.S. Department of Agriculture

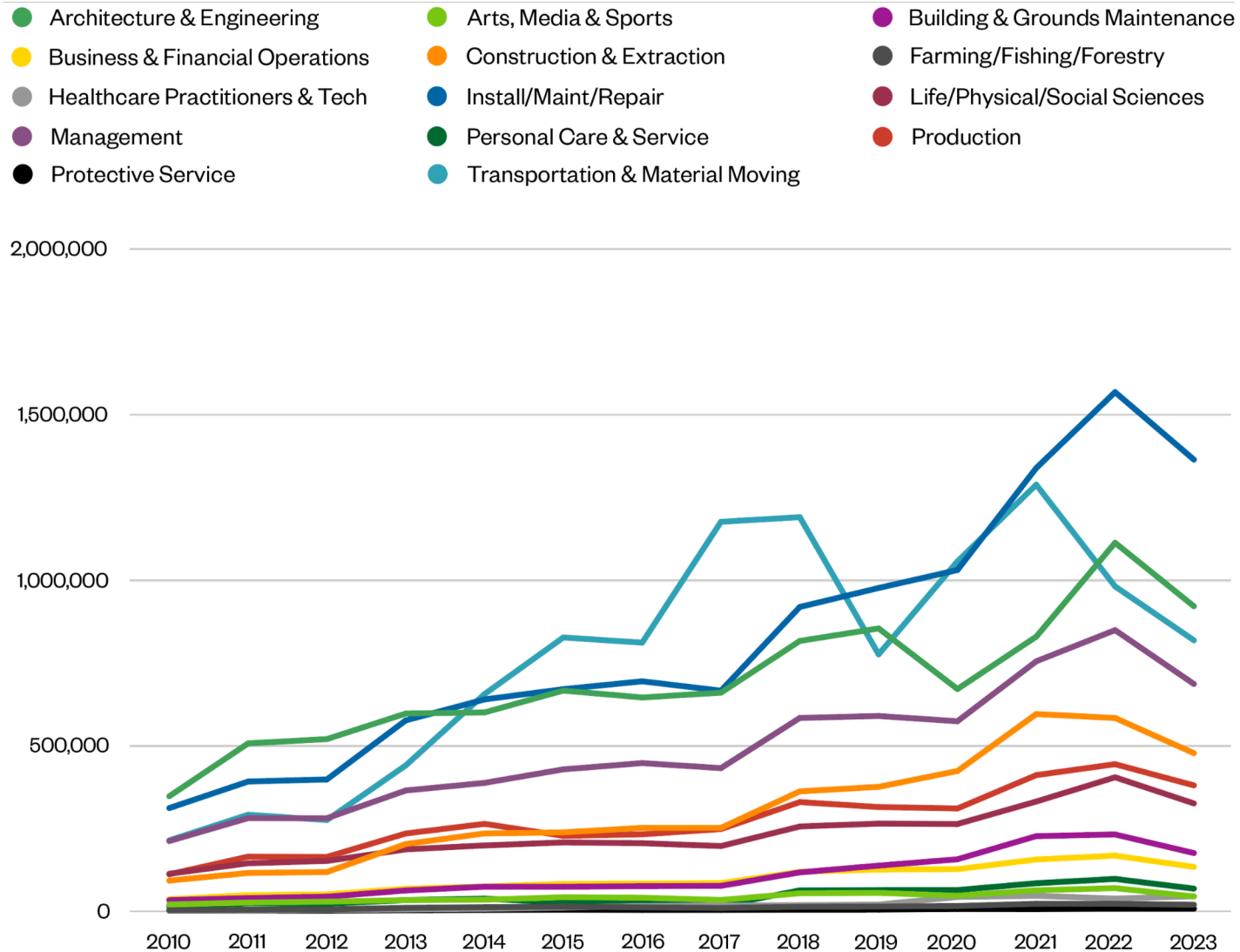
Commuting Zones: A group of counties with daily commuting and economic interdependence, capturing the areas where people live and work

Examples of AIREA Jobs and Credentials

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

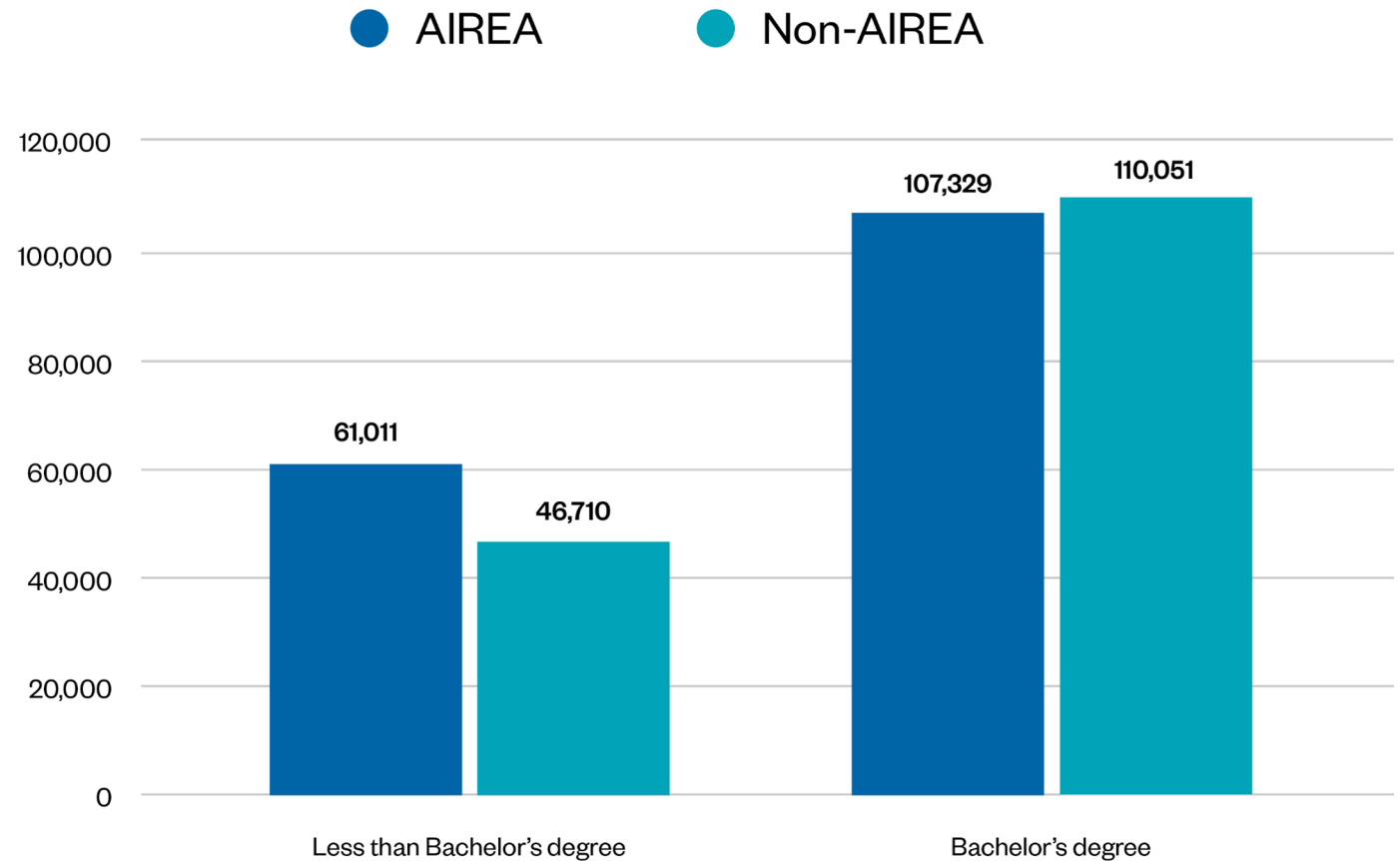
Key Findings

AIREA Jobs Are Increasing

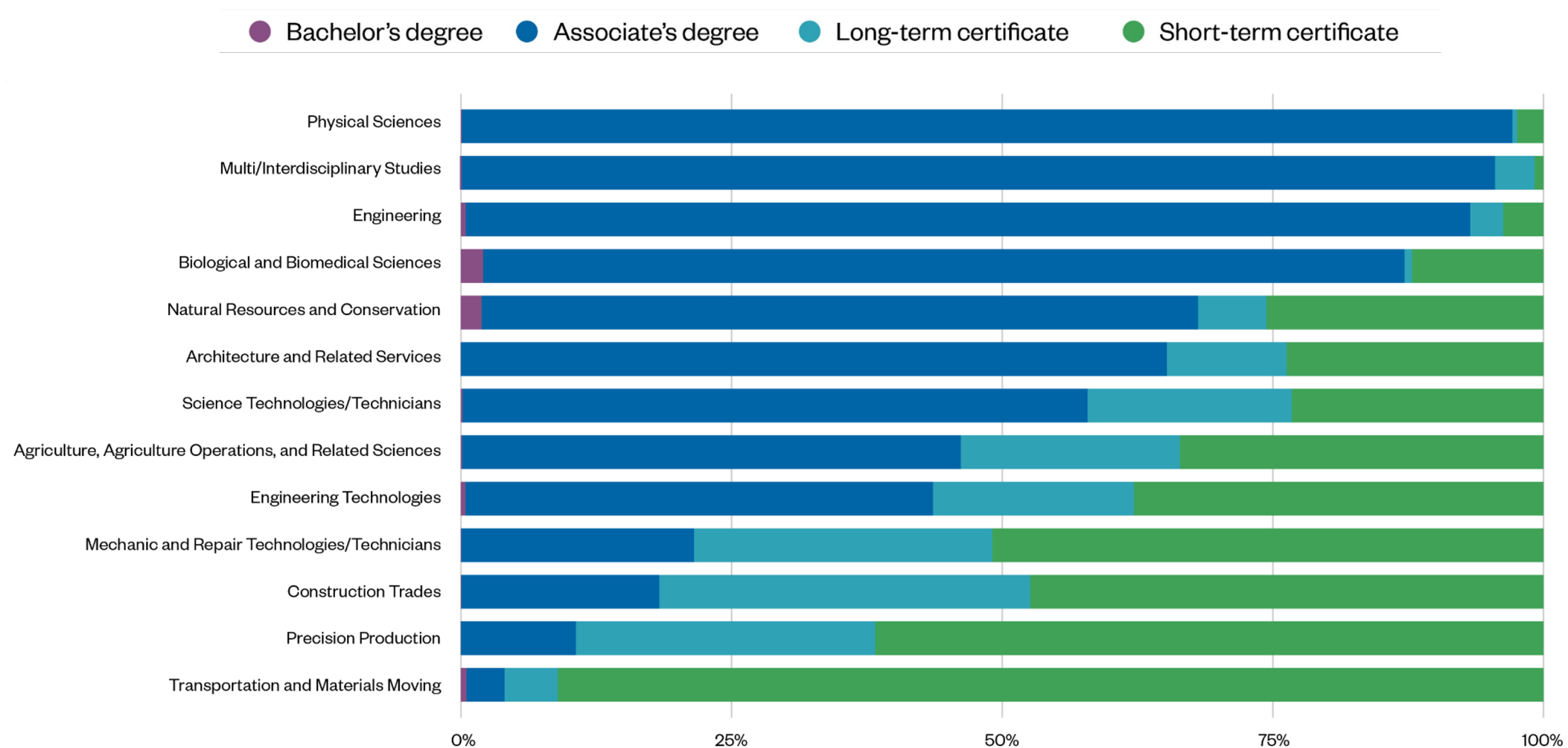


AIREA Jobs Are Good Jobs

- Sub-baccalaureate AIREA degrees represent “credentials of value”
- AIREA “opportunity zones” are often rural and in economic transition



Award Levels Vary within AIREA Fields of Study



AIREA Data Explorer



airea
Advanced Infrastructure, Energy,
and Agriculture Data Explorer

Panel Discussion



Carla Grandy,
Senior Advisor to the Chancellor
and Senior Climate Fellow,
California Community Colleges
Chancellor's Office



Kate Kinder,
Executive Director, National
Council for Workforce
Education (NCWE)

Staying Engaged

Explore!

Advanced Infrastructure, Energy, and Agriculture (AIREA) Data Explorer



Map ⁱ

Credentials Awarded ⁱ

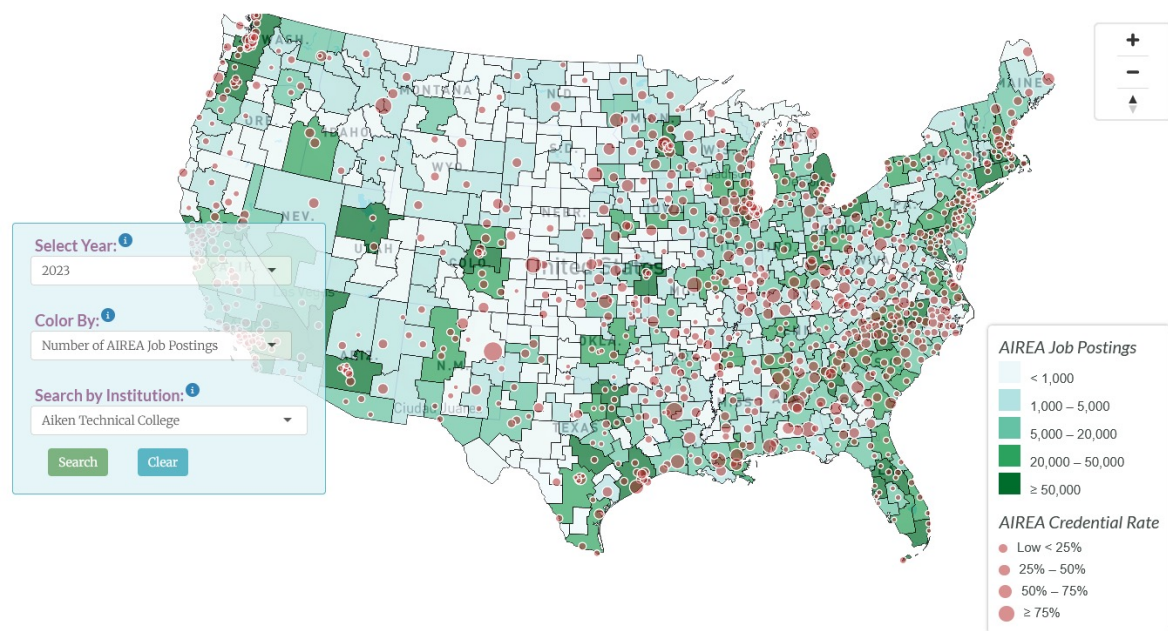
Job Postings ⁱ

About the Data Explorer ⁱ

These interactive maps and data visualizations are for exploring how community college AIREA program completions align with AIREA-sector job postings by commuting zone.

Which areas of the country have strong job demand in AIREA fields? Which community colleges confer a large percentage of their credentials in AIREA fields? Use the controls to filter by year or to search for an institution.

Curious to see AIREA job postings represented in different ways? Use the color by filter to see the raw number of AIREA job postings, the percent of all job postings that are in AIREA fields, or the number of AIREA job postings per 1,000 residents.



<https://ccrc.tc.columbia.edu/dashboard/airea-tool.html>

Upcoming Outreach and Dissemination

Conferences and Webinars

- [C3 Converge](#)
September 2025
- [Climate Week NYC](#)
September 2025
- [APPAM](#)
November 2025

Research Brief

- Fall 2025
- Definitional framework for AIREA sub-baccalaureate degrees and jobs
- Top AIREA degrees awarded and highest-demand AIREA jobs
- High-demand regions with strong degree alignment

CCRC Blogs



Thank You!

FOR JOINING US IN BUILDING A SUSTAINABLE FUTURE

For more information,
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