ISSUE BRIEF

AUGUST 14, 2025

COMMUNITY AND TECHNICAL COLLEGES AND THE CLEAN ENERGY SECTOR: OPPORTUNTIES AND NEEDS

The Challenge

Zero-carbon emission goals are driving Washington's environmental policies and substantial portions of the state's economy. Climate related legislation passed between 2019 and 2022 gave the state's economy and its workforce a clear mission: "On the path to net-zero by 2050, energy employment in Washington grows by 14% from 2021 to 2030, with net job growth in every sector."[1] To deliver on the state's climate goals and realize the economic opportunities they create, Washington needs a workforce appropriately skilled to implement new and emerging technologies and processes aimed at reducing carbon emissions.

Washington's Clean Energy Technology Workforce Advisory Committee (CETWAC) and the Washington Climate Partnership's Comprehensive Climate Action Plan (CCAP) are developing recommendations for the state's Legislature to increase workforce system responsiveness to meet the state's zero-carbon goals. This report is intended to support that work by providing recommendations specific to the work of Washington's community and technical colleges.

Washington's community and technical college (CTC) system is in a unique position to help the state create, grow, and retrain the workforce necessary to support the rapidly changing clean energy sector. The 34 community and technical colleges offer a vast array of programs in communities across the state to help people of all ages and backgrounds get the education and training they need for well-paying jobs and career mobility. In 2024-25 more than 273,000 students enrolled in community and technical colleges — 55% of whom identified as people of color — making it the largest, most accessible system of public higher education in Washington.[2] More than half of those students were enrolled in workforce training: 120,892 students enrolled in professional-technical education, 12,530 in apprenticeship related supplemental instruction, and 8,199 in the Worker Retraining program.

Currently, Washington's community and technical colleges offer more than 850 certificate, degree, and apprenticeship-related programs that support the critical sectors of the state's clean energy economy in areas like transportation, electricity, building, fuels, and similar programs. The system's commitment to

[1] Clean Energy Transition Institute Net-zero NW Workforce Analysis, April 2024, https://www.cleanenergytransition.org/post/net-zero-northwest-workforce-state-analysis
[2] State Board of Community and Technical Colleges, Enrollment Dashboard 2022-2023, https://www.sbctc.edu/colleges-staff/research/data-public/enrollment-data-dashboard

COMMUNITY AND TECHNICAL COLLEGES
Washington State Board

CONTACT INFORMATION
Marie Bruin
Director
Workforce Education
360-704-4333
mbruin@sbctc.edu

equity and to serve all students means students from low income households, students of color, and those from communities most impacted by climate change can access training that helps the state meet its climate goals while advancing economic justice as these students and their families participate and benefit fully in the transition to a net zero economy.

Clean energy-related programs refer to programs wherein clean energy skills and content are taught. In a 2025 program inventory by the Pacific Northwest Center of Excellence for Clean Energy, most colleges (32 out of 34) offer programs related to this sector, including four applied bachelor's degrees. The 122 community and technical college programs that support this sector include:

- Apprenticeship related supplemental instruction programs: 14
- Electrical: 13
- Energy efficiency: 7
- Engineering related programs: 48
- EV/Auto: 11; 21 traditional auto/diesel (not included in total)
- Industrial: 6
- Mechatronics: 11
- Nuclear: 3
- Trades: 9 (includes HVAC)

While each college is independent, Washington's CTCs frequently work together to meet statewide needs with localized solutions. With investment and statewide coordination, their programs, faculty expertise, wraparound student support, financial aid, and structures for employer engagement can be leveraged to help meet the state's climate and workforce development goals and the needs of the state's clean energy sector.

Observations

Quantifying the need and supply for clean energy jobs and programs is difficult because clean energy strategies and occupations exist in so many different sectors. In fact, almost any job performed in a way that reduces climate impacts can be labelled as "clean." "These jobs do at least one of the following: produce goods and services that benefit the environment; preserve natural resources; serve to make business processes more environmentally friendly; or reduce natural resource use. Other categories of jobs also include those defined as being dedicated to improving resilience to the effects of climate change." [3]

Currently, most job growth within the sector results from innovation within existing industries and

[3] Rachel Rosen, MDRC, Career and Technical Education (CTE) for Climate Jobs, A Framework for Secondary and Postsecondary CTE, July 2023, https://www.mdrc.org/sites/default/files/Climate_Ready_Workforce_Working_Paper_1.3.pdf)

occupations, rather than creating whole new ones. The college response reflects this trend. Colleges adapt to industry changes by updating existing programs first, adding electives and short-term credentials to two-year and four-year programs until emerging technologies become commercially recognized and industry demand requires new programs be built. This makes it challenging to understand the capacity of the college system's ability to meet the industry's needs.

Surveys and focus groups of CTC deans, administrators, and faculty illustrate the opportunities and challenges the system faces in its efforts to meet industry needs. The following sections detail those considerations.

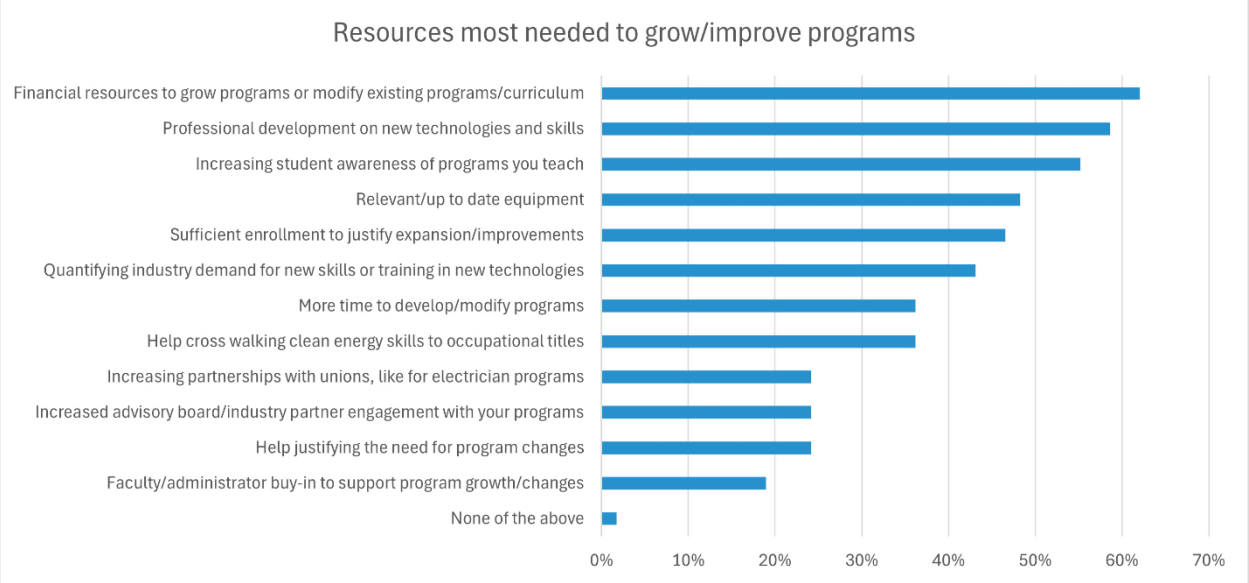
A rapidly changing context

Community and technical college programs are highly responsive to changes in clean energy sectors. Sixty-seven percent of faculty and 64% of dean/administrator survey respondents reported recently making changes to their clean energy related programs, including adding new courses like EV, purchasing new equipment for labs, implementing industry specific requirements into programs, building short-term certificates, responding to regulatory changes, and closing programs. Sixty-eight percent also stated that additional changes needed to be made for their clean energy-related programs.

Challenges identified in increasing college responsiveness included gauging industry and student interest, finding resources to support program development, finding and retaining skilled faculty, and obtaining usable equipment and trainers. In addition, despite industry demand for skilled technicians, some professional-technical program enrollments have not rebounded since the COVID-19 pandemic, causing CTCs to change when and how these programs are offered.

Growing needs/shrinking resources

Limited resources to start, modify, update, and grow programs was a recurring theme in survey responses and focus groups. The cost of implementing clean energy-related programs is high and programs compete with other high-demand/high-need professional-technical programs for limited funding. State budget shortfalls are resulting in fewer resources for program development. The resources that are available may not be flexible enough to support the program changes necessary to keep up with clean energy industry innovation.



Challenges hiring and retaining faculty

One-third of deans and administrators reported that they are "not able to find appropriately skilled faculty for the clean energy-related job openings." Wages for clean energy-related program instructors cannot compete with those paid by industry and relatively few applicants respond to CTC job openings in the sector. While funding to increase the salaries of instructors in "high needs" programs is available, many clean energy-related programs (automotive, manufacturing, etc.) do not meet the definition of "high need." Noncompetitive wages also impact the ability of colleges to retain highly skilled faculty since industry can attract faculty who are highly trained and have strong interpersonal skills honed through class management experience. In these situations, colleges lose faculty, their training investment into those faculty, and, in some cases, whole programs.

The need for professional development

Professional-technical faculty are required to implement ongoing professional development plans that develop teaching skills in support of adult learning and to maintain or increase technical skills and certification to keep up with industry innovation. However, technical skills training is often expensive and may only be available outside the college district or out of state. This requires travel which adds to the cost of training. Additionally, programs may be understaffed and highly specialized, making it difficult to cover for staff while they completed training.

Limited awareness

Having sufficient student and employer interest to start and fill a program is another challenge. Programs that recently closed or are closing because a lack of faculty and because of low enrollment. Forty-one percent of deans and administrators who answered the question "Do any clean energy related programs you oversee have difficulty meeting enrollment goals?" said, "yes." Forty-four percent said they did not have the industry support needed for their advisory committee(s) to anticipate and address changes to clean energy-related sectors.

Recommendations

Ensure resource flexibility

One of the greatest risks to the state's climate agenda are challenges faced by the community and technical college system. Colleges grapple with risks and high cost of program upgrades, the short timeframe in which these changes need to happen, and lack of resources to support that work.

Because equipment and staff training for CTC clean energy-related programs are expensive, creating more flexibility in how program improvement and development funding can be spent to respond to local needs could help. Increasing the caps on equipment spending could help support the growth of clean energy-related programs. Allowing programs to include the costs of training with equipment purchases would also help.

Maintain clean energy-related investments

The state in 2022 allocated almost $2 million to SBCTC to create the Climate Solutions Program. In 2025, SBCTC granted funds to colleges to implement curricular changes, engage in professional development, develop employer partnerships and purchase equipment for many clean energy-related programs. However, the investment was not renewed in successive biennia.

Centers of Excellence funding was cut by 26% for 2025-27, limiting their ability to support this growing sector.

The Workforce Development Fund administered by SBCTC is a go-to resource for programs and allows for flexibility and localization of needs. The resource, however, is limited and is not targeted specifically for clean energy-related programing. The fund's term limits need to be increased to meet increased demand and match the timeline needed to make sustainable changes to programs.

Career Connect Washington Career Launch funding supported the development of many clean energy-related programs. However, it was cut by $6 million for 2025-27, leaving programs to seek other competitive grants (primarily federal) to build their programs.

As federal funding for clean energy and workforce has been dramatically reduced seeking non-state funds has become increasingly difficult. Searching for and writing grants is time intensive and requires expertise that is not always available at the program level at many CTCs. It also takes time away from the classroom and curriculum and program development.

Restoring and increasing existing investments can help the CTC system meet the demands of the rapidly changing clean energy sector.

Enhance coordination and collaboration

One of the most cost-effective investments in supporting the clean energy sector is investing in existing structures for increased coordination and collaboration. The State Board for Community and Technical Colleges provides systemic coordination, support, and advocacy for Washington's community and technical colleges. SBCTC aligned policy associate positions with key workforce development activities in support of funding, policy, and legislative priorities. These policy associates are key resources for Washington's system of 34 public community and technical colleges, workforce partners, and related state agencies. Funding to

support the clean energy sector would allow a similar support structure to be created to address the growing demand in this area. In addition, since clean energy activity is taking place in so many sectors, coordination is needed across the relevant Centers of Excellence. The Pacific Northwest Center of Excellence for Clean Energy is already a go-to resource for programs in the sector and would be a logical place to create increased capacity for coordination between programs and industry and in informing training needs.

Activities proposed to enhance coordination and collaboration include:

- Aggregating clean energy faculty training needs and provide responsive training
- Building cross-college learning/best practices sharing opportunities
- Housing/supporting a curriculum development resource/writer to help build new programs and increase access to free available open sources resources
- Diversifying funding through a statewide sector grants strategy
- Creating an ecosystem of partnerships
- Helping connect programs with employers for advisory committees, etc.
- Maintaining an inventory of equipment needs
- Promoting awareness of clean energy related programs
- Exploring expanded college-organized labor partnerships

Conclusion

To support robust implementation of state policy to impact Wahington's climate goals, the community and technical college system will need support. This brief outlines the current state of clean energy-related programs in Washington and recommendations for how the state's CTCs can be supported and leveraged to ensure a sufficiently skilled workforce for the sector's growth. Among the key themes are the need for ongoing, flexible funding to support growth in rapidly evolving clean energy programming and increased support for statewide coordination to streamline and reduce the cost of program innovation.

Washington is at a critical juncture in its clean energy-related economic development. Support for its community and technical college programs will result in a skilled workforce ready for the increase in demand for middle-skilled, blue-collar jobs and help achieve the state's climate goals. The community and technical college system has a century of experience in career connected-education and workforce development. It is the largest and most accessible workforce education system that serves the most diverse populations. Investing in Washington's community and technical college system leverages the expertise, infrastructure, and access it offers for equitable and sustainable workforce development for the clean energy economy in every part of the state.

COMMUNITY AND TECHNICAL COLLEGES
Washington State Board

CONTACT INFORMATION
Marie Bruin
Director
Workforce Education
360-704-4333
mbruin@sbctc.edu