

## Appendix D. Workforce Planning Analysis Background

This Workforce Planning Analysis was developed by the North Carolina Department of Commerce in collaboration with the North Carolina Department of Environmental Quality using Climate Pollution Reduction Grant (CPRG) planning funds. While the report was prepared independently of the final CCAP measures, it provides valuable insights into the current state of North Carolina's climate-related workforce and highlights opportunities for future growth across key sectors. The full report is included here to support long-term planning, identify workforce gaps, and inform future implementation efforts tied to greenhouse gas reduction strategies.

This report outlines the expected changes to the state's workforce, identifies potential job shortages, and highlights the training needs required to support the Comprehensive Climate Action Plan (CCAP) developed by the North Carolina Department of Environmental Quality (NCDEQ).

### 1. Expected Changes to the Workforce

#### 1.1. Job Growth Driven by Climate Adaptation Initiatives

In spring 2024, the Department of Commerce (Commerce or Department) commissioned a study by the firm EBP to project the number of jobs created by the clean energy transition. This section provides a high-level overview of the EBP study to inform the Workforce Planning Analysis for the CCAP.

The study takes into consideration recent statewide policies guiding climate adaptation and clean energy initiatives, including:

- **Executive Order 80:** Signed in October 2018, launched the North Carolina Clean Energy Plan and directed Commerce to study and report on workforce needs for clean energy and clean transportation.
- **Executive Order 218:** Signed in June 2021, set goals for developing 2.8 gigawatts (GW) of offshore wind energy by 2030, and 8.0 GW by 2040 and directed Commerce to establish the N.C. Taskforce for Offshore Wind Economic Resource Strategies (NC TOWERS) to provide expert advice for advancing North Carolina offshore wind energy projects, economic development and job creation.
- **House Bill 951:** Enacted in October 2021, requires a 70% cut in carbon emissions from power plants by 2030 and to achieve carbon neutrality by 2050.

The EBP report models two scenarios. The “Reference Case” assumes North Carolina will continue its current trajectory of population growth, adoption of EVs, and growth of wind and solar energy generation.

The “Growth Scenario” assumes that the state will meet its listed climate goals by 2050, including deep investments in wind and solar energy resource deployment, electric vehicles (EVs), and building energy efficiency. The Growth Scenario includes the following assumptions:

- **Offshore Wind:** North Carolina adds 2.8 GW of offshore wind energy capacity by 2032, then 8.4 GW more by 2040. After that, capacity grows at 2.9% annually, reaching 11.2 GW by 2050.
- **Solar Energy:** Solar energy generation reaches 43.9 GW by 2050, a 33% increase compared to the Reference Case.
- **Electric Vehicles (EVs):** By 2030, half of all new vehicle sales in North Carolina are electric. By 2050, all new vehicles sold are electric. These targets align with the state's EV needs assessment and the Net Zero decarbonization plan.<sup>1</sup>
- **Building Codes and Construction:** Starting in 2023, all new buildings are fully electric and meet the latest International Energy Conservation Code for energy efficiency. Weatherization programs expand significantly to improve energy efficiency in existing buildings.
- **Heating and Hot Water:** By 2030, all new heating and water heating equipment sold must be high-efficiency models, such as electric heat pumps. By 2040, 100% of these systems are electric and are high efficiency across all new sales.

Based on these assumptions, the EBP report projects that North Carolina could gain approximately 9,700 additional annual jobs through 2050.

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<sup>1</sup> *North Carolina Deep Decarbonization Pathways Analysis. February 2023. Office of Governor Roy Cooper.*  
[https://cebuyers.org/wp-content/uploads/2025/03/IncreasesByState\\_NERA030525.pdf](https://cebuyers.org/wp-content/uploads/2025/03/IncreasesByState_NERA030525.pdf)

Each clean energy sector contributes uniquely to this job growth:

**Wind Energy** drives the largest employment gains (5,500 jobs annually) due to the complex, labor-intensive nature of offshore wind development. These projects require long construction periods, extensive infrastructure investments, and ongoing maintenance during operations. Job growth is strongest in construction, project management, and environmental engineering.

**Solar Energy** adds about 3,000 jobs per year. While installation is less complex than wind, rapid expansion and decentralized deployment (e.g., rooftop, commercial, utility-scale) create high demand for electricians, solar photovoltaics installers, and logistics staff.

*Table D- 1. Estimated job growth and economic impact*

**Electric Vehicles** investments generate around 1,000 jobs annually, primarily in manufacturing, utilities, and wholesale trade. EVs also create employment ripple effects in battery production, charging infrastructure, and grid upgrades. The estimate focuses only on light-duty vehicles *within North Carolina*, so actual employment could be significantly

Estimated job growth and economic impact by 2050 under the "Growth Scenario"			
Sector	CCAP Measure	Estimated Annual Jobs	Estimated Economic Impact (\$ Billions)
Wind Energy	Electricity Generation	5,500	\$24.2
Solar Energy	Electricity Generation	3,000	\$7.4
Electric Vehicles	Transportation	1,000	\$15.7
Building Efficiency	Commercial and Residential Buildings	<150	\$1.8
<b>Total</b>		<b>9,650</b>	<b>\$49.1</b>

higher as North Carolina advances electrification of buses<sup>2</sup> and heavy-duty fleets, or as EV adoption grows in other states and global markets.

Table D- 2. Industry-wide Initiatives

**Initiatives in wind, solar, building efficiency, and EVs are projected to create jobs over a wide range of industries**

Projected job growth of North Carolina Clean Energy initiatives by industry.

Wind	Jobs	Solar	Jobs	Electric Vehicles	Jobs	Building Efficiency	Jobs
Construction	2,681	Admin., Waste Management	722	Manufacturing	621	Manufacturing	87
Finance and Insurance	383	Transport. and Warehousing	249	Utilities	107	Wholesale Trade	8
Real Estate, Rental, Leasing	328	Real Estate, Rental, Leasing	249	Wholesale Trade	75	Real Estate, Rental, Leasing	5
Prof., Sci., Tech. Services	274	Prof., Sci., Tech. Services	199	Real Estate, Rental, Leasing	43	Transport. & Warehousing	4
Manufacturing	274	Construction	174	Finance and Insurance	32	Finance and Insurance	4
Other	1,477	Other	921	Other	193	Other	22
<b>Total</b>	<b>5,471</b>	<b>Total</b>	<b>2,490</b>	<b>Total</b>	<b>1,071</b>	<b>Total</b>	<b>130</b>

Source: EBP - Created with Datawrapper

**Building Efficiency** sees the smallest direct employment impact—fewer than 150 jobs annually—because many high-efficiency materials are already manufactured by companies that also produce traditional components. However, this sector still provides key environmental benefits and new jobs in weatherization, HVAC upgrades, and energy auditing.

## 1.2. Clean Energy Occupations

A diverse workforce will need to support these climate adaptation and clean energy measures.

### Wind Energy

Wind energy drives the largest occupational gains, especially in construction and

<sup>2</sup> For instance, the Environmental Protection Agency awarded \$26.7 million to Carolina Thomas LLC to produce 114 new electric buses to school districts throughout North Carolina. <https://governor.nc.gov/news/press-releases/2024/01/17/governor-cooper-tours-electric-school-bus-highlights-historic-federal-funding-114-electric-buses>

engineering roles. Projects require site preparation, turbine installation, electrical line work, and long-term maintenance. This supports high demand for construction laborers, electricians, environmental engineers, and project managers, many of whom earn above-average wages.

**Solar Energy**

Solar deployment creates widespread job opportunities in installation, logistics, and administrative coordination. Occupations include solar photovoltaic installers, electricians, equipment operators, and support staff managing permitting and scheduling. The sector also supports jobs in sales and project oversight due to its decentralized growth model.

**Electric Vehicles (EVs)**

EV growth supports jobs in advanced manufacturing, including battery assembly, motor production, and vehicle design. Additional roles emerge in software development, systems engineering, and charging infrastructure. North Carolina’s strong pipeline of engineering graduates positions the state to meet growing demand in these high-tech occupations.

**Building Efficiency**

Jobs in this sector focus on HVAC technicians, insulation workers, and energy auditors. Most work is tied to retrofitting existing buildings and ensuring code compliance in new construction. While job creation is modest, these occupations are critical for delivering energy savings and emissions reductions across the built environment.

*Table D- 3. Jobs Created by Top Occupation Categories*

New jobs created under the Growth Scenario by top occupation categories				
Rank	Occupation	Average Wage	Estimated Jobs	Economic Impacts (\$B)
1	Construction and Extraction	\$50,980	1,712	\$9
2	Office and Administrative Support	\$48,220	1,186	\$6
3	Transportation and Material Moving	\$41,130	989	\$5
4	Sales and Related Occupations	\$79,360	880	\$5
5	Management Occupations	\$143,120	785	\$4
6	Production Occupations	\$45,260	781	\$4

7	Business and Financial Operations	\$85,620	767	\$4
8	Installation, Maintenance, and Repair	\$59,280	690	\$4
9	Computer and Mathematical	\$107,570	374	\$2
10	Building Cleaning and Maintenance	\$38,260	273	\$1
	All Occupations	\$59,730	9,635	\$49

### 1.3. Labor Supply for Clean Energy Jobs

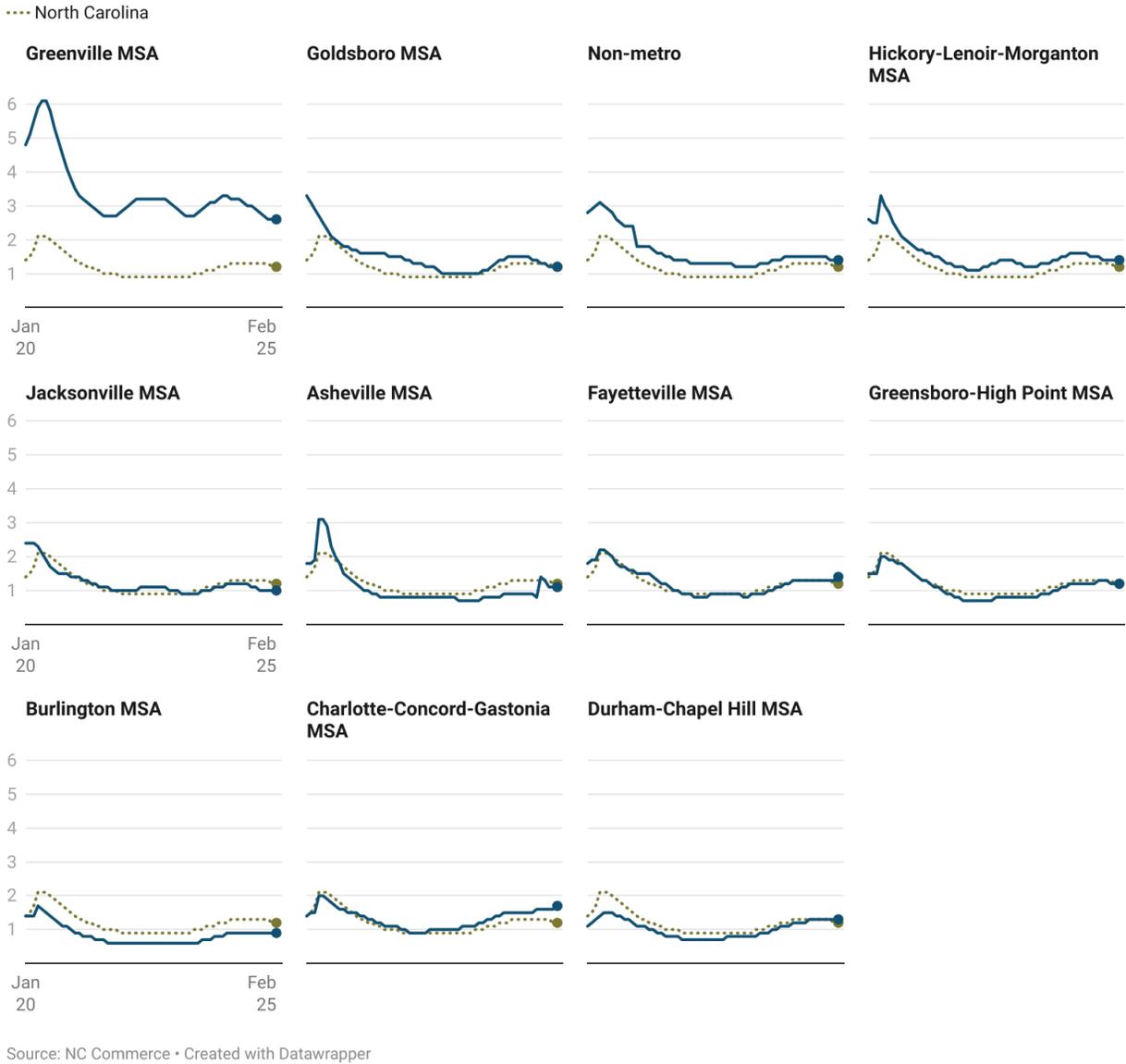
Since 2020, North Carolina’s job market has tightened. As of February 2025, there are fewer jobseekers per job opening than during the early months of the COVID-19 pandemic.

However, several labor market indicators have softened since 2022, including a decline in both job postings by employers and voluntary quits by workers.

*Table D- 4. Number of Job Seekers per Job Opening*

## The labor market is tight across all MSAs compared to the early months of the pandemic, although it has softened since 2022

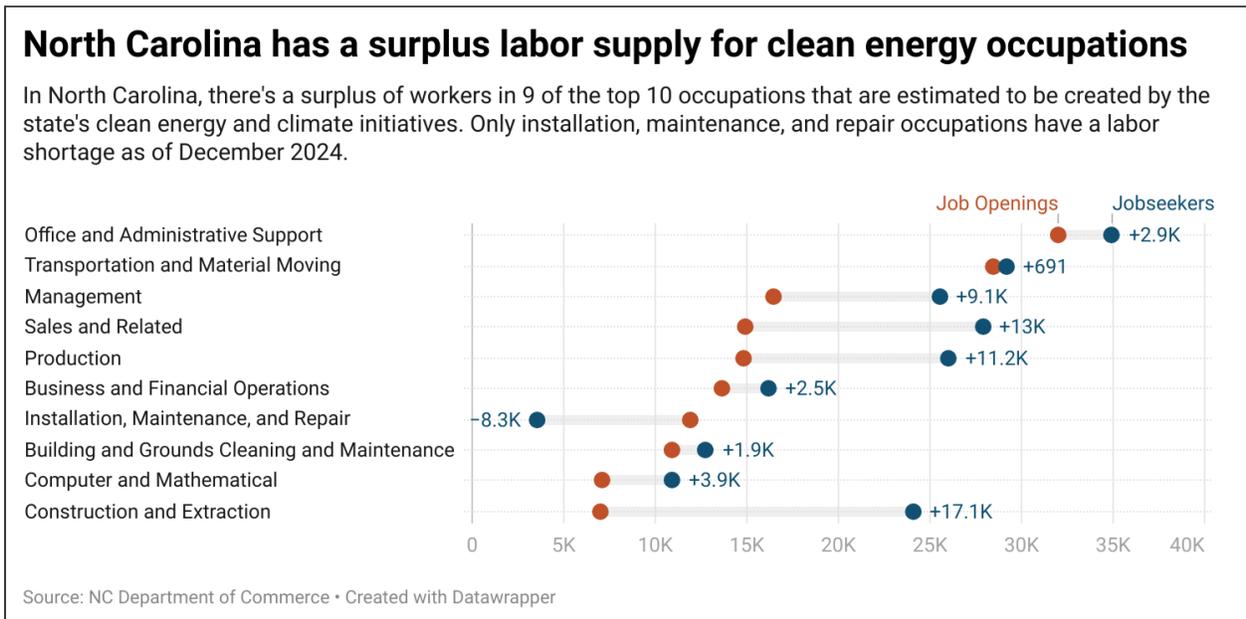
Number of job seekers per job openings across North Carolina Metropolitan Statistical Areas (MSAs).



Local conditions vary. For example, the Greenville metro area has about 2.5 jobseekers for every available job, which is double the state average. In Charlotte, the number of jobseekers per job is also nearly twice the state average, just slightly below what it was in March 2020.

North Carolina has a surplus of workers in high demand occupations critical to the clean energy transition. Based on data from December 2024, there were about 50,000 more jobseekers than job openings across top occupational categories identified by EBP. Worker surpluses are strongest in management, sales, production, and construction. Smaller surpluses exist in office and administrative support, transportation, business operations, and building maintenance. A major shortage remains in installation, maintenance, and repair occupations.

Table D- 5. Labor Surplus for Clean Energy Jobs



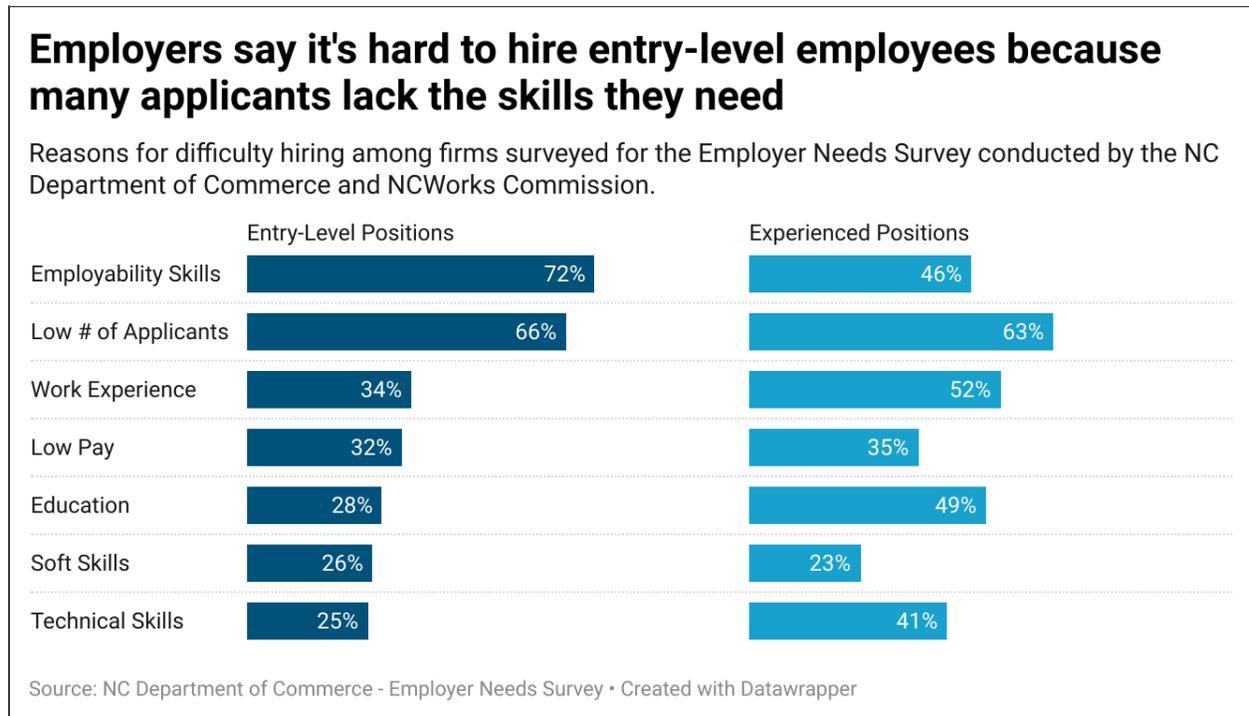
repair jobs, with 8,300 fewer workers than are currently being hired by employers. Many of these occupations work across industries such as manufacturing and construction, and are often skilled trades people.

Even with a surplus of workers in these occupations, many North Carolina employers report challenges with hiring that may be shared by future clean energy employers. A 2023 survey conducted by Commerce found that 62% of employers had trouble filling positions, up from 44% in 2014. The top stated reasons were (1) a shortage of applicants and (2) a lack of necessary skills. Over two out of three employers cited the skills gap as a major issue filling entry-level positions. This problem is particularly acute in manufacturing and construction — two industries critical to the clean energy economy.

National data on wind energy workforce shortages also point to challenges hiring for these industries. According to a 2024 report from the U.S. Department of Energy, 94% of

construction firms working in the wind industry reported at least some difficulty finding

*Table D- 6. Challenges of Hiring Entry-level Employees*



qualified workers, with one-third claiming it was “very difficult.” Construction firms in the solar industry reported similar challenges.<sup>3</sup>

Many workers face additional barriers that prevent them from accepting jobs. Employers report that transportation challenges and limited access to affordable childcare are major obstacles. A 2023 study by Commerce and NC Child found that there were 100,000 fewer working-age parents of young children in the labor force compared to 2019. Childcare availability and cost were the biggest hurdles to employment. North Carolina’s licensed, high-quality childcare system can only serve about two-thirds of the children whose parents work, and childcare costs have risen faster than inflation, housing, and groceries nationwide.<sup>4</sup>

<sup>3</sup> “United States Energy & Employment Report 2024.” U.S. Department of Energy. 2024. [https://www.energy.gov/sites/default/files/2024-10/USEER%202024\\_COMPLETE\\_1002.pdf](https://www.energy.gov/sites/default/files/2024-10/USEER%202024_COMPLETE_1002.pdf)

<sup>4</sup> “How Increasing Employment Among Parents of Young Children Can Grow North Carolina’s Economy.” NC Department of Commerce. NC Child. October 2024. <https://www.commerce.nc.gov/empowering-work-how-increasing-employment-among-parents-young-children-can-grow-north-carolinas/open>

Table D- 7. Barriers to Employment

Top barriers to employment identified by employers			
Barriers	All Industries	Manufacturing	Construction
Transportation	23%	21%	18%
Childcare	20%	19%	7%
Commuting Distance	17%	17%	8%
Criminal Record	14%	14%	19%
Drug Screening	6%	10%	16%

Transportation and commuting distance also limit workers’ access to jobs. In surveys, 23% of employers across all industries cited transportation as a top barrier, 20% cited childcare, and 17% cited commuting distance. In manufacturing and construction, these barriers are even more significant. In the wind energy sector, job location remains a hurdle. About 64% of students surveyed reported difficulty finding clean energy jobs near where they are willing to live.<sup>5</sup>

Meeting workforce needs in North Carolina’s clean energy industries will require investment in skills training, education, and targeted outreach, as outlined in Section 3.

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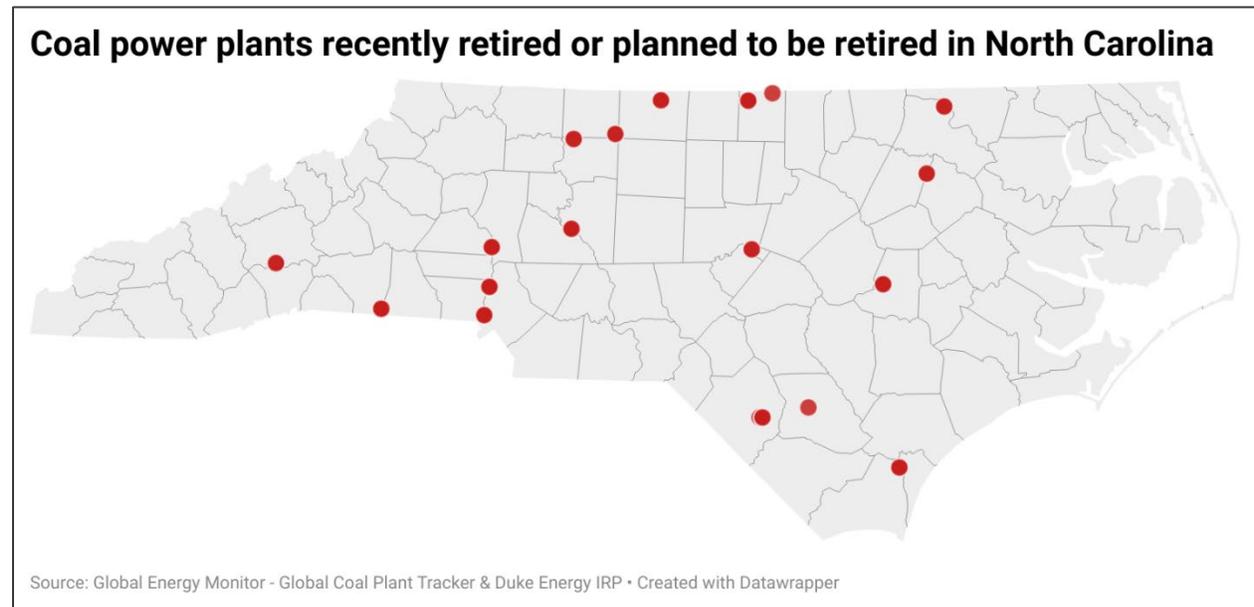
<sup>5</sup> “National Wind Energy Workforce Assessment: Challenges, Opportunities, and Future Needs.” National Renewable Energy Lab. Revised March 2024. <https://www.nrel.gov/docs/fy24osti/87670.pdf>

## 1.4. Job Displacement and Transition Support

North Carolina's shift to a clean energy economy is creating new jobs while transforming or phasing out traditional roles, especially in fossil fueled-energy generation and powered industries, automobile manufacturing jobs centered around the internal combustion engine, and certain trades. The state is proactively addressing job displacement by combining workforce policy, employer partnerships, and equitable access to education and training. These collaborations are also highlighted in Section 3.



*Figure D- 1. Buck Steam Station – Duke Energy's first coal-fired generation station - was decommissioned and demolished in 2018 outside of Salisbury, NC.  
Source: Duke Energy*



*Figure D- 2. NC Coal Power Plant Retirement Schedule*

## 2. Climate Adaptation Job Opportunities in Disadvantaged Communities and Areas Impacted by Hurricane Helene

Investments in climate adaptation initiatives and technology are likely to create job opportunities across North Carolina, and support Hurricane Helene recovery efforts in western North Carolina.

## 2.1. Energy Cost Burden

Implementing climate adaptation strategies has tangible benefits for North Carolina’s most vulnerable populations. Statewide, over 750,000 – or 1 in 6 –households households spend more than \$250 a month on electricity bills. The economic burden of electricity prices is concentrated in eastern North Carolina, where in 43 counties, more than 1 in 4 households spend \$250 or more on electricity.<sup>6</sup>

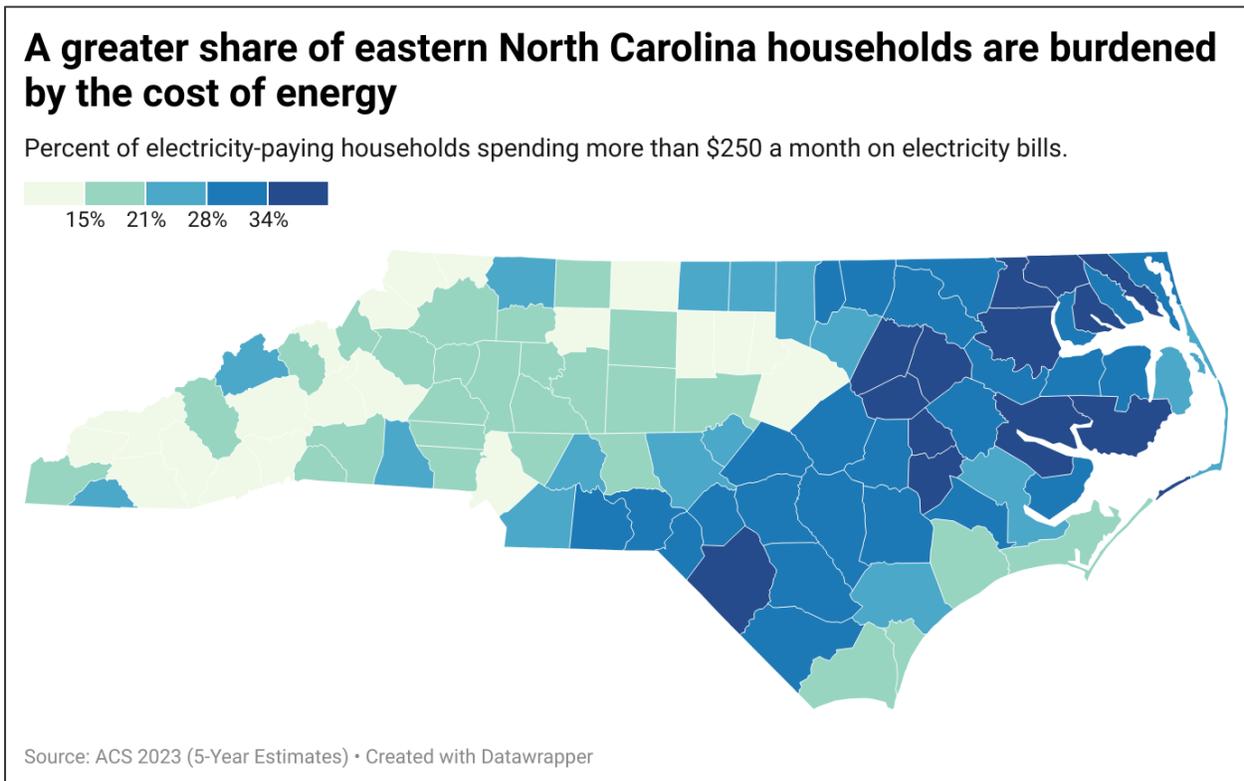


Figure D- 3. NC Household Energy Burden Costs

Two statewide initiatives – EnergizeNC and Energy Saver North Carolina – will provide more than \$350 million in combined investment in residential solar and home energy efficiency. Key occupations needed to support these initiatives are electricians, solar photovoltaic installers, and HVAC mechanics – all of which are projected to grow by 2032.

Table D- 8. Current and Projected Occupation Needs and Wages

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<sup>6</sup> American Community Survey (2023) 1-Year Estimates. U.S. Census Bureau.  
<https://data.census.gov/table/ACSDT1Y2023.B25132?q=electricity&g=040XX00US37&y=2023>

Occupation	2022 Employment	2032 Employment	Net Change	Hourly Median Wage
Electricians	24,700	28,000	+3,300	\$24.49
Solar Photovoltaic Installers	950	1,400	+450	\$18.93
HVAC Mechanics & Installers	15,600	17,600	+2,000	\$24.33

## 2.2. Climate Adaptation Job Opportunities in North Carolina

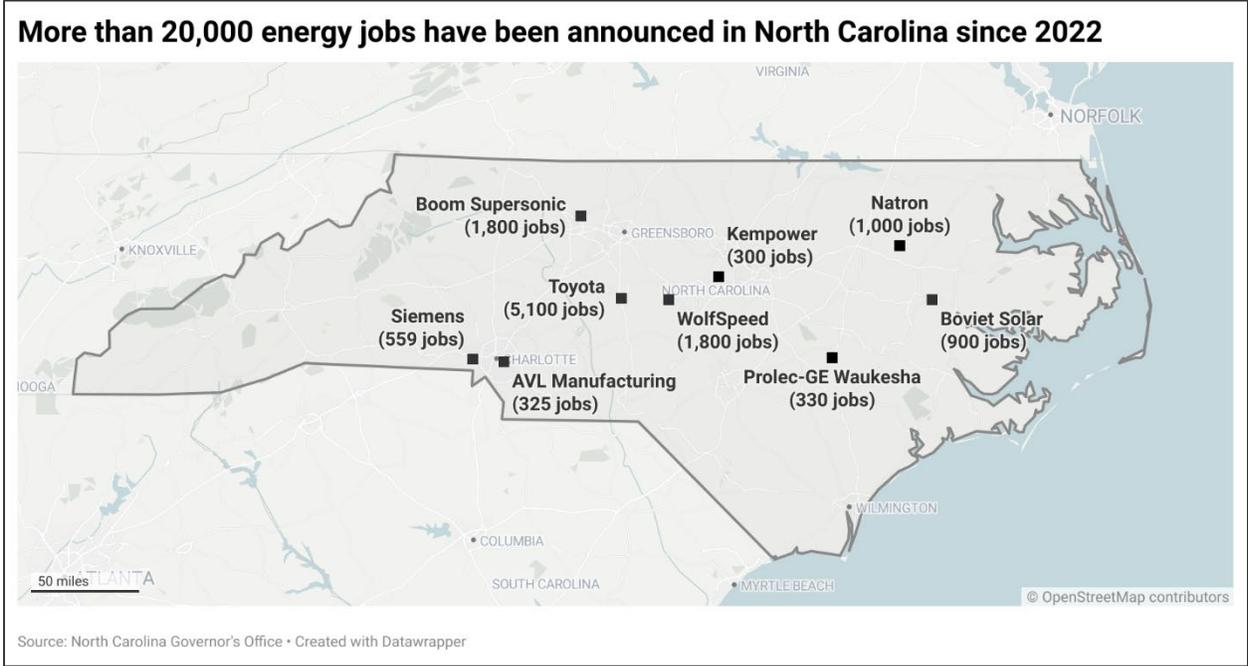


Figure D- 4. Major Clean Energy Employers in NC since 2022

Since 2022, more than 20,000 clean energy jobs have been announced by industries for large facility development or expansions in battery and solar panel manufacturing, advanced electrical grid component manufacturing, and other components critical for EV and offshore wind development.

For instance, in 2021 Toyota announced the location of the company's first global battery manufacturing plant in Randolph County. That investment of \$13.9 billion will create more than 5,000 jobs. Since hiring began in 2022, Toyota is now the largest private employer in

the county.<sup>7</sup> Part of the company's workforce success is built on partnerships with local community colleges like Randolph Community College (RCC) and Guilford Technical Community College (GTCC). These partnerships are documented in detail in Section 3.

### 2.3. Workforce Training Opportunities

North Carolina's workforce training and educational assets are available in every part of the state. The NC Community College System oversees 58 colleges across 100 counties, and nearly every North Carolina resident is within a 30-minute drive of high-quality, affordable education and professional development. Similarly, NCWorks oversees more than 70 career centers around the state, sometimes co-located with community colleges. Career centers offer a suite of services to job-seekers at no charge, including career coaching, application and interview support, free internet access, and general assistance in searching for jobs. Career centers also provide specialized programs to veterans, young adults, migrant or seasonal farm workers, and justice-involved jobseekers.

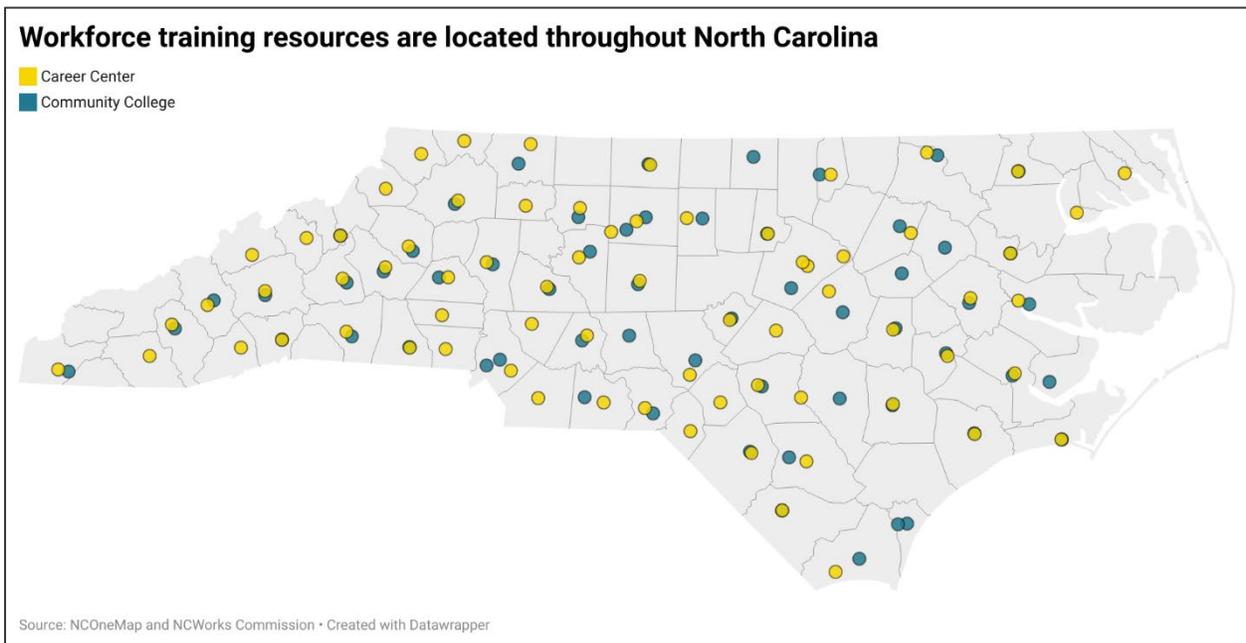


Figure D- 5. Workforce Training Resources in NC

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<sup>7</sup> NC Commerce Labor & Economic Analysis.  
<https://d4.nccommerce.com/QCEWLargestEmployers.aspx>

Career centers work collaboratively with North Carolina’s 20 Workforce Development Boards. Boards are made up of appointed community and business leaders and ensure that local workforce development initiatives match the needs of the community.

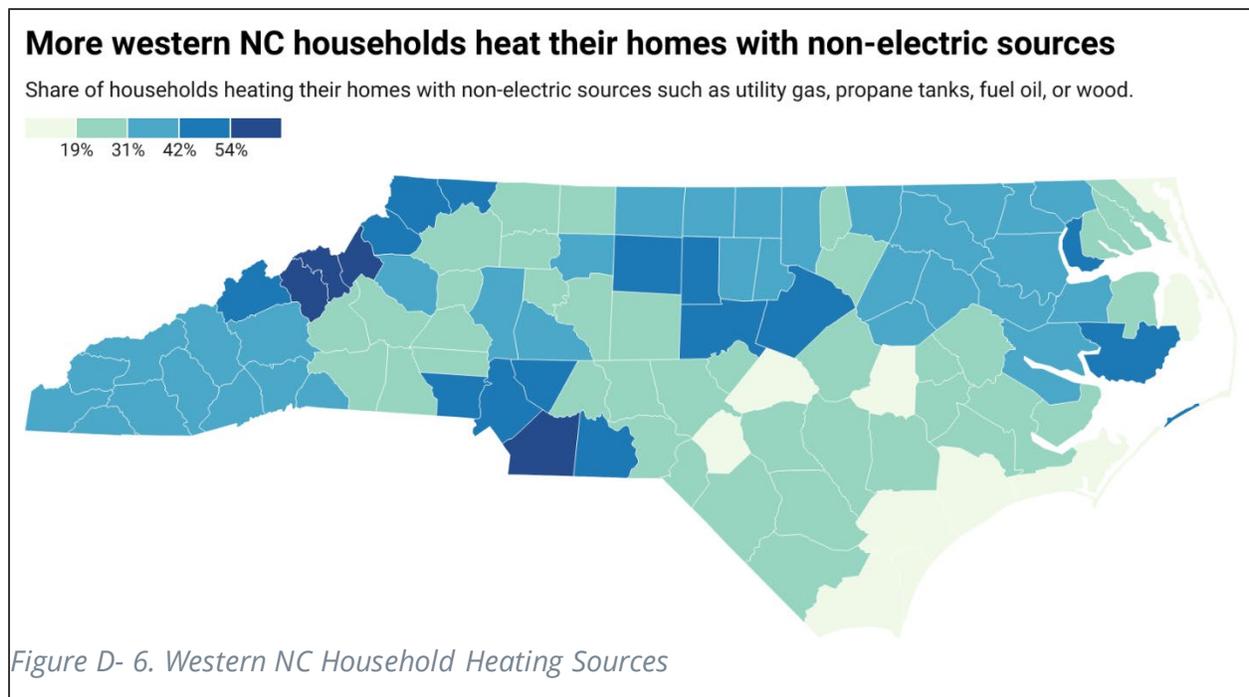
Section 3 describes these resources and North Carolina’s workforce development system in greater detail.

## 2.4. Hurricane Helene Recovery

In western North Carolina, recent natural disasters have shined a light on the need for climate resiliency. According to Commerce’s HUD CDBG-DR Action Plan, Hurricane Helene caused \$1 billion in damage to the electrical wiring and infrastructure facilities of 25 municipal-owned systems, 7 cooperative-owned systems, and Duke Energy in a region serving nearly two million households.

The storm’s extensive damage highlights the need for diverse energy resources. Hurricane Helene not only damaged electrical infrastructure but also caused \$41 million in damage to gas lines, affecting 400 customers. Additionally, 10 retail propane locations were severely damaged or destroyed, resulting in the loss of 5,000 propane tanks.

Like the high cost of energy in eastern NC, intentional statewide initiatives present an opportunity to rebuild homes, businesses, and communities to be more resilient in the future. For instance, more households in western North Carolina heat their homes with



non-electric sources. In Avery, Mitchell, and Yancey counties, approximately 2 in 3 households use non-electric sources for heat. These are opportunities to incorporate heat pumps and other cost-reducing energy technologies in the recovery and rebuilding efforts.

### 3. Workforce Development Collaborations and Strategies

North Carolina has a robust ecosystem of workforce development programs spanning state agencies, community colleges, universities, registered apprenticeships, community organizations, and other workforce development initiatives to meet the needs for a growing clean energy workforce.

#### 3.1. Workforce Development Programs Serving North Carolina

The NCWorks Commission coordinates the state’s workforce development system, develops policy, and advises the Governor, General Assembly, state and local agencies, and businesses on how to strengthen the state’s workforce. The Commission is chaired by private sector leaders and oversees a network of local career centers, training programs, and employer services.

Several statewide initiatives drive the Commission’s work. Including:

- **MyFutureNC:** A statewide initiative adopted in 2019 by the General Assembly and Governor’s Office to close the educational gap. MyFutureNC’s goal is to get 2 million North Carolinians aged 25-44 to hold an industry-valued credential or postsecondary degree by 2030. Since its adoption, the number of prime-age workers with degrees or credentials has grown by more than 200,000.<sup>8</sup>
- **First in Talent Strategic Economic Development Plan:** In 2021, in the wake of the economic changes driven by COVID-19, the state’s economic development plan, created by Commerce, put talent and workforce development at the forefront of the state’s economic development strategy.<sup>9</sup>
- **Executive Order 11:** In March 2025, Governor Josh Stein signed Executive Order 11, creating a Council on Workforce and Apprenticeship as an advisory council to the

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<sup>8</sup> “2025 State of Educational Attainment Report.” MyFutureNC.org. <https://www.myfuturenc.org/wp-content/uploads/2025/02/2025-myFutureNC-Educational-Attainment-Report-020325.pdf>

<sup>9</sup> “First in Talent: Strategic Economic Development Plan for the State of North Carolina.” July 2021. <https://www.commerce.nc.gov/guidelines-north-carolina-strategic-plan-economic-development/open>

NCWorks Commission. The Council was directed to recommend strategic, quantifiable goals to grow and prepare North Carolina’s workforce development efforts over the next four years.<sup>10</sup>

Table D- 9. NC Workforce Programs by Agency

Highlighted Agencies <sup>1</sup>	Workforce Program
Community College System	ApprenticeshipNC Program Basic Skills Customized Training Human Resources Development (HRD) Post-Secondary Career, Technical, and Vocational Education (CTE) Workforce Continuing Education (CE)
Department of Commerce	Veteran’s Employment Wagner-Peyser Workforce Investment Act and Workforce Innovation and Opportunity Act – Adults Workforce Investment Act and Workforce Innovation and Opportunity Act – Dislocated Workers Workforce Investment Act and Workforce Innovation and Opportunity Act – Youth
Department of Health and Human Services	Division of Services for the Blind, Employment and Training Division of Social Services, Workfirst Employment and Training Division of Employment and Independence for People with Disabilities
Department of Public Instruction	Career and Technical Education (CTE)
Governor’s Office	NC Business Committee for Education Governor’s Council on Workforce and Apprenticeships

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<sup>10</sup> Executive Order No. 11 Directing North Carolina’s Progress on Workforce Development. March 25, 2025. <https://governor.nc.gov/executive-order-no-11-directing-north-carolinas-progress-workforce-development>

## 3.2. Workforce Development Partnerships to Meet Clean Energy Workforce Demand

### 3.2.1 ApprenticeshipNC

ApprenticeshipNC, North Carolina's State Apprenticeship Agency, helps businesses develop Registered Apprenticeship Programs tailored to meet their workforce needs. Registered Apprenticeship is the gold standard for work-based learning, combining hands-on training with classroom instruction, structured wage progression, and nationally recognized credentials. Since 2015, the number of individuals enrolled in a registered apprenticeship program has more than doubled.

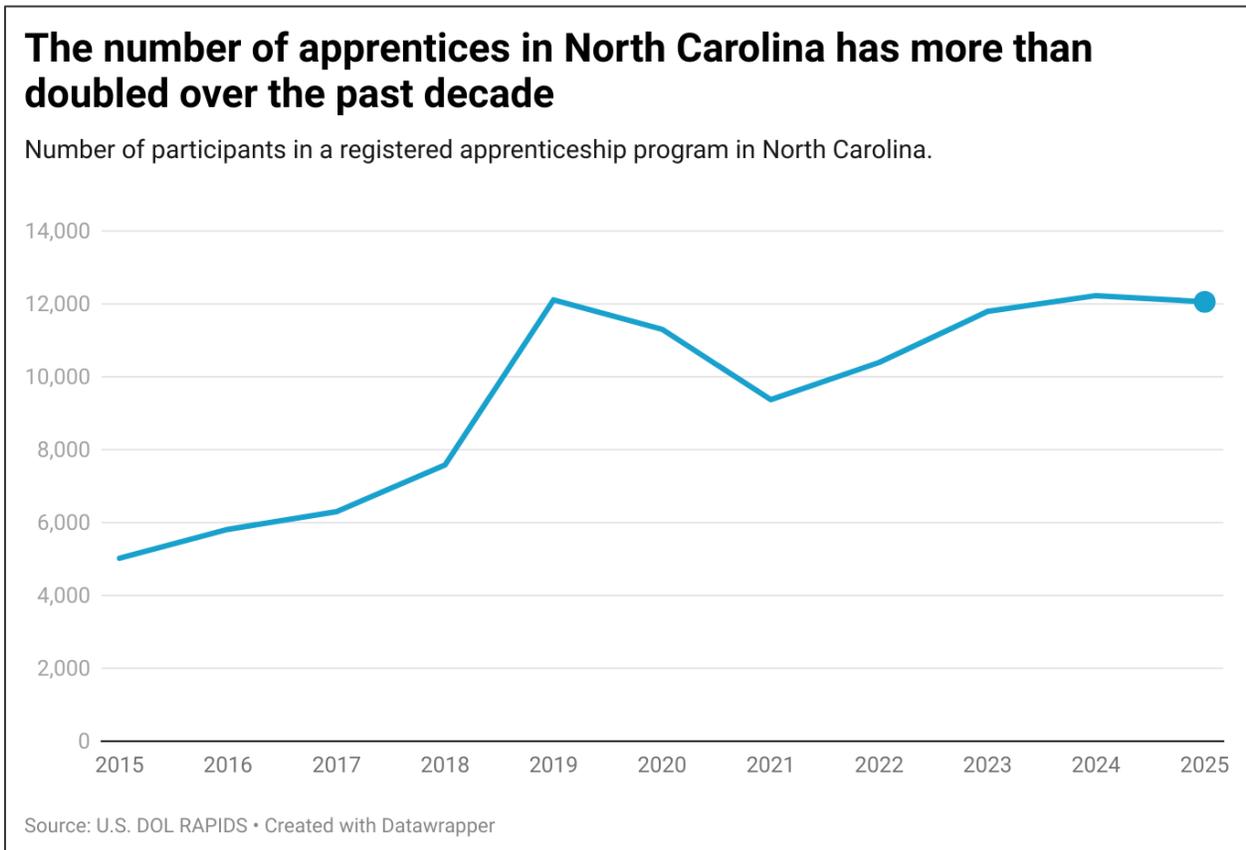


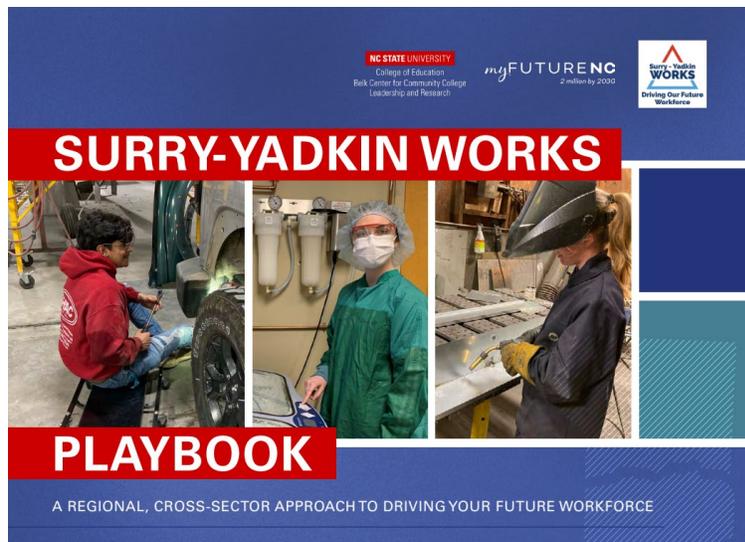
Figure D- 7. NC Apprentices 2015-2025

In its 2024 annual report, ApprenticeshipNC reported that the largest occupational segments of new enrollments were those in installation, maintenance, and repair – one of the occupations projected to have the biggest shortages from clean energy-related jobs outlined in Section 1.<sup>11</sup> For example, Randolph Community College’s (RCC) Industrial Maintenance Technician (IMT) Apprenticeship creates a pipeline to companies like Toyota and Energizer. This program is unique – providing a wide range of skills to students including welding, electrical work, fabrication, and automation. Students spend three paid

### Surry-Yadkin Works Apprenticeship

Surry County has the highest rate of apprenticeship and the third largest number of apprenticeships in North Carolina - over 1,000 in March 2025. Despite having a population of only 71,000, the Surry-Yadkin Works program has created a model for creating a strong workforce pipeline in a rural region.<sup>1</sup>

The Surry-Yadkin Works Apprenticeship connects high school students from Surry and Yadkin counties with internships and pre-apprenticeship opportunities in the region. The successes of the program are documented in a “playbook” developed in 2023, and provides steps for successful adaptation and replication of the program, funding sources, and best practices.



1. By comparison, Wake County is the largest county in the state with nearly 2 million

Figure D- 8. Surry-Yadkin Works Apprenticeship

<sup>11</sup> 2023-2024 ApprenticeshipNC Annual Report. <https://wordpress.nccommunitycolleges.edu/wp-content/uploads/2024/12/ApprenticeshipNC-Annual-Report-FY-2023-2024.pdf>

workdays at the partner company, and two taking coursework at RCC.

### 3.2.2 NCEdge

NCEdge is the first statewide customized training program of its kind in North Carolina, linking all 58 community colleges with businesses to deliver tailored workforce training. The program helps employees upskill, reskill, and acquire new skills, aligning closely with employer's needs. Services such as recruitment, candidate screening, and job-specific training are provided at no cost to qualified businesses, particularly in sectors like advanced manufacturing. NCEdge supports companies preparing for new processes, equipment upgrades, or expansion by ensuring their workforce is equipped with the necessary skills.<sup>12</sup>

#### 3.2.1. NCWorks Certified Career Pathways

Local workforce boards use Certified Career Pathways (CCPs) to align training programs with the needs of their communities. Originating from the 2012 North Carolina Jobs Plan, CCPs are designed to integrate workforce development with secondary education and career planning. The NCWorks Commission oversees the certification process, and while Commerce is currently reviewing the criteria, the pathways have historically emphasized alignment with regional labor market demand, strong employer involvement, collaborative design by educators and industry, and integration with existing credentials to streamline learning. In 2019, six workforce development boards covering 21 counties implemented certified career pathways in energy. Many others have developed pathways in advanced manufacturing, which could serve as a foundation for building out complementary energy-related workforce initiatives.

#### 3.2.2. Highlighted Industry Partnerships

The **North Carolina Battery Industry Partnership (NCBIP)** launched in January 2025 to bring together companies, educational institutions, and other key stakeholders to support the growing battery industry in North Carolina. Operated out of Appalachian State

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<sup>12</sup> *Rural Advanced Manufacturing Partnerships Toolkit: How North Carolina's Rural-Serving Community Colleges Leverage Partnerships to Meet Advanced Manufacturing Workforce Needs.* NC Community Colleges. 2025. <https://belk-center.ced.ncsu.edu/wp-content/uploads/sites/128/2025/05/RP3-Rural-Advanced-Manufacturing-Partnerships-Toolkit.pdf>

University, the group is working to support a wide range of goals for battery industry success including workforce development, safety and regulation, and policy.

**Everyone Charging Forward** is a sectoral partnership between the North Carolina Business Center for Education and the North Carolina Community College system that addresses the training and education needs of the EV charging sector. The partnership will support the design of training and curriculum and develop pre-apprenticeships and registered apprenticeship programs in EV charging installation and maintenance and manufacturing occupations. NCBCE will partner with the Department of Public Instruction and local school districts to support high school Career and Technical Education departments to align their programs with new training.

**AdvanceNC** is a regional partnership between educational institutions, workforce development organizations, and major advanced manufacturing employers that have made investments in central North Carolina, such as Toyota and Wolfspeed. Created in September 2023, the initiative brings together 11 community colleges, three state universities, and seven local workforce development boards across 19 counties. AdvanceNC focuses on workforce recruitment, specialized training, awareness and engagement, and workforce retention.

### 3.2.3. Other Public-Led Efforts

Every five years, Commerce prepares a new strategic plan to guide the state's economic development priorities. The most recent plan, *First in Talent*, was adopted in 2021 and emphasized workforce readiness in response to the disruptions caused by the COVID-19 pandemic. Commerce staff are developing the next strategic plan, which is scheduled for completion by 2026. Energy is expected to be a key focus area in this plan, creating opportunities to integrate workforce initiatives from the CCAP into the state's broader economic development strategy.

## 3.3 Tools to Build a Climate Adaptation Workforce

In addition to the partnerships identified above, NC Commerce coordinates a suite of online tools used to support workforce development initiatives.

### 3.2.4. NCWorks Online

NCWorks Online is North Carolina's comprehensive workforce system portal, designed to connect jobseekers, employers, and workforce professionals across the state. Managed by

the NC Department of Commerce, it provides a centralized platform for individuals to search and apply for jobs, create resumes, explore career pathways, and access training opportunities. Employers can use NCWorks Online to post job openings, search for qualified candidates, and access labor market information. The system also integrates services from local NCWorks Career Centers, offering personalized assistance such as career counseling, skills assessments, and job readiness workshops. It also offers specialized support for veterans, youth, dislocated workers, and individuals with barriers to employment. Employers can use NCWorks Online to post jobs, screen applicants, and access labor market information, making it a central hub for workforce alignment across the state.

### 3.2.5. [NCCareers.org](https://www.nccareers.org)

NCCareers.org is North Carolina's official online career information platform, providing students, job seekers, and educators with comprehensive tools for career exploration and planning. The site allows users to explore more than 800 occupations, assess their interests and values, compare wages and employment outlooks, and map out educational pathways aligned with their goals. It integrates real-time labor market data to ensure users have accurate and relevant information tailored to North Carolina's economy. NCCareers.org also serves as an educational resource for teachers and counselors, supporting career readiness and planning from middle school through adulthood.

The screenshot displays the NCCareers.org website interface. At the top, there is a navigation bar with the logo and several menu items: Find My Interests, Explore Occupations, Plan My Career, Education & Training, Job Search, Sign In, and Help. Below the navigation bar is a large blue banner with the text "Tools to help you find the path that's right for you." and a sub-headline: "Our self-assessment tools will help you refine your searches, clarify your goals, and discover the best path to achieve them. Click on one to get started." To the right of the text are six tool icons: REALITY CHECK (Money), INTEREST FINDER (Personality), CAREER CLUSTER MATCH (Interests), BE YOUR OWN BOSS (Entrepreneur), WORK VALUES SORTER (Values), and SKILLS MATCHER (Skills).

Below the banner is the "EXPLORE OCCUPATIONS" section. It features two main cards. The left card is for "Industrial Engineers", which includes a 5-star rating, a requirement for a Bachelor's degree, a description of their role, a salary of \$86,390, a "Very Strong Growth" of 1.66%, and "Very Strong Opportunity" of 818 Jobs/Year. It also has buttons for "Related Occupations" and "Search Occupations". The right card is for "Physical Therapist Assistants", which includes a 5-star rating, a requirement for an Associate's degree, a description of their role, a salary of \$61,340, and a "Very Strong Growth" of 2.85%. It also has a "Related Occupations" button.

Figure D- 9. NC Careers.org Occupation Opportunities

### 3.2.6. Reality Check

Reality Check, a feature within NCCareers.org, is an interactive budgeting tool that helps users understand the relationship between lifestyle choices and income. Users begin by selecting the type of lifestyle they want — including preferences for housing, transportation, food, and entertainment — and Reality Check calculates the monthly expenses associated with those choices. The tool then suggests occupations in North Carolina that offer salaries capable of supporting that lifestyle, along with the education and training needed for each job. Reality Check is frequently used in classrooms and career counseling settings to introduce youth and adults to the financial realities of independent living and the importance of career planning.

### 3.3. Metrics for Measuring Workforce Development Outcomes

Commerce oversees a robust system for monitoring outcomes related to workforce development participation.

### 3.3.1. Common Follow-up System (CFS)

The North Carolina Common Follow-up System (CFS) contains a rich longitudinal database of information about participants in education and workforce programs, including employment, industry, and wage information. The program is managed by a partnership between Commerce's Labor and Economic Analysis Division (LEAD) and the North Carolina Government Data Analytics Center (GDAC). In 2025, data collection and analysis processes were improved to ensure a more accurate representation of the population served and alignment with the U.S. Department of Labor reporting requirements.

One application of this dataset is to track how many college graduates or workforce development participants enter industries critical to the clean energy transition. For example, the most recent 2025 data show that three out of every four individuals who find employment after completing the NC Community College's Customized Training program (NCEdge) go on to work in the manufacturing industry.

Table D- 10. Program Graduates and Participants from the Common Follow-up System 2019

<b>Summary statistics for graduates and program participants from the Common Follow-up System (CFS) since 2019 by select programs<sup>13</sup></b>			
	WIOA Title 1 Adult Program	CTE Associate Degree Recipient	NCCCS Customized Training
<b>Number of People Employed After Completing</b>	18,762	57,971	49,184
<b>Employment by Industry</b>			
<b>Wholesale Trade, Transport, and Utilities</b>	15%	6%	13%
<b>Construction</b>	4%	5%	2%
<b>Manufacturing</b>	10%	9%	76%
<b>Financial Activities</b>	4%	4%	2%
<b>Professional and Business Services</b>	26%	16%	12%
<b>Other Services</b>	3%	4%	1%

<sup>13</sup> The North Carolina Common Follow-Up System Evaluation Report. 2025. NC Department of Commerce. <https://www.commerce.nc.gov/cfs-evaluation-report-2025/open>

### 3.3.2. LEAD Analytics

Commerce's Labor and Economic Analysis Division (LEAD) maintains a dashboard that tracks labor and workforce data for North Carolina and some subregions.<sup>14</sup> Common metrics include number of jobs by occupation and industry, wages, and demographic data.

### 3.3.3. myFutureNC Dashboard

In addition to the resources above, myFutureNC monitors progress of the educational attainment initiatives through a partnership with Carolina Demography.<sup>15</sup> A dashboard shows North Carolina's progress toward the state's overall 2030 goal of 2 million adults ages 25-44 with a postsecondary degree or credential. The dashboard also tracks 18 other educational metrics, including workforce alignment, a measure of how well the skills of graduates meet the needs of local employers.

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<sup>14</sup> LEAD Analytics: Dashboards & Data Access Tools <https://analytics.nccommerce.com/>

<sup>15</sup> myFutureNC Dashboard. <https://dashboard.myfuturenc.org/>