Clean Jobs North Carolina 2025[1]

NORTH CAROLINA CLEAN ENERGY JOBS GROW 3%; HEADWINDS THREATEN CONTINUED GROWTH

CLEAN ENERGY OVERALL: North Carolina's clean energy workforce added 3,254 new workers in 2024, growing three percent and adding jobs at a rate more than six times faster than the state's overall employment, which grew at less than a half percent. The state ranked eighth for largest clean energy workforce in 2024, with 113,052 clean energy jobs in total. The bulk of the workforce were in the construction and professional services industries, with about 41,300 workers and 34,200 workers respectively. In 2024, clean energy accounted for 57 percent more jobs than fossil fuels in North Carolina while two North Carolina counties made the top 30 list for counties with the most clean energy jobs in the nation: Mecklenburg County (19,732 jobs) and Wake County (17,697 jobs).

It's important to note that the jobs data in this report predates the early July 2025 passage of the One Big Beautiful Bill Act, which has been forecast to slow clean energy job growth nationwide. It also predates the late July passage of SB266 in the NC General Assembly, which is expected to slow clean energy development in North Carolina. Still, these numbers point to a resilient and increasingly essential industry and workforce. As energy demand grows, North Carolina's clean energy companies and workers are positioned to play an even greater role in shaping the state's economic future.

KEY FINDINGS

#9
for most clean energy jobs in the U.S. with over **113,000** employed

3,254
new clean energy jobs added last year

6x
Clean energy jobs are growing 6X faster than the rest of North Carolina's economy

#7
for most energy efficiency jobs in the U.S., with almost **83,500** workers

SECTOR SUMMARY HIGHLIGHTS

RENEWABLE GENERATION: Renewable generation jobs in North Carolina grew 4.5 percent in 2024, bringing the state's renewable generation workforce to 14,193—the 8th largest in the U.S. Solar and wind account for the majority of the sector's workforce with 10,224 jobs and 1,731 jobs respectively.

ENERGY EFFICIENCY: Energy efficiency is North Carolina's largest clean energy sector, with 83,490 workers. The sector grew 3.3 percent in 2024, tied for the 36th fastest growing energy efficiency workforce in the nation.

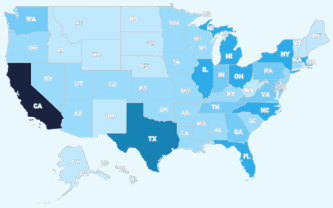
STORAGE AND GRID MODERNIZATION: Jobs in battery, storage, and grid modernization grew 4.5 percent in 2024, tied for the fastest growing clean energy sector in the state with renewable generation. North Carolina's storage and grid modernization workforce totaled 4,515 in 2024—the 10th largest in the nation.

CLEAN VEHICLES: The clean vehicles sector was the only sector in North Carolina's clean energy industry to shrink in 2024, dropping 2.5 percent to 9,287 workers. Despite that decline, the state's clean vehicles sector has still grown 35.7 percent since 2020.

BIOFUELS: North Carolina's biofuels workforce makes up the smallest clean energy sector in the state, with 1,566 total jobs. The biofuel workforce was the state's second-slowest growing sector of the clean energy workforce in 2024, with a growth rate of 0.5 percent.

EXPLORE THE DATA FURTHER

Dive deeper into clean jobs data at www.cleanjobsamerica.e2.org to explore the latest state and county clean energy employment data across the entire U.S., including national and statewide rankings by total clean energy jobs, jobs per capita, and employment growth.



For information on methodology and this report's analysis—including what technologies and sectors are counted as clean energy, what jobs are not counted, definitions of clean energy sectors and subsectors, and more—visit www.cleanjobsamerica.e2.org.

CCEBA Carolinas Clean Energy Business Association

NC SUSTAINABLE ENERGY ASSOCIATION

CLEAN ENERGY FUND OF THE CAROLINAS

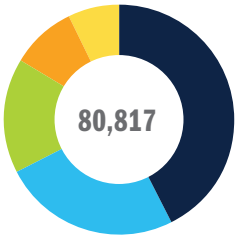
center for ENERGY EDUCATION

WWW.E2.ORG
@E2ORG
#CLEANJOBSAMERICA
CLEANJOBSAMERICA.E2.ORG

NOVEMBER 2025
E2FS: 25-11-B

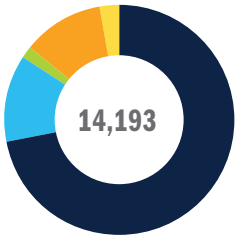
NORTH CAROLINA CLEAN ENERGY ECONOMY—AT A GLANCE

FIG 1 // NORTH CAROLINA CLEAN ENERGY EMPLOYMENT by sectors



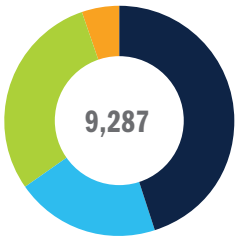
ENERGY EFFICIENCY:

- ENERGY STAR and Efficient Lighting: **35,560**
- Traditional HVAC: **20,813**
- High-Efficiency HVAC and Renewable Heating & Cooling: **13,516**
- Advanced Materials: **7,608**
- Other: **5,994**



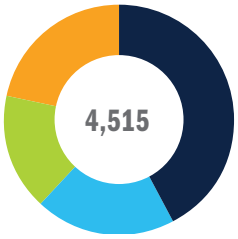
RENEWABLE GENERATION:

- Solar: **10,224**
- Wind: **1,731**
- Geothermal: **249**
- Bioenergy/CHP: **1,603**
- Low-Impact Hydroelectric/ Hydrokinetic and Wave Energy: **386**



CLEAN VEHICLES:

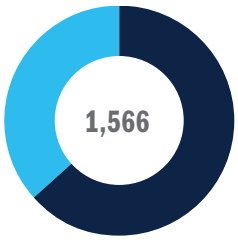
- Hybrid Electric Vehicles: **4,199**
- Plug-In Hybrid Vehicles: **1,873**
- Electric Vehicles: **2,747**
- Hydrogen & Fuel Cell: **468**



GRID & STORAGE:

- Clean Storage:* **1,918**
- Smart Grid: **889**
- Micro-Grid: **739**
- Other Grid Modernization including EV charging: **968**

* Includes pumped hydro storage, battery storage, thermal storage, and mechanical storage detailed technologies



FUELS:

- Other Ethanol/Non-Woody Biomass: **996**
- Other Biofuels: **571**

FIG 2 // NORTH CAROLINA CLEAN ENERGY EMPLOYMENT by value chain

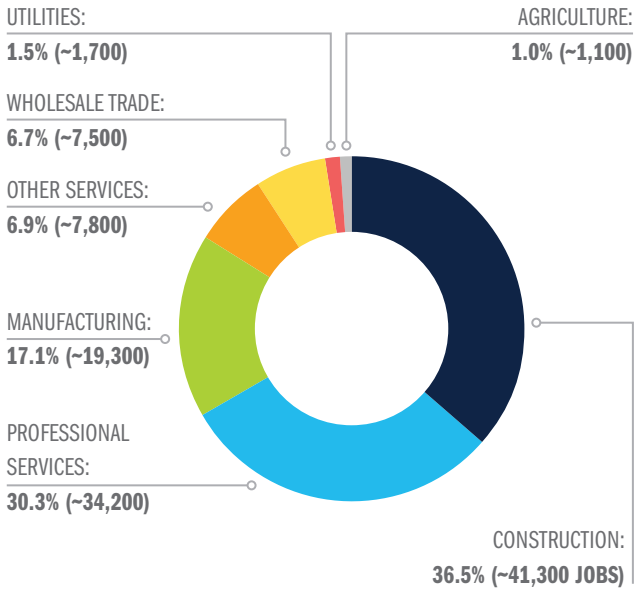
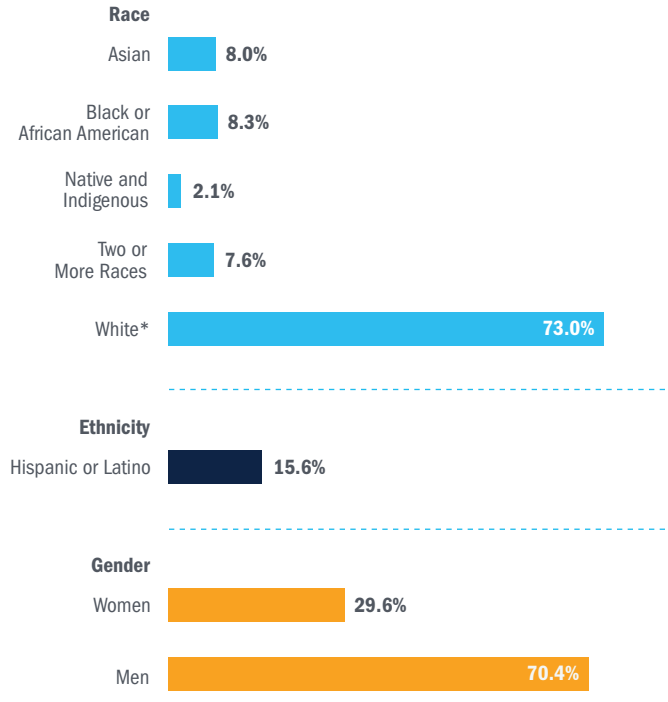


FIG 3 // NORTH CAROLINA CLEAN ENERGY EMPLOYMENT by demographics[2]

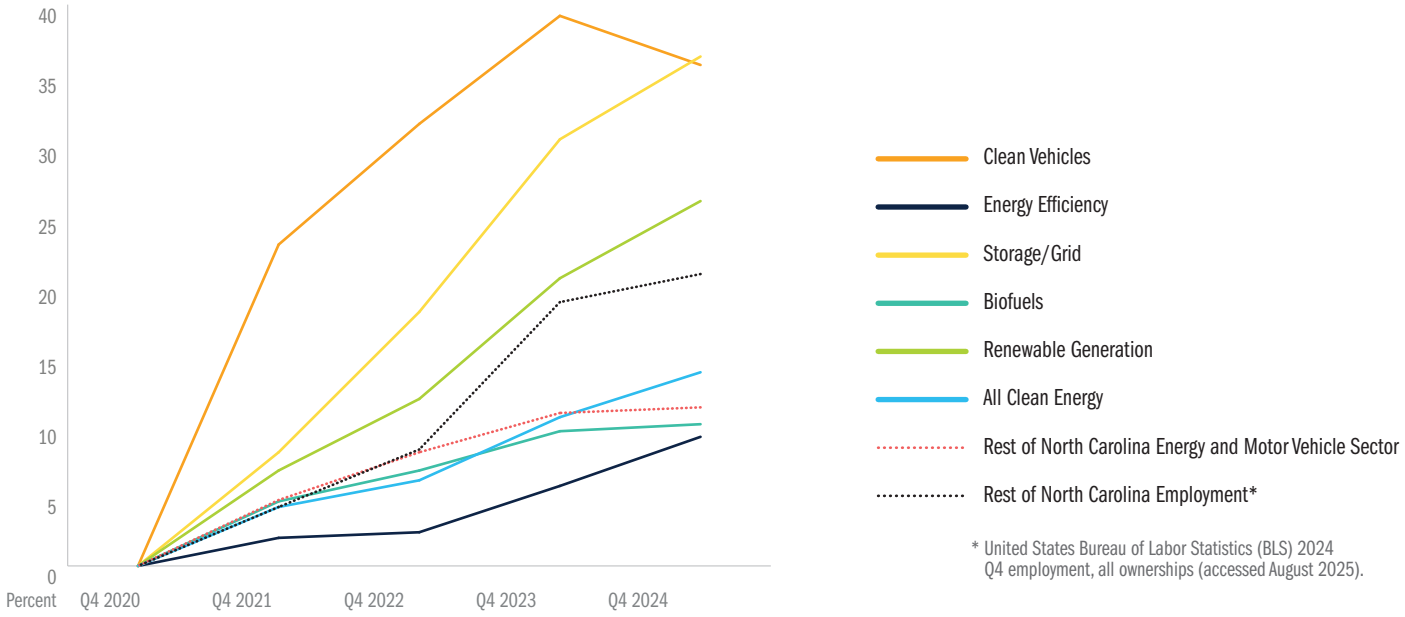


* Includes non-Hispanic and Hispanic whites

Table 1 // NORTH CAROLINA ENERGY EMPLOYMENT jobs added Q4 2023–2024

Sector	2024 Growth	Jobs Added	Jobs Added Since 2020
Renewable Generation	4.5%	615	2,929
Storage and Grid	4.5%	194	1,202
Energy Efficiency	3.3%	2,673	7,017
Biofuels	0.5%	7	143
Clean Vehicles	-2.5%	-235	2,446
TOTAL	3.0%	3,254	13,737

FIG 4 // NORTH CAROLINA ENERGY EMPLOYMENT by clean energy sector employment growth



* United States Bureau of Labor Statistics (BLS) 2024 Q4 employment, all ownerships (accessed August 2025).

Table 2 // NORTH CAROLINA CLEAN ENERGY EMPLOYMENT by year Q4 2020–2024

Sector	Q4 2024	Q4 2023	Q4 2022	Q4 2021	Q4 2020
All Clean Energy	113,052	109,798	105,372	103,524	99,314
Renewable Generation	14,193	13,579	12,606	12,030	11,264
Biofuels	1,566	1,559	1,520	1,488	1,423
Storage and Grid	4,515	4,321	3,914	3,583	3,313
Energy Efficiency	83,490	80,817	78,338	78,018	76,473
Clean Vehicles	9,287	9,522	8,994	8,405	6,841
Rest of North Carolina Energy and Motor Vehicle Sector*	4,828,864	4,808,970	4,690,621	4,542,115	4,338,005
Rest of North Carolina Energy and Motor Vehicle Employment	228,248	223,095	208,682	204,813	194,709

* United States Bureau of Labor Statistics (BLS) 2024 Q4 employment, all ownerships (accessed August 2025).

COUNTY DATA

There are clean energy jobs in all 100 counties in North Carolina. Two North Carolina counties made the top 30 list for counties with the most clean energy jobs in the nation: Mecklenburg (19,732 jobs, #21) and Wake (17,697 jobs, #29). Guilford (6,317 jobs) and Durham (5,326 jobs) had the third and fourth most clean energy jobs among all of North Carolina's counties. The two counties with the fastest growth in clean energy jobs year-over-year were Randolph (48.5%) and Yancey (38.4%). The two counties with the highest density of clean energy jobs were Madison (72 jobs per 1,000 workers) and Graham (58 jobs per 1,000).

NORTH CAROLINA CLEAN ENERGY ECONOMY—APPENDIX

Table A1 // NORTH CAROLINA CLEAN ENERGY EMPLOYMENT by county

County Name	Total Clean Energy	Renewable Gen.	Storage/Grid	Clean Fuels	Energy Efficiency	Clean Vehicles	Job Growth	Workers Per 1K Jobs
Alamance	**979**	43	<10	749	<10	179	3.8%	14
Alexander	**113**	<10	<10	78	<10	16	0.5%	13
Alleghany	**54**	<10	<10	28	<10	<10	-6.9%	16
Anson	**128**	<10	<10	88	<10	15	0.7%	20
Ashe	**253**	<10	<10	195	<10	45	-2.6%	34
Avery	**139**	<10	<10	107	<10	17	3.8%	20
Beaufort	**424**	39	<10	341	<10	35	3.9%	26
Bertie	**29**	<10	<10	<10	<10	<10	-5.3%	5
Bladen	**110**	10	<10	69	<10	12	-3.9%	8
Brunswick	**1,419**	443	<10	619	311	44	7.9%	34
Buncombe	**4,073**	983	16	2,810	20	245	3.7%	31
Burke	**460**	<10	84	235	<10	130	-7.4%	16
Cabarrus	**1,748**	224	<10	1,319	<10	191	0.7%	19
Caldwell	**261**	<10	<10	194	<10	53	0.0%	10
Camden	**40**	11	<10	13	<10	<10	2.2%	31
Carteret	**466**	23	<10	414	<10	24	2.2%	19
Caswell	**32**	<10	<10	11	<10	<10	4.3%	11
Catawba	**1,411**	97	22	997	11	283	1.8%	16
Chatham	**438**	121	<10	280	<10	29	3.6%	23
Cherokee	**300**	66	<10	221	<10	11	7.3%	38
Chowan	**65**	<10	<10	33	<10	<10	-1.5%	12
Clay	**52**	<10	<10	19	<10	<10	0.6%	24
Cleveland	**1,059**	96	17	836	<10	102	-0.8%	28
Columbus	**183**	13	<10	148	<10	17	-0.8%	13
Craven	**912**	60	<10	785	<10	55	2.5%	22
Cumberland	**2,446**	292	57	1,781	13	303	14.6%	20
Currituck	**148**	14	<10	102	<10	13	5.5%	22
Dare	**425**	21	<10	386	<10	15	2.5%	23

County Name	Total Clean Energy	Renewable Gen.	Storage/Grid	Clean Fuels	Energy Efficiency	Clean Vehicles	Job Growth	Workers Per 1K Jobs
Davidson	**959**	49	11	748	15	136	-1.0%	20
Davie	**229**	11	<10	190	<10	25	2.7%	16
Duplin	**210**	19	<10	162	12	16	-4.8%	11
Durham	**5,326**	1,523	23	3,447	35	298	2.0%	22
Edgecombe	**274**	<10	<10	239	<10	19	2.4%	18
Forsyth	**3,478**	198	369	2,641	34	237	-5.9%	18
Franklin	**375**	18	<10	319	<10	29	1.5%	27
Gaston	**2,746**	186	<10	1,835	14	705	-3.5%	34
Gates	**21**	<10	<10	<10	<10	<10	12.4%	14
Graham	**115**	14	<10	87	<10	<10	5.9%	58
Granville	**296**	11	<10	239	<10	38	-0.2%	15
Greene	**75**	<10	<10	43	<10	<10	1.1%	16
Guilford	**6,317**	257	80	4,814	43	1,123	3.2%	22
Halifax	**165**	<10	<10	117	<10	25	2.1%	11
Harnett	**703**	32	<10	579	<10	74	1.1%	25
Haywood	**283**	18	<10	233	<10	26	0.3%	16
Henderson	**1,197**	35	<10	993	<10	158	-1.4%	27
Hertford	**170**	<10	<10	134	<10	<10	1.0%	19
Hoke	**388**	<10	<10	60	300	<10	-12.1%	42
Hyde	**31**	<10	<10	13	<10	<10	-1.0%	19
Iredell	**3,124**	1,076	14	1,763	13	258	-1.7%	38
Jackson	**234**	32	<10	189	<10	<10	2.4%	16
Johnston	**1,279**	81	14	1,068	13	103	1.7%	20
Jones	**39**	<10	<10	12	<10	<10	-3.3%	23
Lee	**586**	84	<10	409	<10	88	0.3%	21
Lenoir	**671**	24	20	581	<10	39	-1.8%	23
Lincoln	**722**	23	<10	578	<10	112	1.8%	25
McDowell	**184**	<10	<10	158	<10	15	-0.1%	12
Macon	**346**	<10	<10	309	<10	22	1.9%	28
Madison	**296**	233	<10	39	<10	<10	-5.8%	72
Martin	**110**	33	<10	55	<10	<10	3.1%	18
Mecklenburg	**19,732**	2,976	257	15,355	173	971	0.7%	25
Mitchell	**121**	<10	<10	87	<10	13	2.1%	24
Montgomery	**317**	180	<10	104	<10	24	-4.6%	36
Moore	**483**	30	20	384	<10	45	-1.7%	12
Nash	**846**	42	<10	719	20	60	4.1%	21
New Hanover	**2,974**	351	<10	2,387	27	200	1.9%	23
Northampton	**64**	<10	<10	43	<10	<10	-1.7%	14
Onslow	**845**	53	<10	704	<10	78	1.1%	15
Orange	**1,474**	543	12	865	13	41	2.0%	19
Pamlico	**45**	<10	<10	15	<10	<10	-1.6%	11
Pasquotank	**221**	13	<10	181	<10	22	0.7%	14
Pender	**378**	17	10	324	<10	20	-2.2%	26

County Name	Total Clean Energy	Renewable Gen.	Storage/Grid	Clean Fuels	Energy Efficiency	Clean Vehicles	Job Growth	Workers Per 1K Jobs
Perquimans	**37**	<10	<10	13	<10	<10	-1.3%	15
Person	**287**	18	<10	188	<10	72	-9.2%	32
Pitt	**1,503**	249	<10	1,124	10	114	10.6%	18
Polk	**123**	19	<10	83	<10	<10	1.1%	23
Randolph	**1,972**	27	1,282	556	15	91	48.5%	44
Richmond	**296**	49	<10	228	<10	15	-0.1%	21
Robeson	**460**	29	<10	391	<10	31	0.4%	12
Rockingham	**468**	31	<10	403	<10	28	2.1%	19
Rowan	**1,342**	89	<10	830	<10	412	1.7%	26
Rutherford	**338**	20	<10	286	<10	27	-0.2%	19
Sampson	**537**	326	<10	163	11	29	-6.3%	31
Scotland	**305**	20	<10	157	<10	118	3.1%	26
Stanly	**393**	69	16	278	<10	30	14.8%	16
Stokes	**145**	<10	<10	113	<10	17	1.4%	19
Surry	**748**	77	109	486	36	40	-4.0%	26
Swain	**66**	<10	<10	47	<10	<10	-3.2%	6
Transylvania	**204**	42	<10	151	<10	<10	9.8%	21
Tyrrell	**17**	<10	<10	<10	<10	<10	-4.5%	17
Union	**2,190**	280	11	1,729	14	155	1.2%	29
Vance	**211**	<10	<10	178	<10	20	-0.5%	15
Wake	**17,697**	1,554	822	14,462	135	724	3.4%	27
Warren	**30**	<10	<10	11	<10	<10	0.4%	11
Washington	**23**	<10	<10	<10	<10	<10	-7.2%	7
Watauga	**402**	24	<10	339	<10	33	3.3%	16
Wayne	**866**	27	<10	731	13	91	-1.0%	20
Wilkes	**282**	<10	<10	240	<10	27	1.2%	15
Wilson	**1,008**	57	<10	855	14	78	1.2%	29
Yadkin	**193**	<10	<10	166	<10	14	1.6%	19
Yancey	**180**	68	<10	92	<10	<10	38.4%	39
N/A	**3,113**	205	96	2,639	27	146	1.3%	13

Note: 3,113 clean energy jobs are in an unknown or undefined county.

1 Unless otherwise stated, all data is based on 2024 Q4 employment data and surveys collected and analyzed by the BW Research Partnership for the 2024 U.S. Energy and Employment Report (USEER), September 2025, Department of Energy (DOE). Employment data used in this analysis comes from the U.S. Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) and a nationwide employer survey of 42,800 business establishments administered in Q4 2024.

2 Information oon the representation of people with disabilities, lesbian, gay, bisexual, transgender, intersex, and queer people, migrants, religious minorities, and different age demographics in clean energy is limited. Based on the available data from the Bureau of Labor Statistics (BLS) and the supplemental employer survey used by the USEER, this analysis was unable to produce any findings regarding those groups