

CLEAN JOBS AMERICA 2025

A BOOMING JOB ENGINE NOW AT RISK

E2'S TENTH ANNUAL ANALYSIS OF U.S. AND STATE CLEAN ENERGY SECTOR EMPLOYMENT



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METHODOLOGY

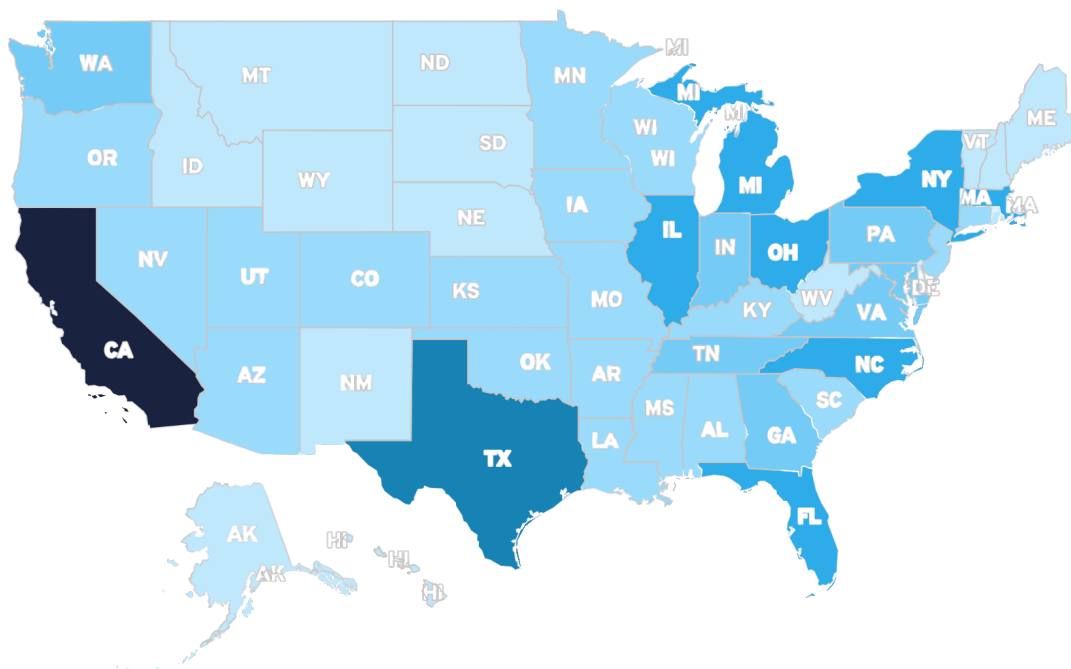
The analysis is based on employment data collected and analyzed by the BW Research Partnership for the 2025 U.S. Energy and Employment Report (USEER). The USEER analyzes data from the U.S. Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW) to track employment across many energy production, transmission and distribution subsectors.

In addition, the 2025 USEER relies on a unique supplemental survey of 42,8000 business representatives across the United States. Created and conducted by BW Research, the methodology has been approved by the Office of Management and Budget (OMB) and U.S. Department of Energy (DOE). This survey is used to identify energy-related employment within key subsectors of the broader industries as classified by the BLS and to assign them into their component energy and energy efficiency sectors.

ABOUT THIS REPORT

This is the tenth annual Clean Jobs America report produced by E2 based on analysis of the USEER, which was first released by the DOE in 2016. E2 was an original proponent of the DOE producing the USEER, and was a partner on the 2018, 2019, and 2020 reports produced by the Energy Futures Initiative (EFI) and National Association of State Energy Officials (NASEO) when the DOE decided not to produce the USEER after 2017.

For additional insight into E2's Clean Jobs America 2025, including exploring the data via an interactive map, visit cleanjobsamerica.e2.org.



What we include are jobs in solar energy, wind energy, combined heat and power, bioenergy, non-woody biomass, low-impact hydro power, hydrokinetic and wave energy, geothermal, electric vehicles, hybrid electric vehicles, plug-in hybrid vehicles, hydrogen and fuel-cell vehicles, clean energy storage, smart grid, micro grid, grid modernization, electric vehicle charging, advanced biofuels, and energy efficiency including Energy STAR and high efficiency appliances, efficient lighting, HVAC, renewable heating and cooling, and advanced building materials. The clean energy occupations covered in this report span economic sectors including agriculture, utilities, construction, manufacturing, wholesale trade, professional services, other services.

What we do not include are jobs of workers who may spend some of their time in clean energy but a plurality in another energy sector. For example, workers employed by an excavation business might spend the majority of their time grading and preparing drilling pads for oil or gas rigs, but they also might spend a portion of their time preparing sites for wind turbines or large solar installations. If clean energy does not account for a plurality of their work, those workers would not be counted as being employed in the clean energy economy but would instead be counted as part of another energy sector. We also does not include any jobs in traditional transmission and distribution due to an inability to accurately segment out workers by electricity source, despite many of those jobs being critical to the increased electricity from Renewable Generation used by the grid. Lastly, we do not include jobs in corn ethanol, woody biomass, large or traditional hydroelectric, and nuclear because of environmental issues associated with those industries. Jobs in retail trade, repair services, water or waste management, and indirect employment or induced employment are also not included.

ABOUT THE JOB SECTORS ANALYZED

- // **Renewable Generation:** jobs in solar energy, wind energy, combined heat and power, bioenergy, low-impact hydroelectric and hydrokinetic energy, and geothermal energy.
- // **Energy Efficiency:** jobs in Energy STAR® appliances; LED, CFL, and other efficient lighting; traditional heating, ventilation, and air-conditioning systems (HVAC); high-efficiency HVAC; renewable heating and cooling; advanced building materials/insulation; and other services not specific to a detailed technology.
- // **Clean Vehicles:** jobs in plug-in hybrid vehicles, all-electric vehicles, hybrid electric vehicles, natural gas vehicles, and hydrogen and fuel-cell vehicles.
- // **Storage & Grid:** jobs in clean energy and battery storage technologies as well as microgrids, smart grids, and overall modernization of the U.S. electricity transmission and distribution system.
- // **Biofuels:** jobs in biofuels and biomass, excluding corn ethanol and woody biomass.

Other energy employment sectors analyzed in this report include:

- // **U.S. Energy and Motor Vehicles:** all employment in the U.S. energy industry as defined by the USEER, including both clean and traditional energy jobs across fuels; electric power generation; motor vehicles; energy efficiency; and transmission, distribution, and storage (TDS).
- // **Fossil Fuel Generation:** jobs in coal, natural gas, or petroleum electric power generation.
- // **Fossil Fuel Extraction:** all jobs related to fuel extraction, mining, and processing, including petroleum refineries and firms that support coal mining, oil, and gas field machinery manufacturing.
- // **Fossil Fuel Transmission, Distribution, and Storage (TDS):** all jobs related to the direct distribution, transmission and storage of coal, natural gas, and petroleum.
- // **Gas & Diesel Vehicles:** jobs in vehicles that run on gasoline and diesel internal combustion engines.

ENERGY TECHNOLOGY DEFINITIONS

Solar: Generating electricity using solar radiation (PV generation), solar thermal energy, or concentrated sunlight.

Wind: Generating electricity from wind's kinetic energy.

Geothermal: Using steam natural produced found below the Earth's surface to produce electricity.

Low-Impact Hydroelectric/Hydrokinetic and Wave Energy: Similar to traditional hydroelectric, but certification criteria are aimed at ensuring that the certified dam adequately protects or mitigates its impacts to river flows, water quality, fish passage and protection, watersheds, threatened and endangered species, cultural resources, and public access and recreation.

Biomass/Bioenergy: Electricity from materials derived from biological sources or any organic material.

Combined Heat and Power (CHP): Generating electricity and useful thermal energy in a single, integrated system. Heat that is normally wasted in conventional power generation is recovered as useful energy.

Storage: Includes pumped hydro storage, battery storage, thermal storage, and mechanical storage detailed technologies.

Microgrid: Group of interconnected distributed energy resources that acts as a single controllable entity with respect to the grid.

Smart Grid: An electricity supply network that uses communications technology to detect and react to local changes in usage.

Grid Modernization: Other modernization of the U.S. electricity transmission and distribution system

EV Charging: Stations that charge vehicles which use one or more electric motors for propulsion with no onboard generator or non-electric motor.

Energy STAR Appliances: Energy efficient Appliances that meet the international Energy STAR standard for energy efficient consumer products originated in the U.S.

Efficient Lighting: LED, CFL, and other energy efficient lighting sources.

Traditional HVAC (Heating, Ventilation, and Cooling): Services related to heating, ventilation, and air conditioning systems (HVAC), including building retro-commissioning and retrofits connected to heating and cooling.

High Efficiency HVAC: HVAC that meets the international Energy STAR standard for energy efficient consumer products originated in the U.S. or has high Average Fuel Utilization Efficiency (AFUE) rating of 90 or greater or 15 SEER or greater.

Renewable H&C: Heating, ventilation and air conditioning (HVAC) from Renewable Generation sources or work that increases the Energy Efficiency of HVAC systems.

Advanced Materials: All materials that represent advances in efficiency in buildings over the traditional materials, including insulation.

Other (EE): All other services related to improving energy efficiency, including reducing water consumption, energy audits, and maintenance.

Other Biofuels: Other fuel derived directly from biomatter, including waste fuels, biodiesel and renewable biodiesel fuels.

Other Ethanol/Non-Woody Biomass: Fuel made from other materials such as straw, manure, vegetable oil, animal fats, etc.

Electric Vehicles: Type vehicle which uses one or more electric motors for propulsion, that recharges with batteries and that have no onboard generator or non-electric motor.

Plug-In Hybrids: A hybrid electric vehicle that uses two or more distinct types of power, such as internal combustion engine and an electric motor that is powered by rechargeable batteries, or another energy storage device.

Hybrid Electric Vehicles: Vehicles that use two or more distinct types of power, such as internal combustion engine + electric motor.

Hydrogen Vehicles: Type of vehicle that uses hydrogen as its onboard fuel for motive power.

Fuel-Cell Vehicles: Type of hybrid vehicle which uses a fuel cell, instead of an engine, in combination with a storage device, such as a battery, to power its on-board electric motor.

Regional Definitions

Midwest: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin.

South: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia.

West: Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming.

Northeast: Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia.

CLEAN JOBS AMERICA 2025¹

EXECUTIVE SUMMARY

Despite experiencing its slowest pace of growth since 2020, the clean energy industry's growing importance to the broader economy was more apparent than ever in 2024. This trend was expected to continue as clean energy accounted for larger and larger shares of energy industry jobs and the nationwide workforce. But recent policy decisions to revoke incentives, cancel permits, and target the industry with new red tape and legal hurdles threatens future growth and, increasingly, the health of the U.S. economy at-large.

Still, clean energy jobs grew 2.8 percent in 2024, adding nearly 100,000 new jobs and outpacing the rest of U.S. employment (0.8 percent) more than three times over.² The growth of clean energy jobs also far outpaced job growth across the rest of the energy industry. The number of Americans working in clean energy related occupations today now exceeds the number of jobs in oil, gas and coal by more than three to one. Just eight states are still home to more fossil fuel workers than clean energy workers.

At the end of 2024, more than **3.5 million Americans** were employed in clean energy occupations, spanning renewable

generation, battery and storage, energy efficiency, biofuels, grid modernization and clean vehicles industries. These jobs now represent a significant share of the U.S. workforce—including seven percent of all new jobs added in 2024—and are spread across every state, strengthening both local economies and the national energy system.

Beyond generating jobs and affordable energy, this analysis shows clean energy is also creating new opportunities and rebuilding the country's manufacturing and construction sectors. Nearly 60 percent of all clean energy occupations—about 2.2 million jobs—are in the construction and

manufacturing today. These include factory jobs that barely existed a decade ago—jobs assembling solar panels, batteries, electric vehicles, wind turbine parts, and energy efficient appliances and goods. They include construction jobs building solar, wind and battery power plants and retrofitting buildings to improve energy efficiency and reduce costs.

Services, trade, and advanced technologies jobs related to clean energy also continue to expand. This broad economic footprint underscores clean energy's role in modernizing America's infrastructure, lowering energy costs, and positioning U.S. businesses to compete globally in a rapidly changing energy market.

KEY FINDINGS

3.5M+

OVER 3.5 MILLION AMERICANS WORKED IN CLEAN ENERGY AT THE START OF 2025

82%

OF ALL NET NEW U.S. ENERGY SECTOR JOBS IN 2024 WERE IN CLEAN ENERGY

2,200

FOR EVERY 100,000 U.S. WORKERS, MORE THAN 2,200 ARE EMPLOYED IN CLEAN ENERGY

2.2M

NEARLY 2.2 MILLION MANUFACTURING AND CONSTRUCTION JOBS ARE SUPPORTED BY CLEAN ENERGY

3X

CLEAN ENERGY JOBS GREW 3X FASTER THAN THE REST OF U.S. EMPLOYMENT IN 2024

The pace of job growth is unmatched in the energy sector. Since 2020, the sector has added more than **520,000 new jobs**, growing 17 percent overall—much faster than the rest of the economy and far surpassing job growth in the fossil fuel, gas and diesel motor vehicle, and the rest of the energy industry. The sector accounted for 82 percent of all new energy jobs added in 2024 and now accounts for 42 percent of nationwide employment in energy and motor vehicles. Key drivers include demand for electric vehicles, the rapid deployment of battery storage and smart grid technologies, and continued strength in energy efficiency upgrades.

Over the past half decade, the South has emerged as the largest hub of clean energy employment growth, adding nearly 200,000 jobs since 2020 while the West, Midwest, and Northeast have seen steady and substantial increases. These gains highlight clean energy's ability to create opportunity in both rural and urban communities, across red and blue states alike.

LOOKING AHEAD

At the beginning of 2025, clean energy was expected to remain one of the fastest growing segments of the U.S. economy. Wind turbine technician and solar installation jobs were projected to be the fastest-growing jobs in America, according to the US Bureau of Labor Statistics.

But recent policy decisions to revoke energy incentives, cancel permits, and add additional administrative burdens to clean energy projects puts the continued growth of clean energy jobs in America at serious risk.

These short-sighted policies are now threatening the nation's overall economic health. In the first half of 2025 alone, companies canceled or closed more than \$22 billion in major clean energy related factories and projects in America, and with it, eliminated 16,500 previously announced jobs, according to separate research by E2. Beyond further hampering a labor market already struggling with capricious

tariffs and related uncertainty, the administration is putting U.S. workers and businesses at a competitive disadvantage in a global clean energy marketplace on track to top \$2.2 trillion this year alone.³

Analysis by other organizations shows that more than 830,000 jobs economy-wide could be lost by 2030 because of energy policy rollbacks included in President Trump's tax and spending bill signed into law July 4.⁴ Impact to the solar industry alone could put an estimated 330,000 direct, indirect, and induced jobs at risk.⁵

CONCLUSION

Clean energy is one of the nation's most dynamic and resilient job engines. From energy efficiency retrofits to advanced vehicle manufacturing and battery storage, millions of Americans are working to build a cleaner, more reliable energy economy. Sustained investment, coupled with inclusive workforce strategies, will ensure this growth continues while expanding opportunities for all communities.

Looking ahead, clean energy jobs are still positioned to grow, given rising demand for electricity from the tech industry and consumers and continued uncertainty over global petroleum supplies and prices.

Yet unless federal policies and regulations are revised and revisited, and unless state and local governments strengthen and expand clean energy and clean vehicles policy, continued growth in clean energy jobs in America is tenuous at best in the years ahead.



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DIVERSITY AND WORKFORCE GAPS

- // Women represent only 28 percent of the clean energy workforce.
- // Black, Latino, Asian, and Indigenous workers remain underrepresented relative to the U.S. workforce overall.
- // Expanding opportunities for women and people of color will be critical to sustaining long-term industry growth.

JOB GROWTH TRENDS (2020–2024)

- // Since 2020, clean energy jobs have grown by **17 percent**, adding more than **500,000 jobs**.
- // Clean vehicle-related jobs have increased by more than 50 percent since 2020—adding over 137,000 jobs—even with a slight dip in 2024.
- // Storage and grid modernization jobs grew by 23 percent, reflecting growing need for new infrastructure amid rising energy demands from data centers, artificial intelligence, and electric vehicle charging.
- // Energy efficiency added more than **270,000 jobs** since 2020, maintaining its role as the largest clean energy employer.
- // Jobs in electric vehicle charging have grown 38 percent since 2021—second in growth only to the clean vehicle sector.
- // Renewable generation jobs have grown more than 15 percent over the past five years, driven by solar (54,000 jobs) and wind (16,000 jobs). Overall, the sector has added over 76,000 jobs since 2020.

INDUSTRY DIVERSITY

- // Clean energy-related manufacturers added about 45,000 new jobs in 2024, and have added more than 80,000 over the past 2 years—now employing more than 575,000 workers nationwide.
- // Construction workers account for close to half of all clean energy workers, with over 1.6 million jobs supported by clean energy, led by energy efficiency, wind and solar.
- // Other services (such as repair and maintenance) have grown significantly over the past several years, adding about 80,000 jobs across the renewable generation, storage and grid, and energy efficiency sectors.
- // Wholesale trade continues to create new jobs steadily across clean energy sectors, adding close to 50,000 new workers over the past two years—now employing over 315,000 Americans.
- // Clean energy workers employed in utilities have more than tripled since 2022, growing from 15,000 to more than 50,000 in 2024.

REGIONAL GROWTH

- // The **South** led the nation in 2024 with over 41,000 new clean energy jobs. Nearly 195,000 clean energy related jobs have been created in the South since 2020.
- // The **West** and **Northeast** each added more than 22,000 jobs in 2024, while the **Midwest** grew steadily by 14,000 jobs.
- // Clean energy employment is expanding in every state, reinforcing its nationwide economic impact.
- // Just eight states are home to more fossil fuel jobs than clean energy jobs.

SECTOR HIGHLIGHTS



Renewable Generation & Biofuels: Solar leads with 370,000 jobs, while biofuels employ about 42,000. Growth is steady, particularly in the South and Midwest. The sector's nearly 570,000 jobs is more than all childcare workers in the U.S. The nearly 42,000 Americans working in biofuels is more than all air traffic controllers and airfield operation specialists.⁶



Storage & Grid: Batteries, smart grids, and EV charging are driving some of the fastest job growth, critical to integrating renewable power. Clean storage technologies lead all sectors with more than 93,000 jobs, followed by smart grid with over 27,000. The nearly 170,000 workers in the storage and grid sector is greater than all painters working in the U.S.⁷



Energy Efficiency: Still the foundation of the clean energy economy with more than 2.3 million workers, spanning construction, HVAC, lighting, and advanced building materials—more than all waiters and waitresses working in the U.S.⁸



Clean Vehicles: Nearly 400,000 workers in EVs, hybrids, and hydrogen vehicles—more than all U.S. agricultural workers.⁹ While 2024 saw job losses, long-term growth potential remains strong as automakers scale up EV production.



U.S. CLEAN ENERGY ECONOMY 2024 AT A GLANCE

The U.S. clean energy economy employed more than 3.5 million workers in 2024. Energy efficiency remains the largest segment with over 2.3 million jobs, followed by renewable energy generation at around 569,000. Clean vehicles supported nearly 400,000 workers, while storage and grid modernization accounted for about 170,000. Construction leads the clean energy value chain, making up nearly half of all jobs, while manufacturing and professional services each contribute significant shares. However, workforce demographics show underrepresentation of women (28 percent) and people of color, highlighting the need for greater diversity and inclusion as the sector grows.

FIG. 1 // U.S. CLEAN ENERGY EMPLOYMENT
by sectors

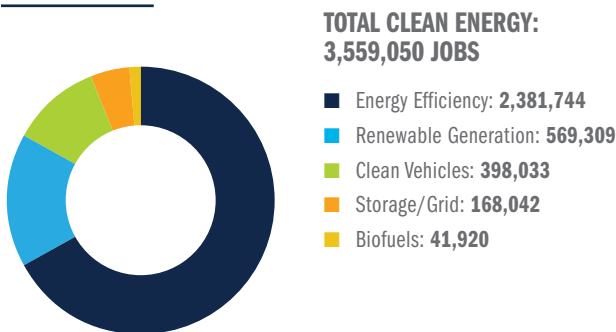


FIG. 2 // U.S. CLEAN ENERGY EMPLOYMENT
by value chain

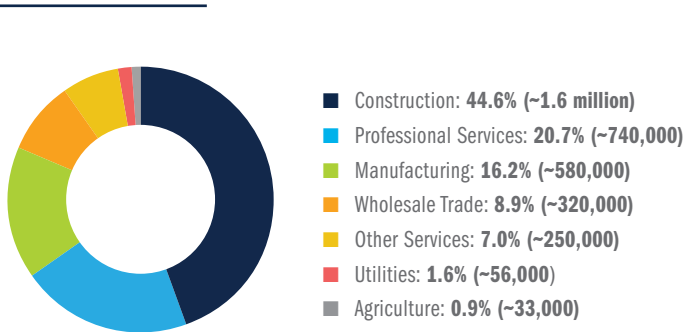
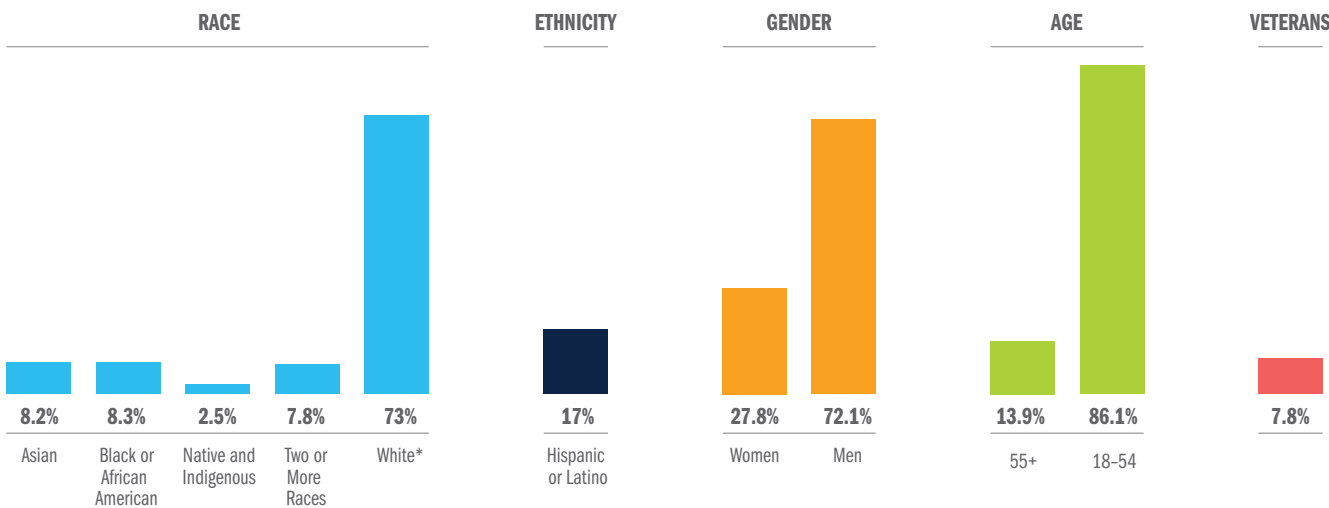


FIG. 3 // U.S. CLEAN ENERGY EMPLOYMENT
by demographics¹⁰



* Includes non-Hispanic and Hispanic whites.
Information on the representation of people with disabilities, lesbian, gay, bisexual, transgender, intersex, and queer people, immigrants, religious minorities, and young people in clean energy is limited.

GROWTH TRENDS

Clean energy companies added nearly 100,000 jobs in 2024, bringing the total jobs added since 2020 to over half a million. Energy efficiency drove the majority of this growth, adding more than 91,000 jobs in 2024 alone. Renewable generation and storage also posted steady gains, while clean vehicles saw a slight decline, reflecting an overall decline across the motor vehicle industry.

TABLE 1 // U.S. CLEAN ENERGY EMPLOYMENT jobs added Q4 2023–2024

Sector	2024 Growth	Jobs Added	Jobs Added Since 2024
Renewable Generation	3.9%	9,338	76,418
Storage and Grid	4.2%	6,831	30,107
Energy Efficiency	1.9%	91,567	274,572
Biofuels	3.3%	508	4,884
Clean Vehicles	-3.0%	-12,387	136,780
TOTAL	2.8%	95,697	524,870

This represents over 17 percent growth since 2020, outpacing the rest of the U.S. economy by more than 60 percent and far exceeding growth in fossil fuel and gas and diesel motor vehicle sectors. Clean vehicles have seen the most dramatic rise, more than doubling employment since 2020, while storage and grid jobs grew nearly 22 percent. Energy efficiency, the largest employer, expanded by 10 percent. These gains demonstrate the increasing importance of the clean energy economy.

FIG. 4 // U.S. CLEAN ENERGY EMPLOYMENT by sector growth Q4 2020–2024

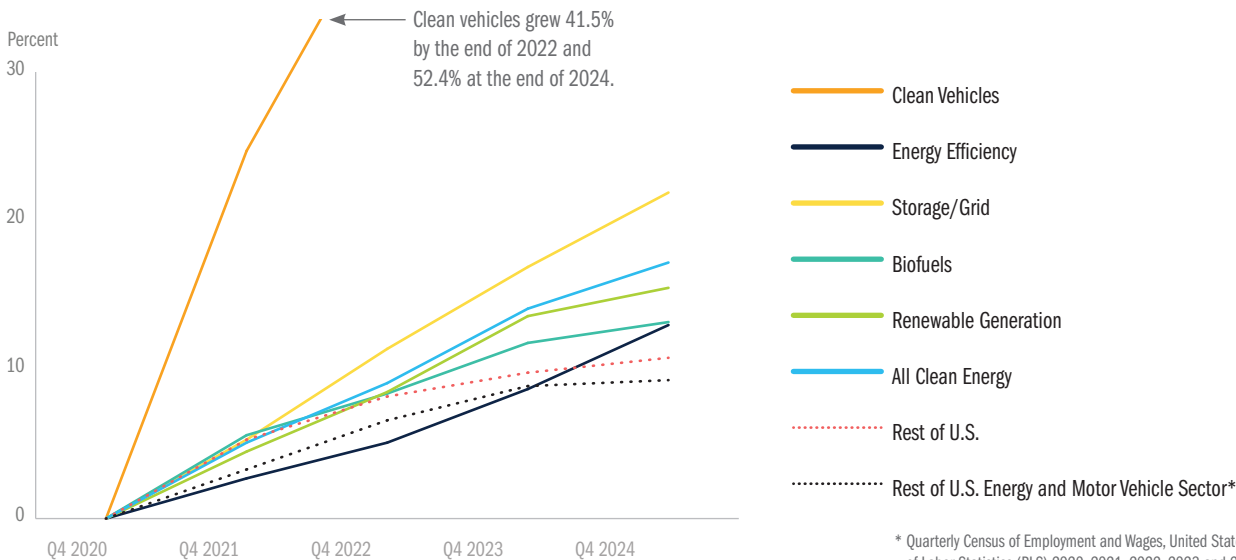


TABLE 2 // U.S. CLEAN ENERGY EMPLOYMENT by year **Q4 2020–2024**

Sector	Q4 2024	Q4 2023	Q4 2022	Q4 2021	Q4 2020
All Clean Energy	3,559,050	3,463,353	3,314,038	3,190,782	3,036,226
Renewable Generation	569,309	559,971	534,603	515,248	492,891
Biofuels	41,920	41,412	40,148	39,096	37,036
Storage and Grid	168,042	161,211	153,642	145,153	137,872
Energy Efficiency	2,381,746	2,290,179	2,215,432	2,164,914	2,107,174
Clean Vehicles	398,033	410,420	369,641	325,844	261,253
Rest of U.S. Employment	152,643,824	151,384,760	149,211,247	145,217,112	137,964,030
Rest of U.S. Energy and Motor Vehicle Employment	4,907,649	4,887,293	4,782,611	4,637,676	4,489,688

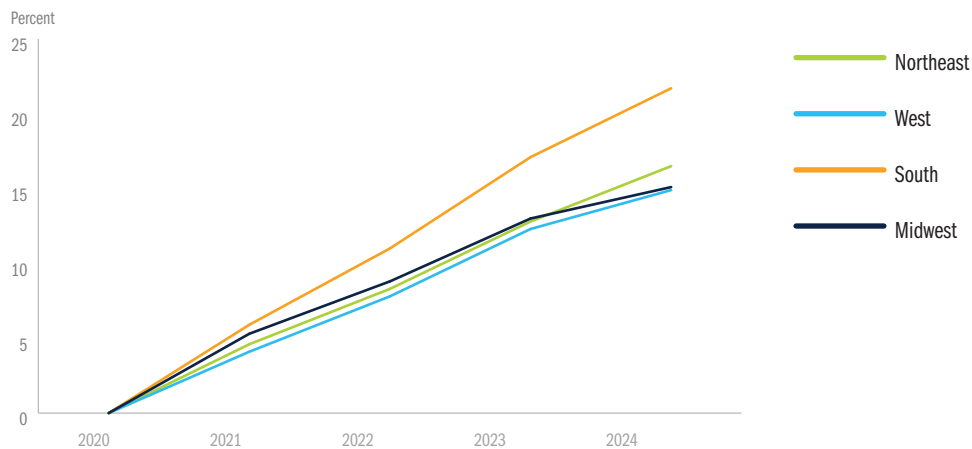
REGIONAL AND STATE TRENDS

Clean energy jobs are growing in every region of the country. Southern states led in 2024, adding nearly 42,000 new jobs, while the West and Northeast each added more than 22,000. The Midwest saw steadier growth with 14,000 new jobs. Since 2020, the South has added close to 200,000 clean energy jobs—more than any other region—while the West and Midwest have each added over 100,000. This regional expansion underscores the broad, nationwide benefits of the clean energy transition.

TABLE 3 // U.S. CLEAN ENERGY EMPLOYMENT regional job growth **Q4 2023-2024**

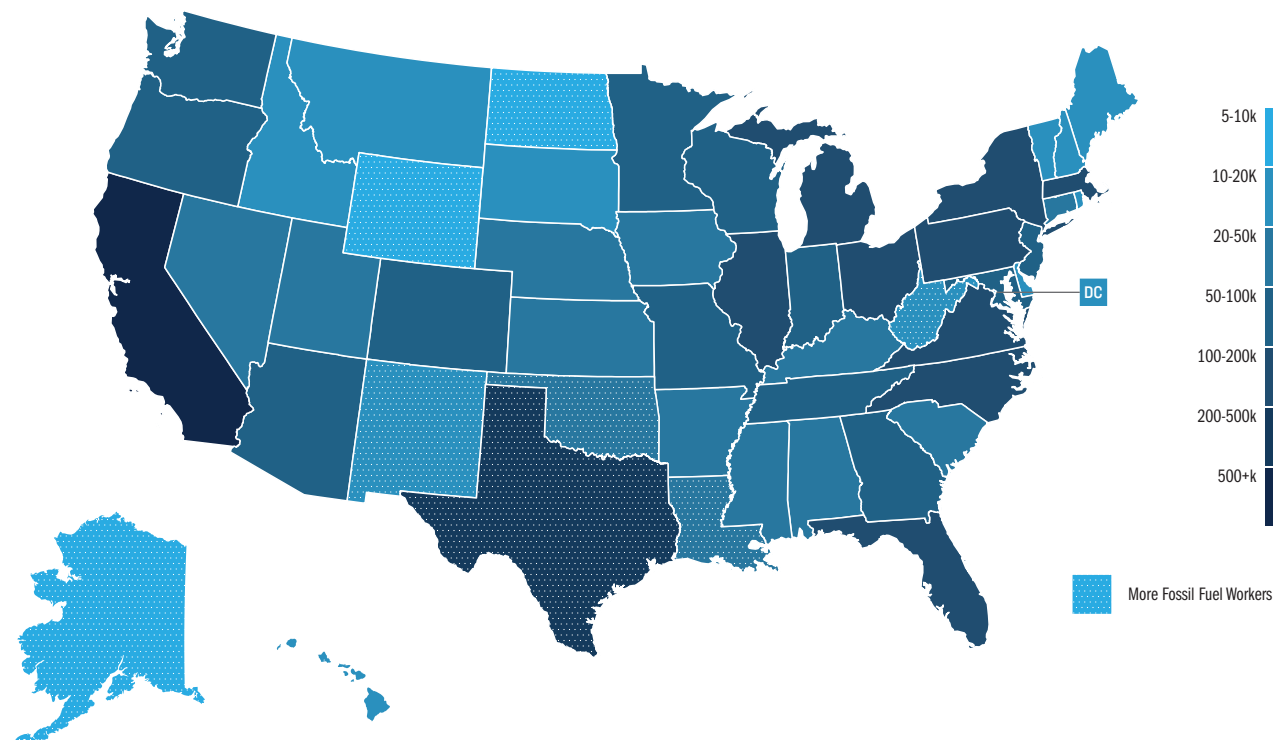
Region	Clean Energy Jobs	2024 Job Growth	Jobs Added Since 2020
Midwest	774,838	1.7% (+13,293 jobs)	101,408
South	1,094,414	3.8% (+40,524)	194,902
West	983,362	2.1% (+20,396)	126,660
Northeast	706,435	3.2% (+21,642)	99,854

FIG. 5 // U.S. CLEAN ENERGY EMPLOYMENT regional job growth 2020–2025



California leads the nation with more than 550,000 clean energy workers, followed by Texas (281,000), Florida (184,000), and New York (180,000). Along with Illinois, Michigan, Massachusetts, Ohio, North Carolina, Pennsylvania, and Virginia, 12 states are home to at least 100,000 clean energy jobs—accounting for more than half of the national clean energy workforce. Oklahoma and New Mexico are among the fastest-growing states for clean energy employment, with job growth above 27 percent since 2020. In 2024 alone, Idaho, Oklahoma, Texas, and Florida all posted year-over-year job growth above five percent, demonstrating how clean energy is creating new opportunities in both red and blue states. On a per-capita basis, clean energy jobs represent a significant share of the workforce across the country, with an average of more than 2,200 jobs per 100,000 workers nationally.

FIG. 6 // U.S. CLEAN ENERGY EMPLOYMENT by total jobs Q4 2024



To explore clean energy jobs maps, visit www.cleanjobsamerica.e2.org.

TABLE 4 // U.S. CLEAN ENERGY EMPLOYMENT by sector 2024

State	Clean Energy Jobs	2024 Growth	Jobs Added Since 2020	Renewable Generation	Storage & Grid	Energy Efficiency	Biofuels	Clean Vehicles
Alabama	47,762	2.3%	21.9%	4,147	2,220	31,549	292	9,554
Alaska	5,505	3.7%	13.8%	448	384	4,373	46	254
Arizona	66,681	3.7%	18.3%	12,865	2,732	46,313	402	4,370
Arkansas	22,452	3.2%	20.0%	2,361	1,031	16,129	594	2,338
California	552,326	1.3%	14.1%	135,392	26,231	312,090	5,972	72,641
Colorado	69,859	4.1%	20.4%	18,915	3,601	40,318	1,932	5,093
Connecticut	45,481	2.8%	14.3%	4,467	1,022	36,268	393	3,331
Delaware	12,977	2.0%	8.5%	973	268	11,137	85	513
District of Col.	15,985	3.4%	17.8%	2,342	389	12,625	66	563
Florida	183,951	4.7%	23.3%	29,925	6,763	132,060	2,838	12,365
Georgia	85,535	4.0%	20.9%	11,403	4,868	61,036	553	7,675
Hawaii	13,659	1.5%	9.0%	4,766	601	6,095	1,728	469
Idaho	15,590	6.1%	24.8%	2,563	1,240	10,224	275	1,288
Illinois	132,239	2.5%	15.4%	19,283	5,679	89,878	1,665	15,735
Indiana	90,015	0.4%	12.8%	12,017	3,404	53,445	818	20,331
Iowa	33,610	2.8%	16.7%	6,002	1,624	21,088	859	4,038
Kansas	27,003	3.5%	20.1%	4,146	1,263	18,476	321	2,798
Kentucky	40,557	2.4%	23.8%	3,099	1,691	25,562	336	9,869
Louisiana	32,510	4.6%	23.5%	5,043	1,949	23,118	352	2,048
Maine	14,033	4.3%	18.1%	2,845	584	9,492	226	886
Maryland	84,839	2.3%	9.2%	9,614	2,412	69,489	339	2,984
Massachusetts	126,611	2.5%	16.4%	22,261	7,157	86,920	896	9,378
Michigan	127,771	0.0%	13.8%	12,479	4,337	78,442	742	31,771
Minnesota	63,802	2.6%	15.7%	9,167	3,159	46,177	762	4,537
Mississippi	22,471	2.8%	20.6%	1,999	976	15,607	559	3,330
Missouri	61,072	3.0%	19.1%	6,506	2,317	42,296	931	9,022
Montana	11,079	4.5%	17.5%	883	551	8,832	93	721
Nebraska	21,135	3.4%	19.0%	3,418	663	14,476	216	2,363
Nevada	36,275	2.7%	16.5%	10,228	10,025	13,962	151	1,910
New Hampshire	17,427	3.3%	14.1%	3,532	414	12,138	150	1,194
New Jersey	62,368	4.7%	25.0%	12,665	2,224	40,756	527	6,196
New Mexico	14,081	4.6%	27.1%	4,946	899	6,988	192	1,055
New York	179,968	3.5%	17.8%	22,858	5,225	135,393	1,875	14,617

State	Clean Energy Jobs	2024 Growth	Jobs Added Since 2020	Renewable Generation	Storage & Grid	Energy Efficiency	Biofuels	Clean Vehicles
North Carolina	113,052	3.0%	13.8%	14,193	4,515	83,490	1,566	9,287
North Dakota	9,513	3.3%	15.7%	2,258	602	5,583	182	888
Ohio	121,097	1.5%	18.0%	11,696	3,587	81,397	1,365	23,052
Oklahoma	25,532	5.5%	27.5%	4,262	1,826	15,934	815	2,694
Oregon	57,860	1.8%	11.2%	8,185	3,788	41,357	759	3,772
Pennsylvania	104,499	3.7%	20.2%	12,328	4,468	76,289	1,468	9,946
Rhode Island	15,257	1.5%	10.1%	2,329	617	11,582	268	461
South Carolina	48,238	3.3%	16.0%	7,145	2,189	31,530	618	6,756
South Dakota	12,546	1.6%	10.4%	2,804	532	7,898	194	1,118
Tennessee	88,164	2.2%	21.7%	7,294	8,233	53,319	1,214	18,105
Texas	281,509	4.9%	26.5%	49,975	16,057	182,506	2,672	30,298
Utah	48,655	3.3%	17.5%	9,585	1,392	34,013	177	3,487
Vermont	16,173	1.0%	6.3%	2,328	954	10,515	620	1,755
Virginia	102,681	3.0%	16.6%	11,087	3,334	79,241	511	8,508
Washington	83,056	2.4%	10.0%	11,019	3,908	61,884	1,716	4,530
West Virginia	10,817	4.2%	20.8%	1,372	977	7,242	63	1,162
Wisconsin	75,034	1.8%	8.6%	7,295	2,605	58,160	430	6,544
Wyoming	8,735	2.7%	8.8%	595	556	7,054	95	434
United States	3,559,050	2.8%	522,824	569,309	168,042	2,381,746	41,920	398,033

■ Top 10 State

U.S. RENEWABLE GENERATION AND BIOFUEL SECTOR 2025

In 2025, the renewable generation and biofuel sector employed more than 611,000 workers nationwide, underscoring its critical role in America’s clean energy economy. Renewable generation accounted for the bulk of jobs, with over 569,000 workers, while biofuels supported an additional 41,900 positions.

Within the electric power generation sector, solar remain the leading employer, with more than 370,000 jobs across construction, utilities, and professional services. Land-based wind followed with nearly 132,000 jobs, concentrated in utility operations, construction, and supply chains. Smaller but important segments include geothermal (9,000 jobs), low-impact hydro and hydrokinetic energy (12,000 jobs), and combined heat and power (31,000 jobs), each contributing to regional diversification. Offshore wind, while still in its early stages with just over 1,000 workers, was poised for rapid expansion at the end of 2024.

The biofuels industry employed nearly 42,000 workers, led by ethanol and non-woody biomass (21,700 jobs), with additional employment in renewable diesel, biodiesel, waste-derived fuels, and other emerging biofuels. These jobs are widely distributed, from agricultural feedstock production to advanced manufacturing and refining, reflecting the sector’s integration into both rural and industrial economies.



Across the value chain, employment spans agriculture, construction, utilities, manufacturing, and professional services, highlighting the broad economic impact of renewable generation and fuels. Construction and utility operations anchor solar and wind, while biofuels rely heavily on agriculture and manufacturing. This diversity demonstrates the sector’s resilience and its capacity to support long-term economic growth across regions.

Together, renewable generation and biofuels not only reduce emissions and enhance energy security but also provide sustainable, good-paying jobs that strengthen America’s global competitiveness as the world continues to transition to clean energy sources.

FIG. 7 // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT by subsector

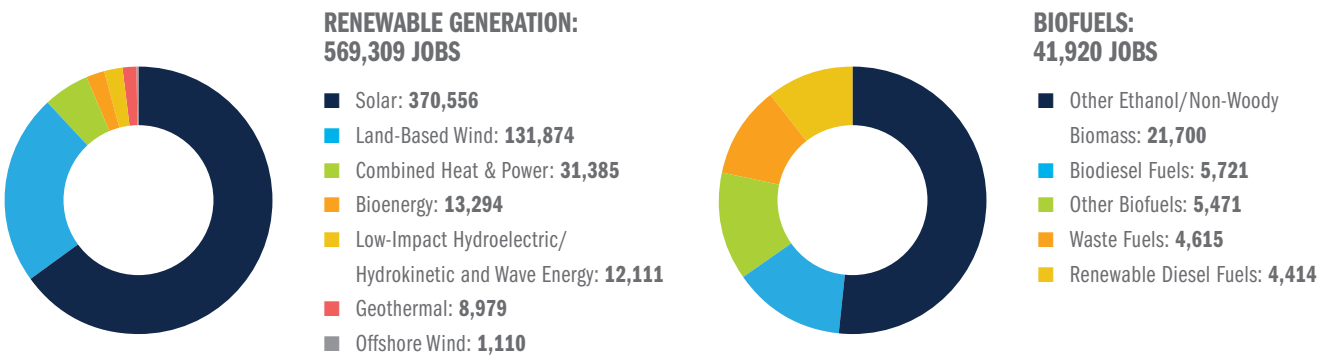


TABLE 5 // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT by value chain

Sector	Agriculture (NAICS 11)	Utilities (NAICS 22)	Construction (NAICS 23)	Manufacturing (NAICS 32-33)	Wholesale Trade (42-45)	Professional Services (NAICS 51-56)	Other (NAICS 81)
Solar		16,333	181,671	46,513	31,700	58,487	35,852
Land-based Wind		11,336	43,801	24,089	13,946	35,945	2,757
Offshore Wind			356	170	16	539	30
Geo		1,007	5,312	282	430	1,921	27
Bioenergy		2,383	5,864	1,096	644	2,889	418
Combined Heat and Power		1,607	4,228	1,976	4,144	19,248	183
Low-impact Hydro			1,894	3,215	2,555	4,379	68
Renewable Diesel Fuels				542	107	3,764	1
Biodiesel Fuels				519	410	4,790	2
Waste Fuels				154	100	4,356	4
Other Biofuels				162	1,159	4,124	25
Other Ethanol/Non-Woody Biomass	2,756			2,784	5,837	10,251	71

GROWTH TRENDS

Employment in renewable generation and biofuels has consistently outpaced fossil fuel generation. Since 2020, solar has grown by more than 17 percent, while biofuels jobs increased 13 percent. Wind, geothermal, and combined heat and power all posted solid gains as well. By contrast, fossil fuel generation remained flat, and extraction employment has been volatile. These trends reinforce the shift toward cleaner energy sources in the U.S. economy.

FIG. 8 // U.S. RENEWABLE GENERATION AND BIOFUEL by sector growth Q4 2020–2024

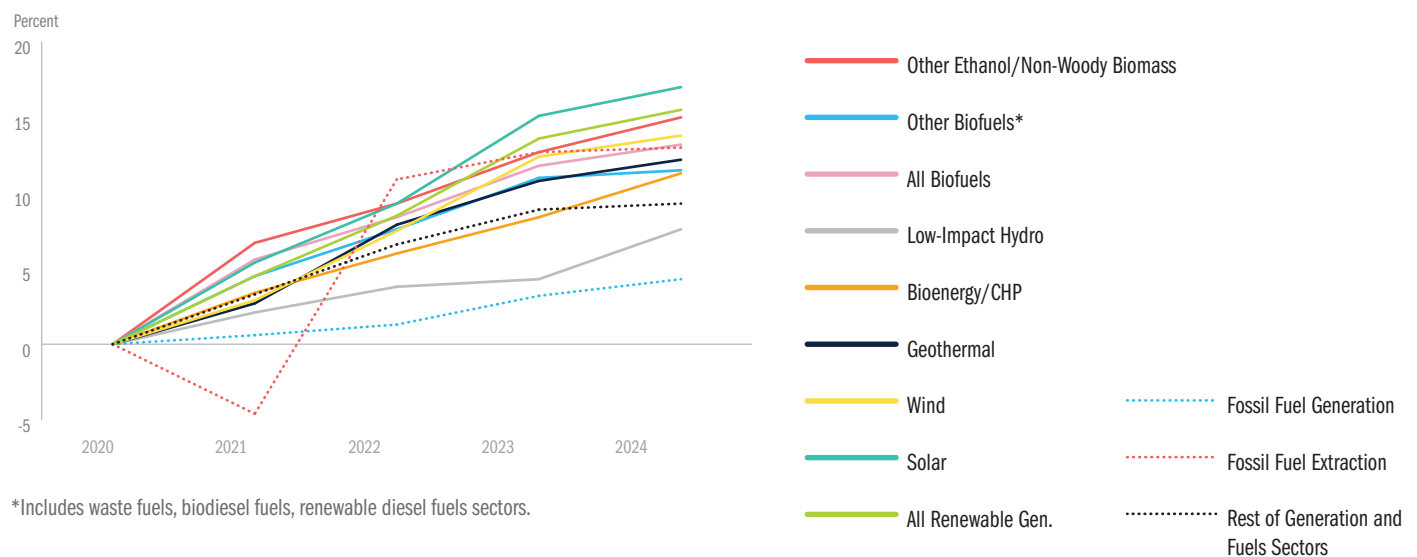


TABLE 6 // U.S. ELECTRIC POWER GENERATION & FUELS EMPLOYMENT by year **Q4 2020–2024**

Sector	Q4 2024	Q4 2023	Q4 2022	Q4 2021	Q4 2020
All Renewable Generation	569,309	559,971	534,603	515,248	492,891
Solar	370,556	364,544	346,143	333,887	316,675
Wind	132,984	131,327	125,580	120,164	116,817
Geothermal	8,979	8,870	8,635	8,222	8,002
Bioenergy/Combined Heat and Power	44,679	43,500	42,568	41,491	40,146
Low-Impact Hydro	12,111	11,730	11,677	11,485	11,251
All Biofuels	41,920	41,412	40,148	39,096	37,036
Other Biofuels*	21,700	21,598	20,939	20,335	19,455
Other Ethanol/Non-Woody Biomass	20,220	19,814	19,209	18,761	17,581
Rest of Generation and Fuels Sectors	1,376,939	1,368,341	1,340,310	1,211,657	1,241,339
Fossil Fuel Extraction	881,890	879,509	865,174	743,872	780,144
Fossil Fuel Generation	200,756	198,737	195,027	193,768	192,569

*Includes waste fuels, biodiesel fuels, renewable diesel fuels sectors.

REGIONAL AND STATE TRENDS

The West remained the largest employer with more than 220,000 renewable energy jobs, driven mostly by solar, but growth slowed slightly. The South emerged as the national growth leader, adding 32,000 jobs since 2020, fueled by rapid solar and wind expansion. The Midwest remained central to wind and biofuels, with nearly 40,000 wind jobs, though job numbers dipped modestly last year. The Northeast, while smaller in scale, posted the fastest growth at 3.2 percent in 2024, led by gains in both solar and wind. Overall, the data shows a shifting landscape where the South and Northeast are driving growth, even as the West and Midwest remain vital anchors of clean energy employment.

TABLE 7A // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT
RENEWABLE GENERATION by region **Q4 2023–2024**

Region	Renewable Generation Jobs	2024 Job Growth	Jobs Added Since 2020
Midwest	97,070	1.0% (+965 jobs)	12,189
South	151,934	2.2 % (+6,174)	32,178
West	220,390	-0.5% (+221)	14,524
Northeast	99,915	3.2% (+1,958)	17,527

FIG. 9A // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT
RENEWABLE GENERATION GROWTH by regional growth 2020–2024

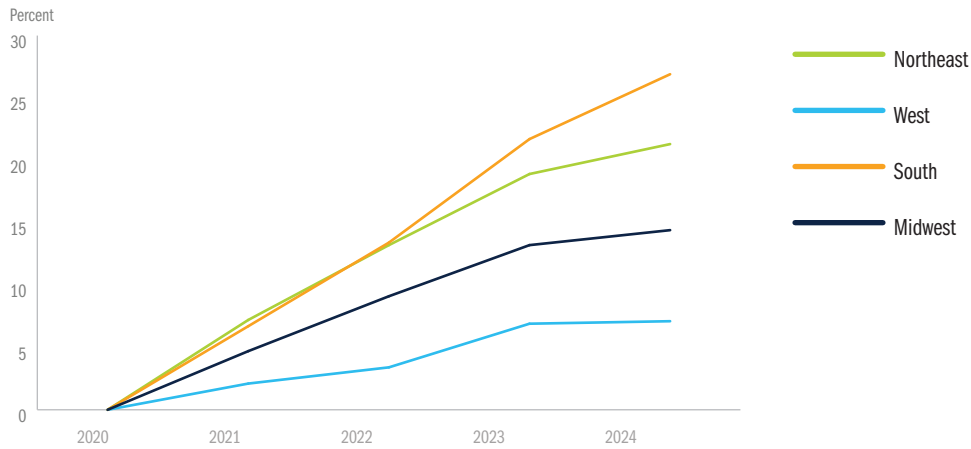


TABLE 7B // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT
WIND by region Q4 2023–2024

Region	Wind Jobs	2024 Job Growth	Jobs Added Since 2020
Midwest	39,577	-0.9% (-345 jobs)	1,735
South	48,388	3.0% (+1,417)	7,392
West	27,042	1.4% (+377)	3,995
Northeast	17,977	1.2% (+208)	3,045

FIG. 9B // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT
WIND by regional growth 2020–2025

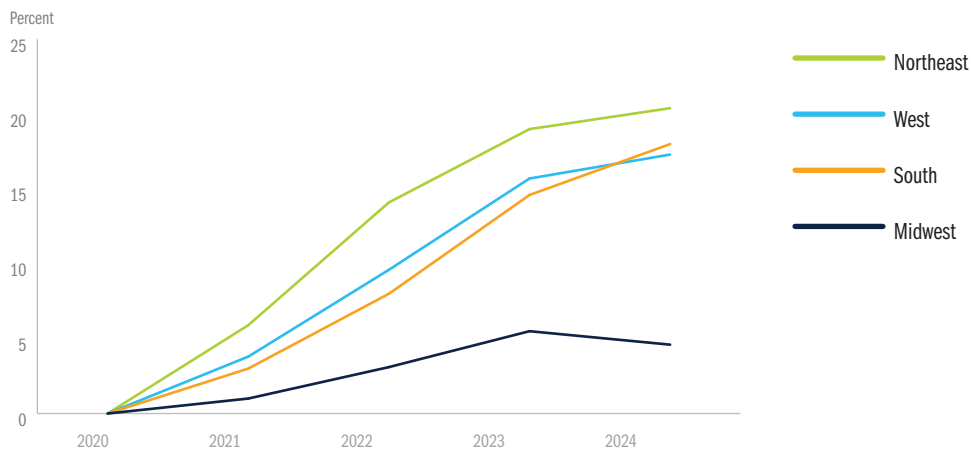


TABLE 7C // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT
SOLAR by region Q4 2023–2024

Region	Solar Jobs	2024 Job Growth	Jobs Added Since 2020
Midwest	39,577	-0.9% (-345 jobs)	1,735
South	48,388	3.0% (+1,417)	7,392
West	27,042	1.4% (+377)	3,995
Northeast	17,977	1.2% (+208)	3,045

FIG. 9C // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT
SOLAR by regional growth 2020–2024

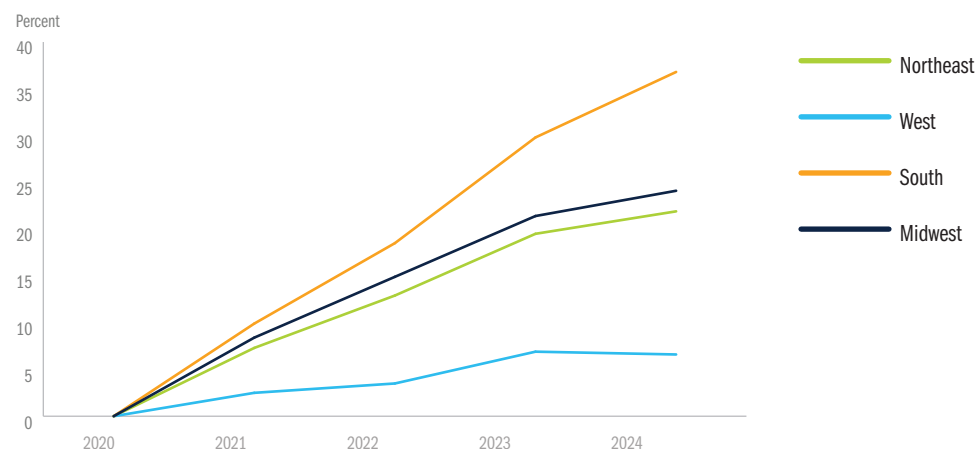
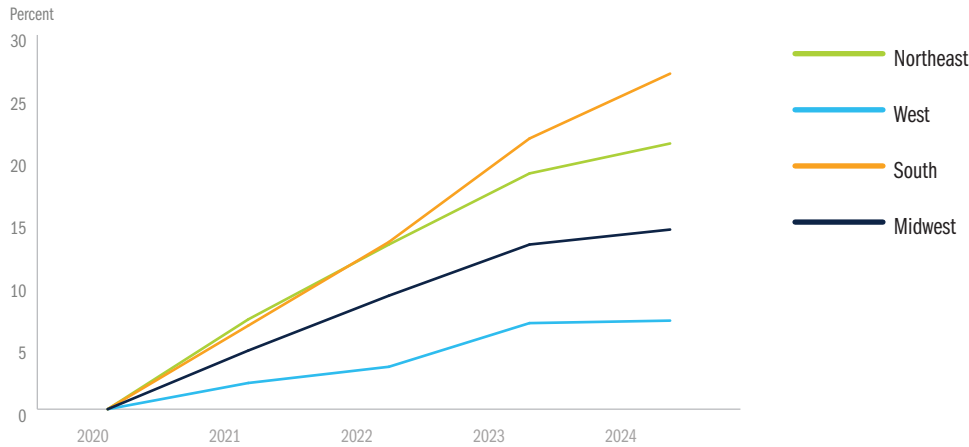


TABLE 7D // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT
BIOFUEL by region Q4 2023–2024

Region	Biofuel Jobs	2024 Job Growth	Jobs Added Since 2020
Midwest	8,485	1.0% (+991 jobs)	959
South	12,920	2.2 % (+4,157)	1,948
West	13,539	-0.3% (-530)	635
Northeast	6,976	2.1% (1,393)	1,341

FIG. 9D // U.S. RENEWABLE GENERATION AND BIOFUEL EMPLOYMENT
BIOFUEL by regional growth 2020–2024



California leads with over 135,000 renewable generation jobs, followed by Texas, New York, and Florida, which benefit from a mix of solar and wind resources. Growth in 2024 was strongest in states like Alaska and Arkansas, which saw job increases above the national average. Wind-heavy states such as Iowa, Oklahoma, and Kansas also remain national leaders, showing how renewable generation provides opportunities in both coastal and heartland states.

States such as Iowa, Illinois, and Minnesota continue to lead in the biofuels sector, supported by biomass and biodiesel production. Growth since 2020 has been notable in the Midwest, where local feedstocks and established refining infrastructure provide strong foundations. Smaller but steady growth is also occurring in states like Texas and California, where favorable biofuel policies are driving investment and job growth.

TABLE 8 // U.S. RENEWABLE GENERATION EMPLOYMENT by subsector Q4 2024

State	Total Renewable Generation Jobs	2024 Growth	Jobs Added Since 2020	Solar	Wind	Geothermal	Bioenergy/ Combined Heat and Power	Low-Impact Hydropower/ Marine/ Hydrokinetic
Alabama	4,147	-0.9%	580	1,237	1,545	120	1,064	181
Alaska	448	6.7%	121	163	111	11	140	22
Arizona	12,865	2.2%	1,930	10,253	1,489	158	714	251
Arkansas	2,361	8.3%	681	947	1,006	70	260	77
California	135,392	-0.9%	4,989	116,380	8,384	1,737	7,465	1,427
Colorado	18,915	1.1%	1,591	9,312	7,753	191	1,356	303
Connecticut	4,467	5.0%	1,189	3,462	379	92	395	138
Delaware	973	4.5%	307	761	98	21	61	31
District of Col.	2,342	-1.3%	525	1,677	349	58	156	102
Florida	29,925	5.8%	6,118	16,882	6,177	592	5,428	847

State	Total Renewable Generation Jobs	2024 Growth	Jobs Added Since 2020	Solar	Wind	Geothermal	Bioenergy/ Combined Heat and Power	Low-Impact Hydropower/ Marine/ Hydrokinetic
Georgia	11,403	2.2%	2,469	8,354	1,450	232	999	368
Hawaii	4,766	-1.0%	114	4,083	309	35	302	37
Idaho	2,563	6.7%	747	1,231	1,061	52	141	78
Illinois	19,283	0.1%	1,675	7,158	9,216	282	2,212	415
Indiana	12,017	-0.2%	998	4,386	6,825	132	507	168
Iowa	6,002	0.6%	347	1,405	3,895	65	545	92
Kansas	4,146	3.0%	569	1,435	2,098	66	449	99
Kentucky	3,099	6.1%	1,020	2,268	298	85	326	123
Louisiana	5,043	1.4%	998	4,016	476	100	283	168
Maine	2,845	2.0%	348	1,062	1,315	34	386	49
Maryland	9,614	1.8%	2,039	7,284	1,316	185	554	275
Massachusetts	22,261	0.0%	2,138	16,827	2,816	271	1,918	428
Michigan	12,479	0.6%	1,711	5,758	5,100	205	1,108	308
Minnesota	9,167	1.2%	1,551	5,390	2,870	145	556	207
Mississippi	1,999	3.1%	583	1,451	306	45	121	76
Missouri	6,506	4.1%	1,382	3,807	1,597	132	741	230
Montana	883	15.6%	440	555	200	23	65	40
Nebraska	3,418	2.1%	368	2,061	741	56	490	69
Nevada	10,228	-0.7%	358	8,980	301	321	524	103
New Hampshire	3,532	1.4%	317	1,726	1,157	41	543	65
New Jersey	12,665	1.8%	1,733	9,436	1,212	193	1,547	278
New Mexico	4,946	0.9%	724	3,378	1,239	62	150	117
New York	22,858	3.6%	5,239	16,152	4,496	449	1,106	656
North Carolina	14,193	4.5%	2,929	10,224	1,731	249	1,603	386
North Dakota	2,258	-0.2%	89	352	1,723	20	129	34
Ohio	11,696	1.8%	2,269	8,780	1,679	221	696	320
Oklahoma	4,262	5.5%	1,113	1,788	2,080	74	197	123
Oregon	8,185	0.3%	1,065	5,807	1,717	117	372	172
Pennsylvania	12,328	2.6%	2,855	6,914	3,314	281	1,391	429
Rhode Island	2,329	0.9%	260	1,566	614	25	88	36
South Carolina	7,145	1.4%	227	4,176	1,818	101	897	153
South Dakota	2,804	-0.6%	57	743	1,831	20	178	32
Tennessee	7,294	3.8%	1,904	5,590	849	150	460	245
Texas	49,975	4.8%	11,300	18,022	28,124	754	1,901	1,175

State	Total Renewable Generation Jobs	2024 Growth	Jobs Added Since 2020	Solar	Wind	Geothermal	Bioenergy/ Combined Heat and Power	Low-Impact Hydropower/ Marine/ Hydrokinetic
Utah	9,585	4.5%	1,724	8,288	769	99	285	144
Vermont	2,328	0.0%	190	1,834	360	19	85	31
Virginia	11,087	3.2%	2,256	6,005	2,527	267	1,877	412
Washington	11,019	1.9%	448	5,845	3,485	161	1,185	344
West Virginia	1,372	7.8%	386	626	550	29	113	53
Wisconsin	7,295	1.6%	1,174	4,429	2,002	120	575	170
Wyoming	595	15.0%	272	292	224	13	39	27
United States	569,309	1.7%	76,418	370,556	132,984	8,979	44,679	12,111

■ Top 10 State

TABLE 9 // U.S. BIOFUELS EMPLOYMENT by subsector Q4 2024

State	Total Biofuel Jobs	2024 Growth	Jobs Added Since 2020	Other Ethanol and Non-Woody Biomass	Other Biofuels
Alabama	292	7.9%	102	81	211
Alaska	46	7.3%	15	12	34
Arizona	402	3.5%	77	84	318
Arkansas	594	-0.1%	47	445	148
California	5,972	0.0%	376	1,600	4,373
Colorado	1,932	-2.2%	-27	1,509	423
Connecticut	393	2.8%	68	79	314
Delaware	85	2.4%	14	32	53
District of Col.	66	21.0%	50	39	27
Florida	2,838	-0.5%	164	1,438	1,400
Georgia	553	6.6%	170	150	404
Hawaii	1,728	-4.2%	-157	1,632	96
Idaho	275	0.6%	22	46	229
Illinois	1,665	1.3%	230	1,200	464
Indiana	818	0.7%	84	532	286
Iowa	859	-1.7%	7	627	231
Kansas	321	1.7%	45	161	160
Kentucky	336	4.4%	80	194	142
Louisiana	352	9.2%	141	163	189
Maine	226	1.6%	27	42	184

State	Total Biofuel Jobs	2024 Growth	Jobs Added Since 2020	Other Ethanol and Non-Woody Biomass	Other Biofuels
Maryland	339	12.9%	174	118	222
Massachusetts	896	8.8%	346	297	599
Michigan	742	3.4%	142	191	551
Minnesota	762	2.4%	130	385	377
Mississippi	559	1.6%	79	406	153
Missouri	931	-0.2%	65	693	238
Montana	93	16.5%	47	38	54
Nebraska	216	0.4%	17	80	135
Nevada	151	4.1%	33	66	85
New Hampshire	150	2.9%	25	30	119
New Jersey	527	7.6%	178	156	371
New Mexico	192	12.2%	95	59	133
New York	1,875	1.6%	248	1,011	863
North Carolina	1,566	0.5%	143	996	571
North Dakota	182	3.5%	37	75	107
Ohio	1,365	0.3%	117	973	392
Oklahoma	815	-1.6%	17	676	139
Oregon	759	-0.3%	40	158	601
Pennsylvania	1,468	2.2%	225	809	659
Rhode Island	268	-2.6%	-8	220	48
South Carolina	618	-0.2%	38	368	249
South Dakota	194	-1.6%	2	115	79
Tennessee	1,214	-1.0%	48	961	253
Texas	2,672	6.1%	684	1,484	1,188
Utah	177	8.5%	73	53	124
Vermont	620	-3.7%	-44	552	69
Virginia	511	11.0%	234	184	327
Washington	1,716	-1.1%	22	271	1,444
West Virginia	63	15.8%	38	23	40
Wisconsin	430	3.5%	83	122	308
Wyoming	95	2.6%	18	63	32
United States	41,920	1.2%	4,884	21,700	20,220

■ Top 10 State

To explore clean energy jobs maps, visit www.cleanjobsamerica.e2.org.

U.S. STORAGE AND GRID SECTOR 2025

The U.S. storage and grid sector employed more than 168,000 workers at the start of 2025, reflecting its critical role in modernizing the nation's energy infrastructure and enhancing energy reliability. Employment is split between clean storage (93,497 jobs) and grid modernization (74,545 jobs), both of which are rapidly scaling in response to record renewable energy deployment.

Battery storage dominates clean storage employment, with nearly 79,000 workers, followed by pumped hydro (9,800). Smaller but important segments include mechanical, thermal, and biofuel-based storage. On the grid side, smart grid technologies (27,200 jobs) and microgrids (21,500 jobs) are leading sources of employment, while other modernization efforts such as advanced transmission systems and EV charging add thousands more positions.

Jobs in this sector are spread across the full value chain. Construction and installation remain the largest contributors, but manufacturing, professional services, and wholesale trade also account for significant shares of employment.



Battery storage alone supports more than 41,000 construction jobs and 14,000 manufacturing jobs, underscoring the domestic economic benefits of scaling clean energy technologies. Grid modernization also provides a strong base of professional service and engineering jobs, highlighting the sector's role in building high-skill, future-oriented employment.

As clean energy deployment accelerates, the storage and grid workforce will be essential for integrating renewable power, maintaining reliability, and building a smarter, more resilient grid. This sector not only strengthens U.S. energy security but also fuels innovation and long-term economic growth.

FIG. 10 // U.S. STORAGE AND GRID EMPLOYMENT by subsector

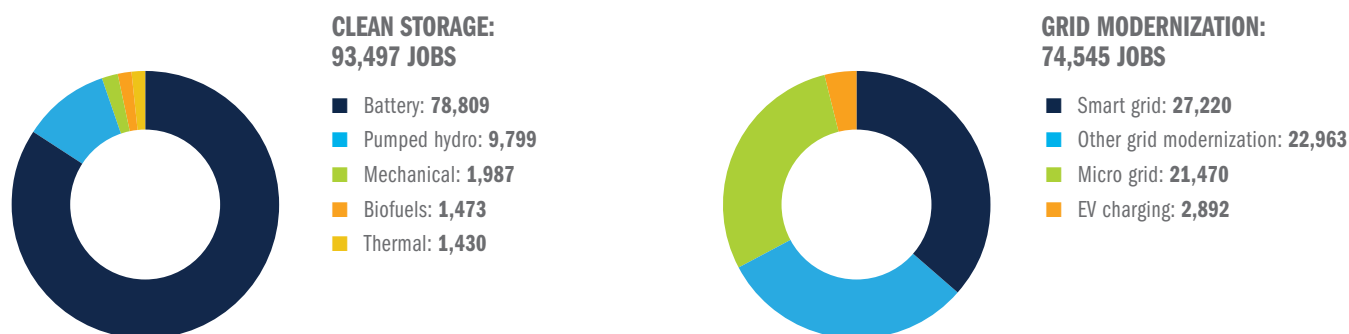


TABLE 10 // U.S. STORAGE AND GRID EMPLOYMENT by value chain

Sector	Construction (NAICS 23)	Manufacturing (NAICS 32-33)	Wholesale Trade (NAICS 42-45)	Pipeline Transportation (NAICS 486)	Professional Services (NAICS 51-56)	Other (NAICS 81)
Smart Grid	12,380	1,678	1,627		11,350	185
Micro Grid	12,299	3,651	1,722		3,246	552
Other Grid Modernization	17,410	2,056	276		2,952	268
EV Charging	1,324	182	579		641	166
Pumped Hydro	3,983	2,602	315	1,275	1,545	78
Battery	41,225	14,294	8,727		13,408	1,154
Mechanical	103	1,422	2		446	13
Thermal	748	174	47		379	82

GROWTH TRENDS

Employment in storage and grid modernization has grown rapidly since 2020, up more than 23 percent by the end of 2024. Battery storage jobs have expanded by over 20 percent, while EV charging employment shot up nearly 38 percent in just four years. Growth in smart grid and microgrid technologies has also been strong, reflecting investments to modernize America's energy infrastructure. These gains far outpace the rest of the transmission and distribution sector, underscoring clean energy's momentum.

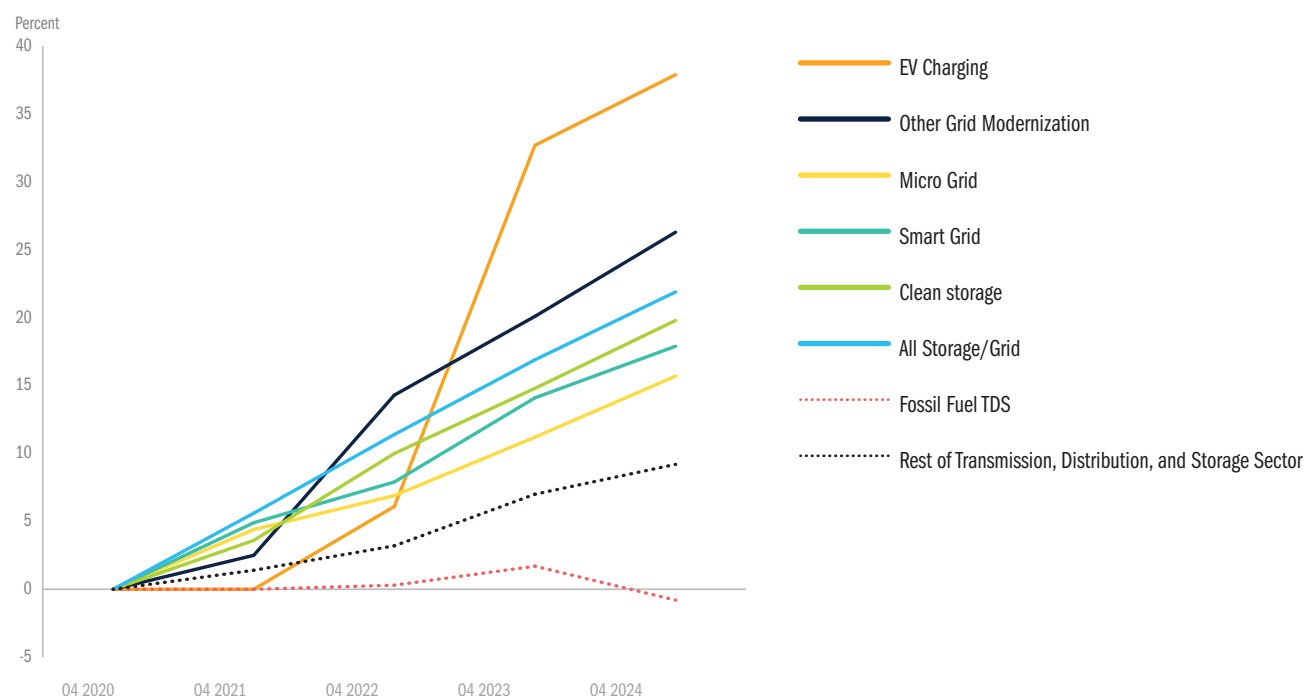
FIG. 11 // U.S. STORAGE AND GRID EMPLOYMENT by sector growth Q4 2020–2024

TABLE 11 // U.S. STORAGE AND GRID EMPLOYMENT by year Q4 2020–2024

Sector	Q4 2024	Q4 2023	Q4 2022	Q4 2021	Q4 2020
All Storage/Grid	168,042	161,211	153,641	145,153	137,872
Clean Storage	93,497	89,592	85,858	80,813	78,040
Smart Grid	27,220	26,351	24,916	24,225	23,089
Micro Grid	21,470	20,632	19,845	19,377	18,556
Other Grid Modernization	22,963	21,848	20,794	18,637	18,187
EV Charging	2,898	2,788	2,229	2,101	N/A
Rest of Transmission, Distribution, and Storage Sector	1,295,617	1,264,391	1,219,944	1,198,495	1,184,317
Fossil Fuel TDS	434,366	445,371	439,182	437,742	N/A

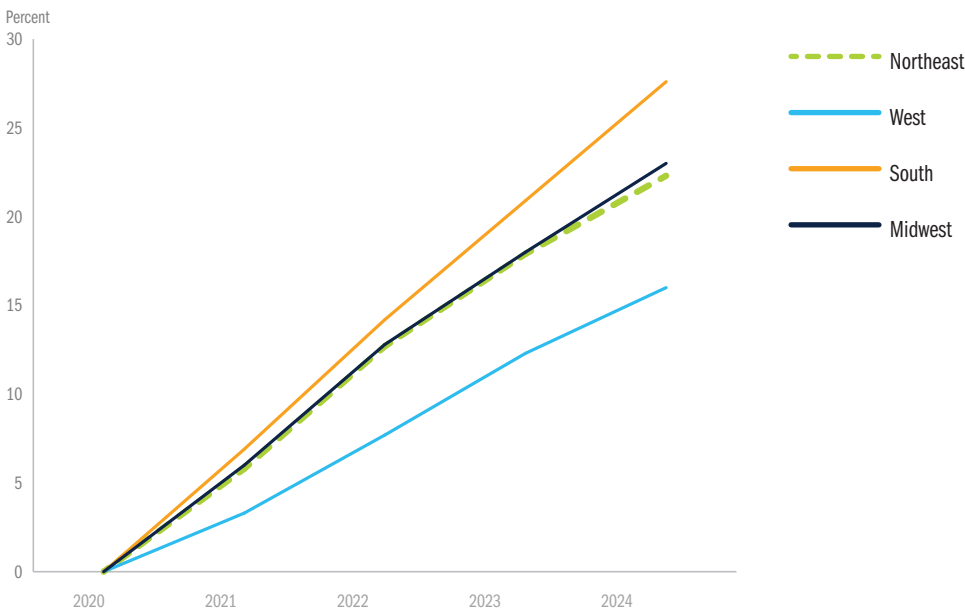
REGIONAL AND STATE TRENDS

The West (55,900 jobs) and South (55,600 jobs) were the largest employers of storage and grid modernization workers, while the Midwest (29,700) and Northeast (26,700) also contributed significantly. Growth was strong across the board, with every region adding between 7 and 8 percent more jobs in 2024, led by the South at 5.5 percent. Since 2020, the South has added the most jobs (12,000), followed by the West (9,000). Looking at longer-term growth trends, the South has surged ahead with a 27.6 percent increase since 2020, while the Midwest and Northeast both grew by about 23 percent, and the West by nearly 16 percent. These gains reflect broad national investment in modernizing the grid and expanding clean storage capacity.

TABLE 12 // U.S. STORAGE AND GRID EMPLOYMENT by region Q4 2023–2024

Region	Storage/Grid Jobs	2024 Job Growth	Jobs Added Since 2020
Midwest	29,771	4.2% (+1,195 jobs)	5,863
South	55,652	5.5% (2,899)	12,057
West	55,907	3.3% (+1,773)	9,040
Northeast	26,712	3.7% (+964)	5,254

FIG. 12 // U.S. STORAGE AND GRID EMPLOYMENT by regional growth 2020–2024



California and Texas lead in both clean storage and grid modernization jobs, reflecting large-scale integration of renewables and EV infrastructure. Arizona, Nevada, and New York are also rapidly expanding, driven by strong investment in batteries, smart grid, and EV charging infrastructure. States such as Alaska and Arkansas posted double-digit growth in 2024, underscoring how smaller states are also benefiting from grid transformation.

TABLE 13 // U.S. STORAGE AND GRID EMPLOYMENT by sector Q4 2024

State	Total Storage/ Grid Jobs	2024 Growth	Jobs Added Since 2020	Clean Storage	Smart Grid	Micro Grid	Other Grid Modernization (Incl. EV Charging)
Alabama	2,220	6.3%	532	998	390	329	503
Alaska	384	11.3%	88	217	41	47	79
Arizona	2,732	5.1%	556	1,620	296	406	409
Arkansas	1,031	6.9%	280	459	178	160	235
California	26,231	3.4%	3,593	18,341	2,912	2,221	2,757
Colorado	3,601	4.6%	688	2,057	495	483	566
Connecticut	1,022	5.4%	292	389	159	245	229
Delaware	268	4.9%	65	82	90	53	43
District of Col.	389	5.4%	113	140	57	115	77
Florida	6,763	5.8%	1,841	2,768	1,200	1,235	1,559

State	Total Storage/ Grid Jobs	2024 Growth	Jobs Added Since 2020	Clean Storage	Smart Grid	Micro Grid	Other Grid Modernization (Incl. EV Charging)
Georgia	4,868	4.2%	1,055	2,153	808	735	1,172
Hawaii	601	5.1%	84	405	61	52	84
Idaho	1,240	1.8%	158	963	60	108	109
Illinois	5,679	4.0%	955	2,649	1,430	713	887
Indiana	3,404	3.6%	530	2,087	593	323	400
Iowa	1,624	3.8%	299	856	206	228	334
Kansas	1,263	4.8%	278	671	213	170	208
Kentucky	1,691	11.1%	455	781	256	245	409
Louisiana	1,949	10.6%	540	983	251	281	434
Maine	584	5.3%	131	364	57	76	87
Maryland	2,412	3.8%	498	1,037	461	446	468
Massachusetts	7,157	0.5%	699	5,173	671	1,108	206
Michigan	4,337	3.9%	758	2,786	459	481	611
Minnesota	3,159	2.6%	478	2,099	296	364	400
Mississippi	976	6.4%	249	486	156	136	198
Missouri	2,317	4.7%	563	1,012	472	374	458
Montana	551	12.3%	164	281	70	71	129
Nebraska	663	9.3%	191	277	101	125	160
Nevada	10,025	1.9%	816	9,503	174	163	185
New Hampshire	414	7.5%	135	166	68	91	89
New Jersey	2,224	9.5%	589	961	355	445	464
New Mexico	899	7.8%	230	457	147	122	173
New York	5,225	4.9%	1,201	2,536	624	1,193	871
North Carolina	4,515	4.5%	1,202	1,918	889	739	968
North Dakota	602	6.4%	106	350	95	65	93
Ohio	3,587	5.3%	785	1,722	561	584	722
Oklahoma	1,826	5.2%	402	1,035	245	232	314
Oregon	3,788	0.3%	333	1,499	333	251	1,704
Pennsylvania	4,468	4.5%	870	2,196	603	823	847
Rhode Island	617	0.6%	53	160	37	358	61
South Carolina	2,189	3.5%	416	1,042	509	280	358
South Dakota	532	3.4%	96	323	63	61	85
Tennessee	8,233	-0.6%	335	1,080	6,347	364	442
Texas	16,057	7.1%	3,690	8,981	1,978	2,171	2,927

State	Total Storage/ Grid Jobs	2024 Growth	Jobs Added Since 2020	Clean Storage	Smart Grid	Micro Grid	Other Grid Modernization (Incl. EV Charging)
Utah	1,392	5.5%	359	678	206	247	261
Vermont	954	-0.8%	29	456	57	391	50
Virginia	3,334	11.4%	1,029	1,412	570	637	714
Washington	3,908	2.3%	511	2,650	398	388	471
West Virginia	977	7.3%	200	494	102	133	248
Wisconsin	2,605	4.1%	523	1,450	362	339	454
Wyoming	556	11.8%	127	296	55	63	142
United States	168,042	4.2%	30,170	93,497	27,220	21,470	25,856

■ Top 10 State

To explore clean energy jobs maps, visit www.cleanjobsamerica.e2.org.

U.S. ENERGY EFFICIENCY SECTOR 2025

Energy efficiency continues to anchor America's clean energy economy, employing more than 2.38 million workers nationwide in 2025. This sector spans every state and community, driving economic activity in construction, manufacturing, professional services, and trade. Jobs range from installing efficient HVAC systems and lighting to producing advanced materials, certified appliances, and recycled building products.

Traditional HVAC equipment, control systems, and related services remain the single largest source of efficiency employment, supporting more than 600,000 jobs. Lighting also plays a major role, with 375,000 workers in LED and other efficient lighting technologies. Significant employment is found in insulation, advanced materials, and renewable heating and cooling, underscoring the wide scope of efficiency solutions.



The supply chain analysis highlights that construction is the backbone of efficiency employment, but manufacturing, professional services, and wholesale trade also provide tens of thousands of good-paying jobs. Certified air- and ground-source heat pumps, energy-efficient water heaters, and reduced water consumption products are among the fastest-growing subsectors, reflecting strong demand for technologies that lower costs while cutting emissions.

Together, these jobs demonstrate how energy efficiency not only reduces household and business expenses but also strengthens U.S. competitiveness, creates local economic opportunities that cannot be outsourced, and accelerates the transition to a cleaner, more resilient economy.

FIG. 13 // U.S. STORAGE AND GRID EMPLOYMENT by subsector

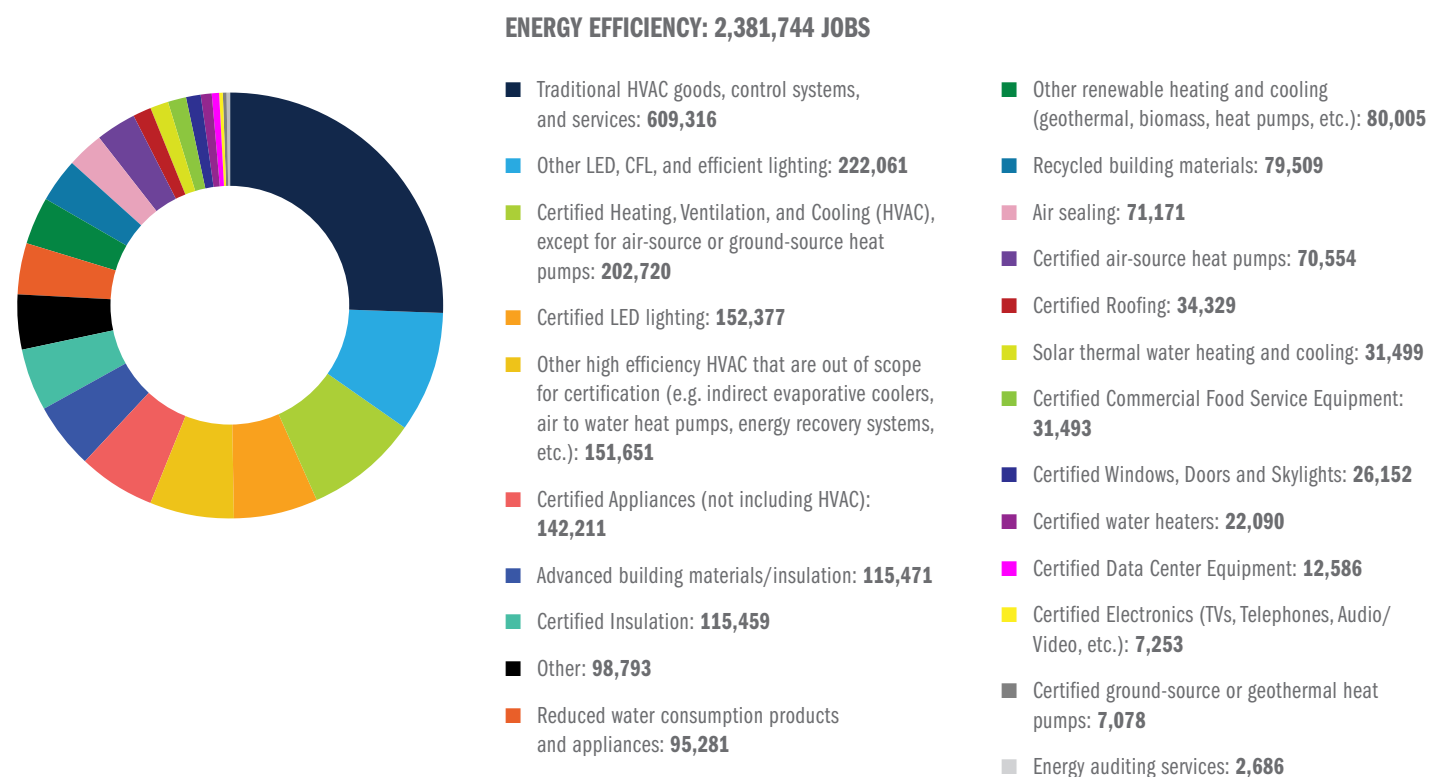
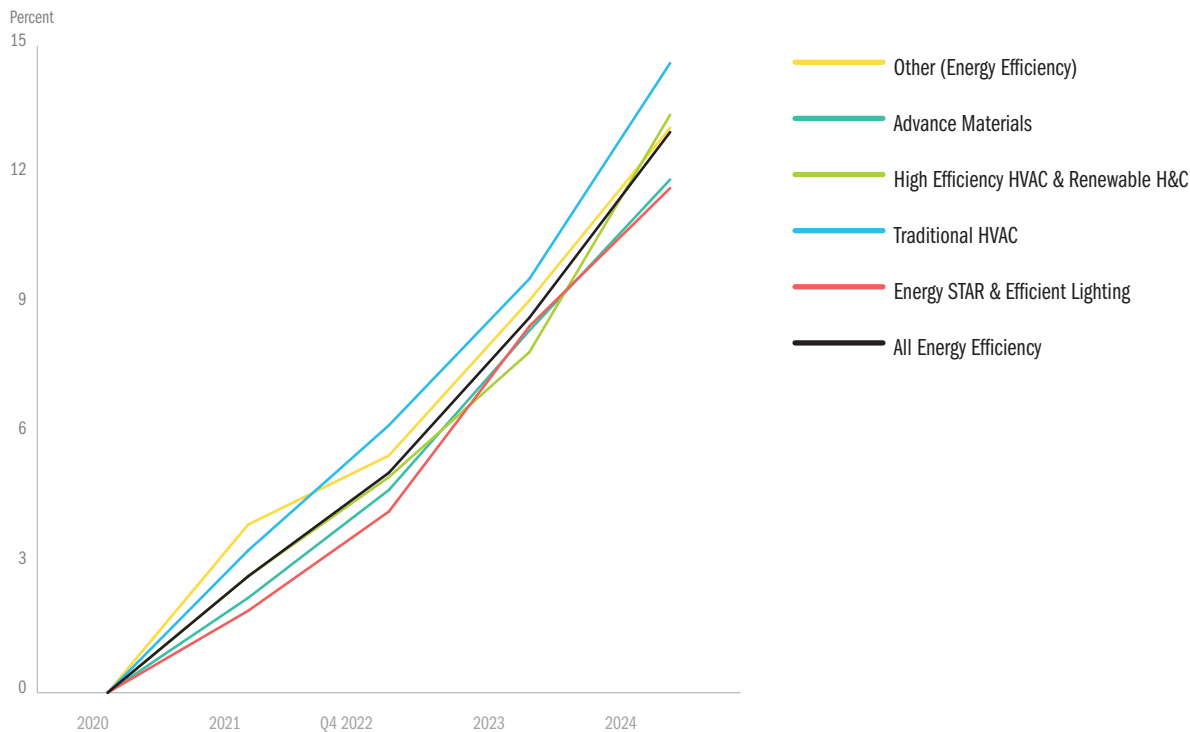


TABLE 14 // U.S. ENERGY EFFICIENCY EMPLOYMENT by supply chain

Sector	Construction (NAICS 23)	Manufacturing (NAICS 32-33)	Wholesale Trade (NAICS 42-45)	Professional Services (NAICS 51-56)	Other (NAICS 81)
Certified Appliances (not including HVAC)	72,696	12,910	14,269	39,145	3,191
Certified Heating, Ventilation, and Cooling (HVAC), except for air-source or ground-source heat pumps	164,338	20,997	5,968	9,043	2,373
Certified air-source heat pumps	28,365	14,025	14,921	12,422	821
Certified ground-source or geothermal heat pumps	2,691	1,542	1,575	1,201	68
Other high efficiency HVAC that are out of scope for certification (e.g. indirect evaporative coolers, air to water heat pumps, energy recovery systems, etc.)	78,407	35,598	9,897	26,219	1,530
Traditional HVAC goods, control systems, and services	330,635	31,799	63,484	166,352	17,046
Certified water heaters	15,553	420	1,713	4,310	94
Certified Electronics (TVs, Telephones, Audio/Video, etc.)	154	3,924	1,833	270	1,072
Certified Windows, Doors and Skylights	14,546	1,149	2,104	7,930	424
Certified Roofing	22,738	7,167	1,328	2,842	255
Certified Insulation	101,927	7,328	1,221	4,781	201
Air Sealing	37,359	2,349	18,881	12,330	252
Certified Commercial Food Service Equipment	15,722	3,794	2,135	9,169	674
Certified Data Center Equipment	1,577	4,829	3,643	234	2,304
Certified LED lighting	60,886	14,047	19,324	55,136	2,984
Other LED, CFL, and Efficient Lighting	116,334	40,494	24,478	40,217	538
Solar Thermal Water Heating and Cooling	16,530	2,666	3,221	8,426	656
Other Renewable Heating and Cooling (geothermal, biomass, heat pumps, etc.)	53,164	4,745	5,006	16,962	128
Advanced Building Materials/Insulation	27,856	58,851	1,320	26,320	1,124
Recycled Building Materials	44,742	10,910	3,279	17,762	2,817
Reduced Water Consumption Products and Appliances	58,835	7,500	5,849	21,813	1,283
Energy Auditing Services	1,364	0	0	1,191	132
Other	31,125	40,672	4,904	19,067	3,025

GROWTH TRENDS

Since 2020, energy efficiency jobs have grown by more than 13 percent, adding over 270,000 positions. Traditional HVAC employment expanded steadily, while advanced materials and efficient lighting also saw strong gains. This consistent growth reflects rising demand for building retrofits, high-efficiency appliances, and clean heating technologies. Energy efficiency continues to anchor clean energy employment nationwide.

FIG. 14 // U.S. ENERGY EFFICIENCY EMPLOYMENT by sector growth Q4 2020–2024**TABLE 15 // U.S. ENERGY EFFICIENCY EMPLOYMENT by year Q4 2020–2024**

Sector	Q4 2024	Q4 2023	Q4 2022	Q4 2021	Q4 2020
All Energy Efficiency	2,381,746	2,290,179	2,215,432	2,164,914	2,107,174
Energy STAR & Efficient Lighting	548,142	532,273	511,561	500,026	490,717
Traditional HVAC	609,316	582,663	564,498	549,380	531,640
High Efficiency HVAC & Renewable H&C	565,595	538,339	523,908	512,223	498,863
Advance Materials	362,583	351,188	339,152	331,169	324,060
Other (Energy Efficiency)	296,108	285,716	276,313	272,116	261,894

REGIONAL AND STATE TRENDS

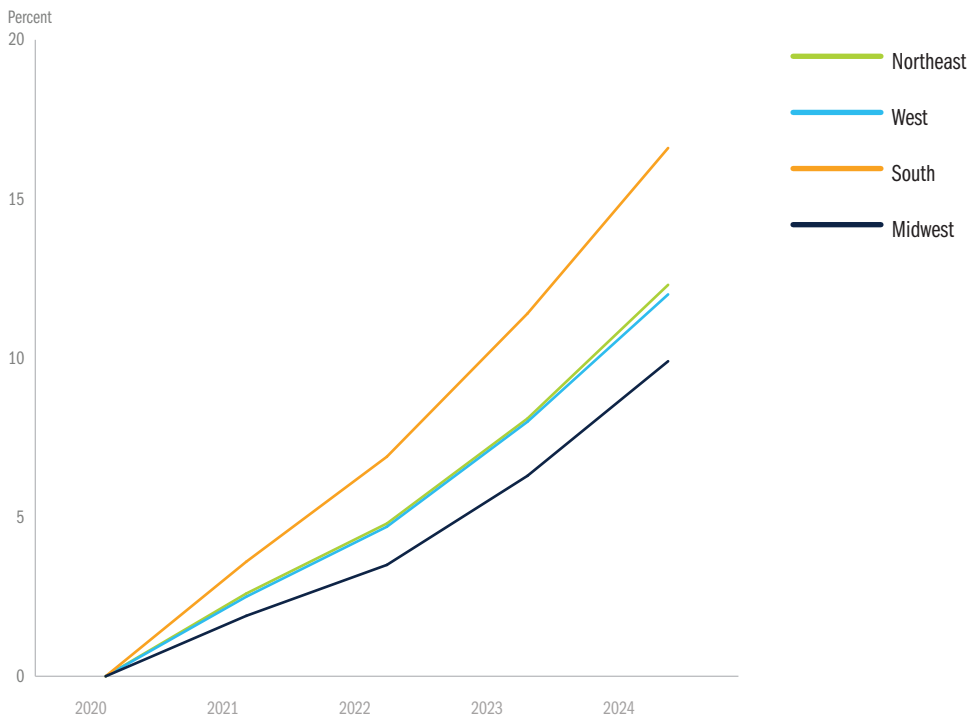
The South led with 751,000 energy efficiency jobs, the largest regional workforce, and posted the fastest growth at 4.7 percent (+33,500 jobs). The West followed with 594,000 jobs, while the Midwest (517,000) and Northeast (520,000) also remained major centers of efficiency employment. Since 2020, the South has added the most jobs (107,000), while the West and Northeast each added more than 56,000–63,000 jobs. Longer-term trends show the South growing 17 percent since 2020, well above other regions, with the Northeast and West both rising around 12 percent, and the Midwest increasing by nearly 10 percent.

TABLE 16 // ENERGY EFFICIENCY EMPLOYMENT by region Q4 2023–2024

Region	Energy Efficiency Jobs	2024 Job Growth	Jobs Added Since 2020
Midwest	517,316	3.4% (+17,006 jobs)	46,665
South	751,081	4.7% (+33,551)	107,157
West	593,503	3.8% (+21,483)	63,778
Northeast	519,846	3.9% (+19,527)	56,973

*Does not include EV charging subsector because state-by-state numbers are unavailable.

FIG. 15 // U.S. ENERGY EFFICIENCY EMPLOYMENT by regional growth 2020–2024



California leads the U.S. with more than 300,000 energy efficiency workers, followed by Texas, Florida, and New York. High-growth states in 2024 included Arizona, Nevada, and Utah, where building booms and strong state-level policies are creating demand for efficient construction and retrofits. This sector continues to be a stalwart of the clean energy economy, providing stable, local jobs that cannot be outsourced.

TABLE 17 // U.S. ENERGY EFFICIENCY EMPLOYMENT by sector Q4 2024

State	Total Energy Efficiency Jobs	2024 Growth	Jobs Added Since 2020	Energy STAR	Traditional HVAC with an Efficiency Component	High Efficiency Hvac and Renewable Heating and Cooling	Advanced Materials	Other
Alabama	31,549	4.0%	3,881	3,240	6,749	3,954	14,734	2,873
Alaska	4,373	3.3%	399	592	736	1,629	1,204	212
Arizona	46,313	4.5%	6,433	8,809	11,317	12,820	7,816	5,551
Arkansas	16,129	3.9%	2,195	2,532	3,391	3,174	1,173	5,860
California	312,090	3.3%	28,251	69,722	114,555	63,811	25,050	38,952
Colorado	40,318	6.6%	7,723	11,835	11,541	8,306	6,633	2,002
Connecticut	36,268	2.9%	2,695	8,271	9,014	10,457	3,940	4,585
Delaware	11,137	2.0%	477	1,439	3,798	3,054	1,986	862
District of Col.	12,625	4.0%	1,411	1,624	2,799	4,769	705	2,727
Florida	132,060	5.5%	23,141	34,719	25,261	26,701	30,333	15,047
Georgia	61,036	5.1%	9,913	10,008	13,754	19,524	8,061	9,689
Hawaii	6,095	5.8%	975	1,432	785	2,829	431	620
Idaho	10,224	7.3%	1,905	2,008	2,260	4,755	917	283
Illinois	89,878	3.6%	9,207	14,895	29,902	26,833	9,158	9,089
Indiana	53,445	3.2%	4,377	6,798	13,709	22,492	5,023	5,424
Iowa	21,088	4.6%	2,848	6,797	2,701	6,980	2,283	2,326
Kansas	18,476	4.5%	2,656	4,181	3,098	3,965	3,304	3,928
Kentucky	25,562	4.7%	3,652	5,724	5,967	7,655	3,513	2,703
Louisiana	23,118	5.4%	3,979	4,708	7,591	4,338	4,303	2,177
Maine	9,492	5.4%	1,458	1,184	1,657	3,870	459	2,323
Maryland	69,489	2.5%	4,077	12,279	25,346	18,690	9,188	3,987
Massachusetts	86,920	3.6%	10,020	15,380	23,364	19,268	11,093	17,814
Michigan	78,442	2.5%	4,200	14,958	4,047	7,552	39,659	12,227
Minnesota	46,177	3.7%	5,029	11,715	9,580	12,635	4,682	7,565
Mississippi	15,607	3.8%	1,996	1,879	4,100	3,217	1,963	4,449
Missouri	42,296	4.4%	4,430	6,403	20,771	10,877	2,434	1,811
Montana	8,832	3.7%	864	2,289	3,371	1,479	1,302	391
Nebraska	14,476	4.5%	2,044	2,013	3,510	4,263	2,362	2,327
Nevada	13,962	7.3%	3,306	2,865	2,924	4,215	2,355	1,603
New Hampshire	12,138	4.4%	1,300	2,931	2,677	4,676	568	1,287
New Jersey	40,756	6.5%	7,876	9,258	12,317	8,695	3,132	7,355
New Mexico	6,988	7.7%	1,647	2,151	1,494	1,769	866	709
New York	135,393	4.2%	14,432	38,318	37,123	38,704	10,025	11,222

State	Total Energy Efficiency Jobs	2024 Growth	Jobs Added Since 2020	Energy STAR	Traditional HVAC with an Efficiency Component	High Efficiency Hvac and Renewable Heating and Cooling	Advanced Materials	Other
North Carolina	83,490	3.3%	7,017	35,560	20,813	13,516	7,608	5,994
North Dakota	5,583	5.5%	801	646	877	3,362	371	327
Ohio	81,397	3.4%	8,106	16,489	19,465	16,951	18,393	10,099
Oklahoma	15,934	7.2%	3,193	2,094	3,227	8,374	693	1,546
Oregon	41,357	2.7%	3,095	5,819	10,614	10,688	8,917	5,319
Pennsylvania	76,289	4.6%	10,892	16,324	20,976	17,754	13,830	7,404
Rhode Island	11,582	2.2%	955	3,208	1,525	2,385	3,004	1,460
South Carolina	31,530	4.3%	4,715	3,206	3,383	8,377	6,305	10,259
South Dakota	7,898	3.3%	794	1,152	2,194	2,109	803	1,639
Tennessee	53,319	3.6%	5,343	11,645	9,711	18,448	6,818	6,696
Texas	182,506	5.5%	30,395	59,197	38,604	41,596	25,060	18,049
Utah	34,013	3.7%	3,863	7,060	4,647	7,985	9,116	5,203
Vermont	10,515	1.9%	446	1,910	2,256	3,077	1,617	1,655
Virginia	79,241	3.3%	7,736	19,933	18,485	14,826	11,135	14,863
Washington	61,884	2.9%	5,163	15,075	18,606	8,468	7,099	12,635
West Virginia	7,242	4.2%	933	2,021	1,024	1,292	2,521	385
Wisconsin	58,160	2.3%	2,174	21,080	9,711	7,312	18,118	1,938
Wyoming	7,054	1.7%	154	2,767	1,991	1,119	518	659
United States	2,381,746	4.0%	274,572	548,142	609,316	565,595	362,583	296,108

■ Top 10 State

To explore clean energy jobs maps, visit www.cleanjobsamerica.e2.org.

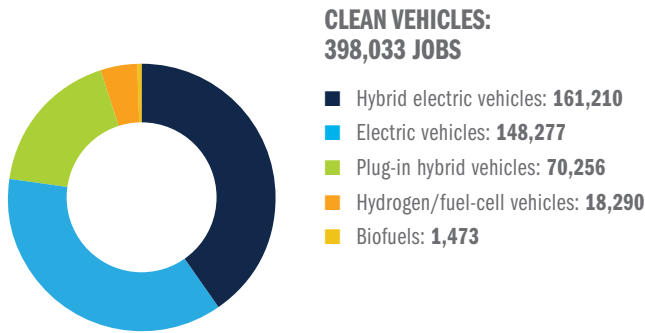
U.S. CLEAN VEHICLE SECTOR 2025



The U.S. clean vehicle sector employed nearly 400,000 workers at the start of 2025, reflecting the country's accelerating transition toward advanced vehicle technologies. Employment is spread across hybrid, plug-in hybrid, battery electric, and hydrogen fuel-cell vehicles, underscoring a rapidly diversifying auto workforce.

Hybrid electric vehicles remain the largest segment, with more than 161,000 jobs, followed closely by electric vehicles (148,000 jobs). Plug-in hybrids support over 70,000 jobs, while hydrogen and fuel-cell vehicles, still an emerging market, employ more than 18,000 workers. These numbers highlight the sector's steady expansion and the growing integration of clean technologies into the broader auto industry.

FIG. 16 // U.S. CLEAN VEHICLE EMPLOYMENT by subsector



* Supply chain breakdowns for the clean vehicle sector and subsectors is unavailable. For a supply chain breakdown of the overall motor vehicle industry, see the 2025 U.S. Energy & Employment Report.

GROWTH TRENDS

Despite a modest dip in 2024 driven by an overall decline across all motor vehicle jobs, clean vehicle jobs have expanded dramatically since 2020, adding nearly 137,000 new positions. Wholesale trade and professional and business services experienced moderate gains, but not enough to overcome such a large drop in the overall vehicle sector. However, the total jobs lost in battery electric jobs (~2,000) and clean vehicle overall jobs (~14,000) was smaller when compared to the rest of the sector's declines. This could be due to consolidation (repair and maintenance), or some offshoring (before tariffs), strike impacts (from 2023), further transition to electric vehicles, etc. for manufacturing.

Growth trends between 2020 and 2024 underscore the clean vehicle sector's momentum. Employment grew more than 52 percent during this period, far outpacing the rest of the motor vehicle sector, which grew by just over 8 percent. Electric vehicles led the surge, with employment increasing 77 percent, followed by hydrogen/fuel-cell vehicles at 82 percent, reflecting strong investment in next-generation technologies. By contrast, gas and diesel vehicle employment

has grown only modestly during the same time period, underscoring the long-term industry shift toward electrification and clean technology.

Prior to policy shifts in 2025 raising taxes and changing regulations on clean vehicles and manufacturing, the clean vehicle sector is poised to remain a cornerstone of U.S. manufacturing. It offers not only economic growth and good-paying jobs but also positions the U.S. as a leader in the global race to decarbonize transportation.

FIG. 17 // U.S. MOTOR VEHICLE EMPLOYMENT by sector growth Q4 2020–2024

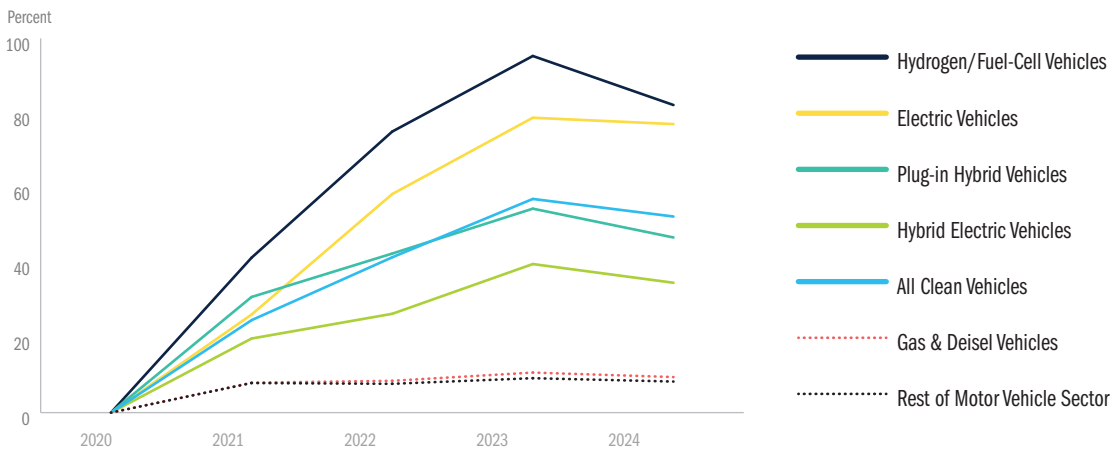


TABLE 18 // U.S. MOTOR VEHICLE EMPLOYMENT by year Q4 2020–2024

Sector	Q4 2024	Q4 2023	Q4 2022	Q4 2021	Q4 2020
All Clean Vehicles	398,033	410,420	369,641	325,844	261,253
Hybrid Electric Vehicles	161,210	167,177	151,224	143,318	119,638
Plug-in Hybrid Vehicles	70,256	73,937	68,194	62,632	47,842
Electric Vehicles	148,277	149,702	132,638	105,694	83,733
Hydrogen/Fuel-Cell Vehicles	18,290	19,604	17,585	14,200	10,040
Rest of Motor Vehicle Sector	2,235,095	2,254,561	2,222,356	2,227,524	2,064,032
Gas & Deisel Vehicles	2,010,088	2,032,007	1,992,702	1,983,055	1,836,018

REGIONAL AND STATE TRENDS

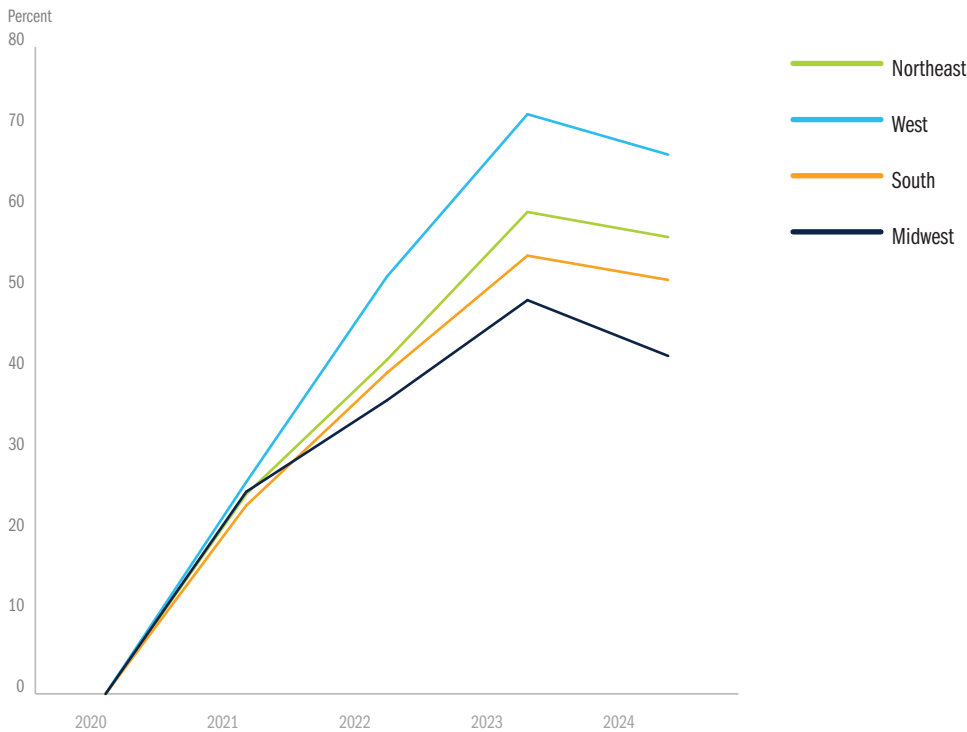
The South (122,800 jobs) and Midwest (122,200 jobs) lead in employment, followed by the West (100,000) and Northeast (53,000). Despite strong long-term growth since 2020, all regions experienced modest declines in 2024, with the Midwest seeing the largest drop (-4.6 percent). Since 2020, however, the South has added more than 41,000 jobs and the West about 40,000, while the Northeast and Midwest added 19,000 and 36,000 respectively. Over the longer term, the West shows the fastest overall growth (66.7 percent since 2020), followed by the Northeast (56.5 percent), South (51.2 percent), and Midwest (41.8 percent), underscoring the sector’s strong trajectory despite short-term fluctuations.

TABLE 19 // U.S. CLEAN VEHICLE EMPLOYMENT by region Q4 2023–2024

Region	Clean Vehicle Jobs	2024 Job Growth	Jobs Added Since 2020
Midwest	122,196	-4.6% (-5,953 jobs)	36,033
South	122,827	-1.9% (-2,396)	41,594
West	100,023	-2.9% (-3,012)	40,016
Northeast	52,987	-1.9% (-1,026)	19,137

*Does not include EV charging subsector because state-by-state numbers are unavailable.

FIG. 18 // U.S. CLEAN VEHICLE EMPLOYMENT by regional growth 2020–2024



* Does not include EV charging subsector because state-by-state figures are unavailable.

California again leads, with more than 70,000 jobs, supported by both manufacturing and adoption incentives. Michigan, Ohio, and Tennessee also remain major hubs due to their auto industry supply chains. Growth since 2020 has been especially strong in the Southeast and Midwest, where manufacturing plants and supplier networks were being repurposed for EV production. Despite some short-term fluctuations in 2024, long-term growth in EV-related employment remained robust at the start of 2025, driven by federal and state incentives and global automaker investments.

TABLE 20 // U.S. CLEAN VEHICLE EMPLOYMENT by sector Q4 2024

State	Total Clean Vehicle Jobs	2024 Growth	Jobs Added Since 2020	Hybrid Electric Vehicles	Plug-In Hybrid Electric Vehicles	Battery Electric Vehicles	Hydrogen/ Fuel Cell Vehicles
Alabama	9,554	-2.6%	3,498	4,318	1,926	2,827	482
Alaska	254	-5.5%	45	115	50	76	13
Arizona	4,370	-1.5%	1,339	1,971	888	1,288	222
Arkansas	2,338	-6.3%	536	1,055	476	688	119
California	72,641	-3.0%	31,232	15,344	6,397	48,965	1,935
Colorado	5,093	-1.1%	1,869	2,293	1,042	1,497	261
Connecticut	3,331	-1.3%	1,430	1,651	471	1,070	140
Delaware	513	-3.7%	155	232	104	151	26
District of Col.	563	7.5%	320	254	114	167	29
Florida	12,365	-4.4%	3,524	5,583	2,502	3,653	627
Georgia	7,675	-1.9%	1,154	3,500	1,498	2,303	374
Hawaii	469	-7.8%	112	213	93	140	23
Idaho	1,288	1.4%	266	581	262	379	66
Illinois	15,735	-0.9%	5,570	7,147	3,250	4,525	813
Indiana	20,331	-6.3%	4,249	9,116	4,148	6,030	1,037
Iowa	4,038	-2.3%	1,299	1,822	820	1,190	205
Kansas	2,798	-1.8%	977	1,261	569	824	143
Kentucky	9,869	-5.6%	2,579	4,486	1,943	2,954	486
Louisiana	2,048	-1.5%	537	930	406	611	102
Maine	886	-0.4%	183	400	179	261	45
Maryland	2,984	-4.0%	345	1,347	483	993	162
Massachusetts	9,378	-0.6%	4,654	2,462	1,106	5,533	277
Michigan	31,771	-6.4%	8,703	14,362	6,394	9,414	1,601
Minnesota	4,537	-4.7%	1,446	2,050	917	1,341	229
Mississippi	3,330	-2.6%	938	1,504	673	984	169
Missouri	9,022	-3.6%	3,358	4,070	1,833	2,661	459
Montana	721	-3.4%	135	326	146	213	36
Nebraska	2,363	-2.0%	754	1,066	480	696	120
Nevada	1,910	-5.8%	637	862	387	563	97
New Hampshire	1,194	-2.3%	369	538	244	351	61
New Jersey	6,196	-2.1%	2,109	2,801	1,246	1,837	312
New Mexico	1,055	-1.7%	309	477	213	312	53
New York	14,617	-2.4%	6,059	7,153	2,119	4,513	831
North Carolina	9,287	-2.5%	2,446	4,199	1,873	2,747	468

State	Total Clean Vehicle Jobs	2024 Growth	Jobs Added Since 2020	Hybrid Electric Vehicles	Plug-In Hybrid Electric Vehicles	Battery Electric Vehicles	Hydrogen/ Fuel Cell Vehicles
North Dakota	888	-2.4%	256	401	180	262	45
Ohio	23,052	-5.1%	7,209	10,392	4,691	6,793	1,175
Oklahoma	2,694	-1.7%	774	1,220	541	799	135
Oregon	3,772	-3.1%	1,305	1,700	767	1,112	192
Pennsylvania	9,946	-1.9%	2,735	4,560	1,906	2,871	608
Rhode Island	461	-8.5%	140	226	86	128	21
South Carolina	6,756	1.0%	1,240	3,056	1,366	1,994	341
South Dakota	1,118	-4.2%	237	503	230	327	57
Tennessee	18,105	-1.0%	8,104	8,143	3,701	5,332	929
Texas	30,298	0.4%	12,939	13,270	6,028	9,490	1,511
Utah	3,487	-4.9%	1,239	1,570	717	1,021	180
Vermont	1,755	-0.9%	331	1,116	500	140	-
Virginia	8,508	-3.2%	3,326	3,835	1,731	2,509	434
Washington	4,530	-1.8%	1,391	2,053	905	1,346	227
West Virginia	1,162	-2.7%	308	525	236	342	59
Wisconsin	6,544	-2.6%	1,975	2,952	1,333	1,925	334
Wyoming	434	-5.4%	137	196	89	128	22
United States	398,033	-3.0%	136,780	161,210	70,256	148,277	18,290

■ Top 10 State

To explore clean energy jobs maps, visit www.cleanjobsamerica.e2.org.

APPENDIX A // U.S. CLEAN ENERGY EMPLOYMENT by sector 2020–2024

on.e2.org/AppendixA

Source: 2025 Clean Jobs America (CJA), E2, September 2025.

APPENDIX B // U.S. CLEAN ENERGY EMPLOYMENT by subsectors 2020–2024

on.e2.org/AppendixB

Source: 2025 Clean Jobs America (CJA), E2, September 2025.

*EV charging data only available for 2021, 2022, 2023, 2024.

APPENDIX C // U.S. CLEAN ENERGY EMPLOYMENT by industry 2020–2024

on.e2.org/AppendixC

Source: 2025 Clean Jobs America (CJA), E2, September 2025.

APPENDIX D // U.S. FOSSIL FUEL EMPLOYMENT by sector 2020–2024

on.e2.org/AppendixD

Source: 2025 U.S. Energy and Employment Report (USEER), Department of Energy (DOE), September 2025.

APPENDIX E // U.S. MOTOR VEHICLE EMPLOYMENT by sector 2020–2024

on.e2.org/AppendixE

Source: 2025 U.S. Energy and Employment Report (USEER), Department of Energy (DOE), September 2025.

APPENDIX F // U.S. TOTAL ENERGY INDUSTRY EMPLOYMENT 2020–2024

on.e2.org/AppendixF

Source: 2025 U.S. Energy and Employment Report (USEER), Department of Energy (DOE), September 2025.

APPENDIX G // U.S. Q4 ECONOMYWIDE EMPLOYMENT 2020–2024

on.e2.org/AppendixG

Source: Quarterly Census of Employment and Wages, United States Bureau of Labor Statistics (BLS) 2023 and 2024 Q4 employment, all ownerships (accessed August 2025).

Endnotes

- 1 Unless otherwise stated, all employment data is based on the 2025 U.S. Energy and Employment Report (USEER), September 2025, Department of Energy (DOE).
- 2 Quarterly Census of Employment and Wages, United States Bureau of Labor Statistics (BLS) 2020, 2021, 2022, 2023 and 2024 Q4 employment, all ownerships (accessed August 2025).
- 3 Global energy investment set to rise to \$3.3 trillion in 2025 amid economic uncertainty and energy security concerns, International Energy Agency, June 2025, available at <https://www.iea.org/news/global-energy-investment-set-to-rise-to-3-3-trillion-in-2025-amid-economic-uncertainty-and-energy-security-concerns>.
- 4 Assessing Impacts Of The 2025 Reconciliation Bill On U.S. Energy Costs, Jobs, Health, And Emissions, Energy Innovation, May 2025, available at <https://energyinnovation.org/report/assessing-impacts-of-the-2025-reconciliation-bill-on-u-s-energy-costs-jobs-health-and-emissions/>.
- 5 Analysis: Reconciliation Bill Risks Devastating Job Losses in Every U.S. State if Senate Fails to Change Course, Solar Energy Industries Association, June 2025, available at <https://seia.org/news/bill-risks-devastating-job-losses/>.
- 6 May 2024 National Occupational Employment and Wage Estimates, Bureau of Labor Statistics (BLS). Available at <https://www.bls.gov/oes/tables.htm>.
- 7 Ibid.
- 8 Ibid.
- 9 Ibid.
- 10 Information on the representation of people with disabilities, lesbian, gay, bisexual, transgender, intersex, and queer people, immigrants, religious minorities, and young people 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.

On Diversity & Equity

A good economy and good environment should be for all. For that reason, E2 supports policies that advance diversity and equity and ensures that the benefits of a clean economy—jobs, savings, opportunities, health—are extended to all communities. Environmental justice is considered in every policy on which we work, and diversity and inclusivity are tantamount in everything we do. Internally, we will prioritize making our membership more representative of America as a whole and addressing internal biases that can keep us from fulfilling our goals.

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E2 is a national, nonpartisan group of more than 11,000 business leaders, investors and others who advocate for smart policies that are good for the economy and good for the environment. E2 members have founded or funded more than 2,500 companies, created more than 600,000 jobs, and manage more than \$100 billion in venture and private equity capital.