

CALIFORNIA CLEAN ENERGY JOBS GROW 1.3%; POISED FOR GREATER GROWTH

CLEAN ENERGY OVERALL: California's clean energy workforce added nearly 7,300 new workers in 2024, adding jobs more than three times faster than the rest of the state's economy, which grew just 0.4 percent. The state leads the U.S. in total clean energy jobs, with 552,300 workers employed across clean energy technologies—and nearly twice as many as the second ranked state (Texas). There are jobs across solar, wind, energy efficiency, clean vehicles, batteries and other sectors. The bulk of the workforce are employed in the construction and professional services industries. In 2024, clean energy employed about seven times more workers than the fossil fuel industry (80,600) in the state.

The data in this report predates the July 2025 passage of the federal “One Big Beautiful Bill Act,” which is expected to slow clean energy job growth nationwide. Still, the job numbers point to a resilient and essential clean energy workforce. Increased energy demand and the clean energy-related policies the state enacted during the 2025 legislative session position California's clean energy economy to play an important role in shaping the state's economic future.

KEY FINDINGS

1st

for most clean energy jobs in the U.S. with over **552,300** employed

3x

faster-growth of clean energy jobs than the rest of California's economy

79%

of all new energy jobs are in clean energy

9.4%

of clean energy jobs held by veterans

7,300

new clean energy jobs added last year

SECTOR SUMMARY HIGHLIGHTS



RENEWABLE GENERATION: Renewable generation lost about 1,000 jobs in 2024, dropping California's renewable generation workforce to 135,392 jobs—still by far the largest in the U.S. Solar and wind account for the majority of the sector's workforce with 116,380 jobs and 8,384 jobs respectively.



ENERGY EFFICIENCY: Energy efficiency continues to be California's largest clean energy sector and the largest efficiency workforce in the nation. The sector added nearly 10,000 workers, growing 3.3% percent, bringing it to 312,090 jobs overall.



STORAGE AND GRID MODERNIZATION: Jobs in battery, storage, and grid modernization grew 3.4% percent in 2024, making the sector the fastest growing clean energy sector in the state. California's storage and grid modernization workforce totaled 26,231 in 2024—the largest in the nation.



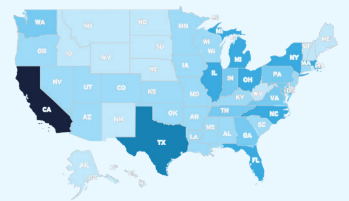
CLEAN VEHICLES: The clean vehicles sector in California's clean energy industry, shrunk three percent in 2024 and now employs a total of 72,641 workers. While the sector lost jobs overall, employment in clean vehicles has grown 75 percent since 2020 compared to the gas and diesel vehicle sector has lost jobs every year since 2021.



BIOFUELS: California's biofuels workforce makes up the smallest clean energy sector in the state with 5,972 total jobs. The biofuel workforce in 2024 stayed steady, with a growth rate of 0.0 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.



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CALIFORNIA CLEAN ENERGY ECONOMY—AT A GLANCE

FIG 1 // CALIFORNIA CLEAN ENERGY EMPLOYMENT by sectors

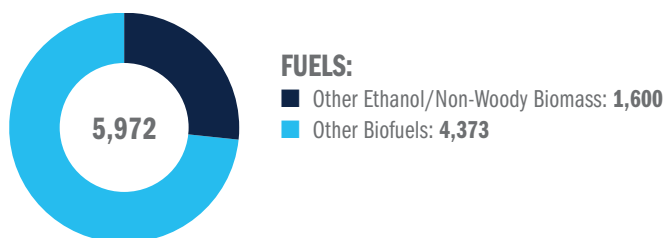
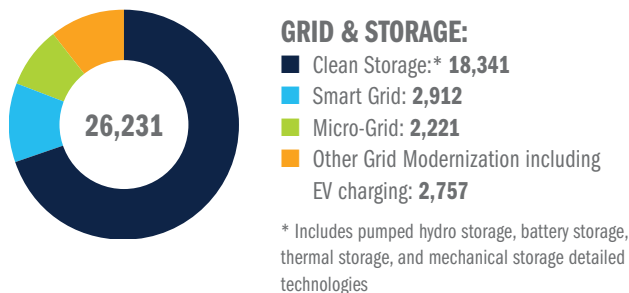
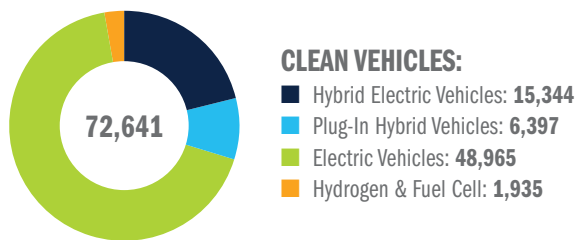
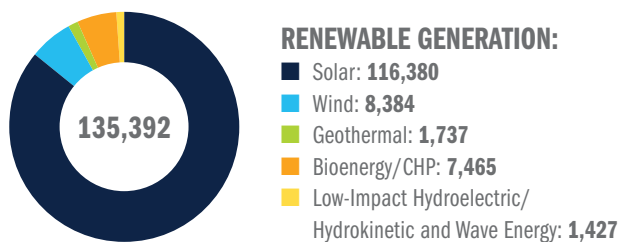
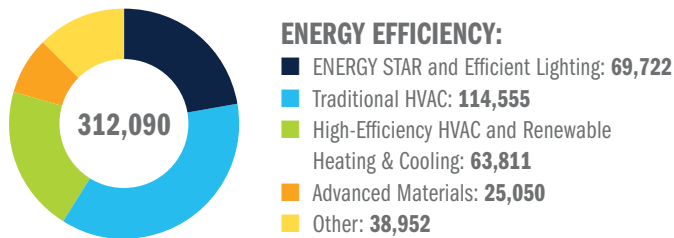


FIG 2 // CALIFORNIA CLEAN ENERGY EMPLOYMENT by value chain

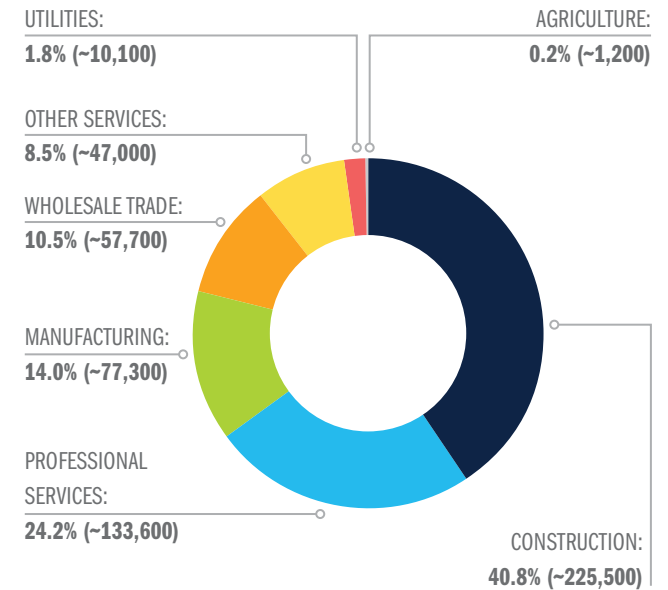
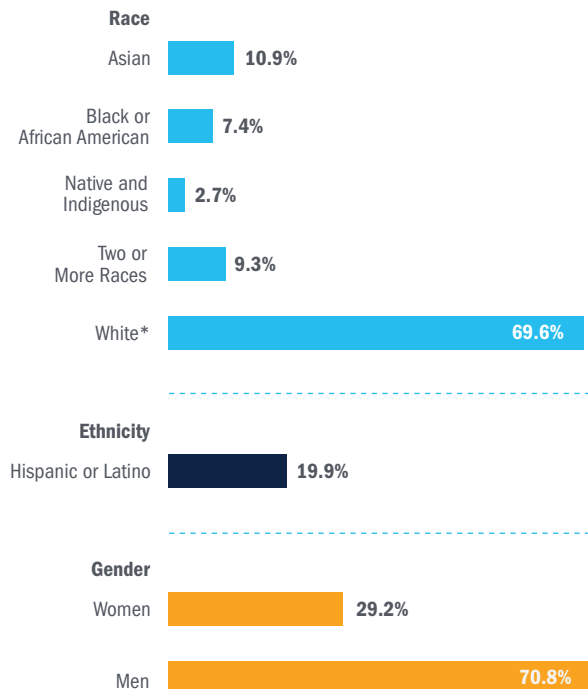


FIG 3 // CALIFORNIA CLEAN ENERGY EMPLOYMENT by demographics²



* Includes non-Hispanic and Hispanic whites

Table 1 // CALIFORNIA ENERGY EMPLOYMENT jobs added Q4 2023–2024

Sector	2024 Growth	Jobs Added	Jobs Added Since 2020
Renewable Generation	-0.9%	-1,119	4,989
Storage and Grid	3.4%	852	3,593
Energy Efficiency	3.3%	9,914	28,251
Biofuels	0.0%	-1	376
Clean Vehicles	-3.0%	-2,282	31,232
TOTAL	1.3%	7,283	68,440

FIG 4 // CALIFORNIA ENERGY EMPLOYMENT by clean energy sector employment growth

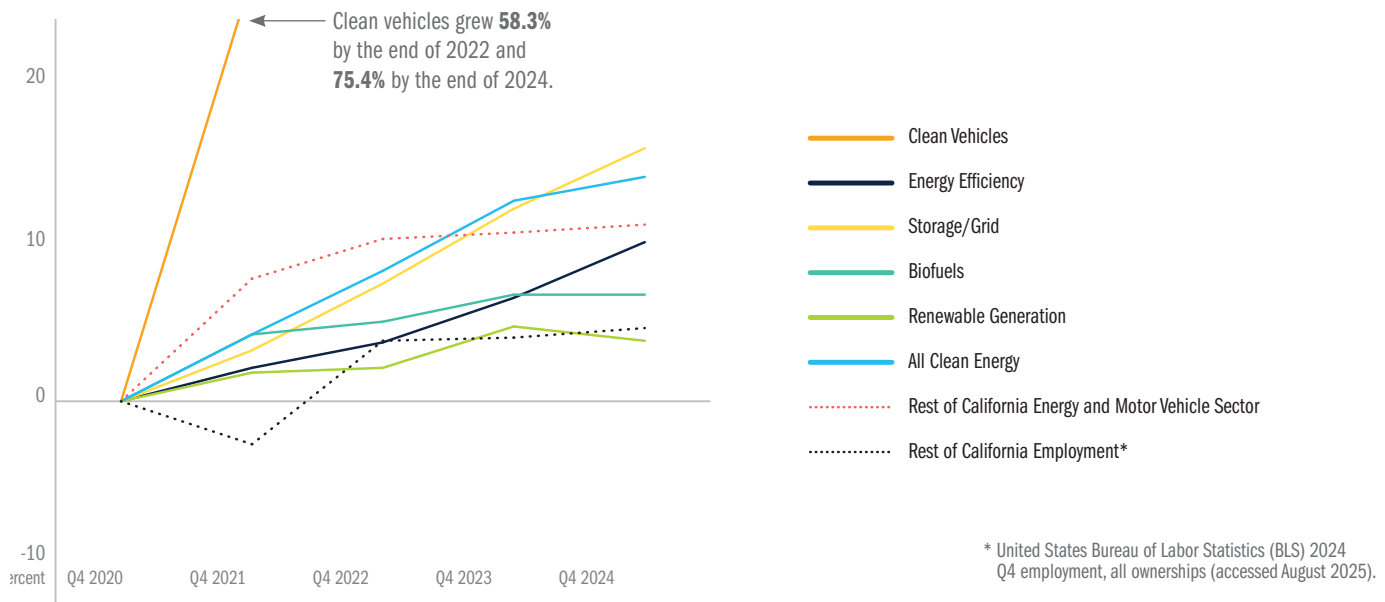


Table 2 // CALIFORNIA CLEAN ENERGY EMPLOYMENT by year Q4 2020–2024

Sector	Q4 2024	Q4 2023	Q4 2022	Q4 2021	Q4 2020
All Clean Energy	552,326	545,043	523,334	504,219	483,886
Renewable Generation	135,392	136,591	133,188	132,783	130,403
Biofuels	5,972	5,974	5,877	5,832	5,597
Storage and Grid	26,231	25,379	24,307	23,357	22,638
Energy Efficiency	312,090	302,176	294,396	289,788	283,839
Clean Vehicles	72,641	74,923	65,567	52,459	41,408
Rest of California Energy and Motor Vehicle Sector*	18,230,808	18,146,497	18,066,913	17,641,250	16,401,290
Rest of California Energy and Motor Vehicle Employment	941,496	932,273	909,876	885,539	856,109

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

COUNTY DATA

There are clean energy jobs in every county in California. Eighteen California counties made the top 100 list for most clean energy jobs in the nation. The top five counties are Los Angeles (102,461 jobs), Orange (59,829 jobs), San Diego (53,888 jobs), Santa Clara (49,446 jobs), and Alameda (37,443 jobs). Imperial (13.2%), Placer (13.1%) and Amador (10.5%) were in the counties in the state with greatest growth in clean energy jobs. The counties with the highest density of clean energy jobs (per 1,000 residents) were Yolo (63) and San Luis Obispo (61) counties.

POLICIES MATTER

While federal funding cuts are creating headwinds for the industry, California lawmakers are continuing to keep the state as a clean energy leader. During the 2025 California session, the legislature passed, and Governor Newsom signed a suite of landmark climate bills that will secure billions in community investment, lower energy costs for ratepayers, strengthen grid reliability, and protect and expand the jobs of the 552,000 Californians who work in clean energy related occupations.

Central to the far-reaching climate and clean energy package passed by California lawmakers was an extension of the state's landmark Cap-and-Invest program (formerly Cap-and-Trade) through 2045, and also the groundbreaking Pathways Initiative legislation that clears the way for an expanded Western regional electricity grid designed to reduce electricity costs and

pollution and improve grid reliability by making it easier to move renewable energy throughout the West.

California is positioned to continue to innovate and invest in a clean energy future that supports strong economic growth.

Here are some broad priority policy objectives:

- // Accelerate the buildout of clean energy infrastructure in partnership with local communities and Tribal nations.
- // Reduce electricity rates to provide necessary market signals that facilitate the transition off of fossil fuels.
- // Develop new policy tools for regulating and funding the electrification of transportation and buildings.

// Maximize the State Innovation Fund for investments in new technologies that can catalyze growth in the clean energy economy.

// Engage with state administration, stakeholders and allies to ensure there are no rollbacks to state policy particularly in light of federal chaos.

This state-level climate leadership strengthens California's role as a clean energy engine and innovation force for the U.S. economy, demonstrates how state action can drive critical climate action in the face of federal setbacks, and leverage California's economic might to drive impact beyond our borders.

CALIFORNIA CLEAN ENERGY ECONOMY—APPENDIX

Table A1 // CALIFORNIA 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
Alameda	37,443	8,753	1,685	163	16,899	9,942	-0.9%	48
Alpine	16	12	<10	<10	<10	<10	-4.3%	11
Amador	222	47	<10	<10	105	58	10.5%	18
Butte	2,048	618	28	26	1,085	291	-0.2%	26
Calaveras	234	33	<10	<10	172	25	0.4%	23
Colusa	72	11	<10	11	12	16	-16.7%	8
Contra Costa	15,761	5,248	366	110	8,560	1,477	0.8%	42
Del Norte	114	<10	<10	<10	88	11	-1.0%	14
El Dorado	1,796	396	48	24	1,082	246	3.5%	31
Fresno	9,240	1,853	196	126	5,184	1,881	0.6%	22
Glenn	94	14	<10	<10	51	12	-13.6%	10
Humboldt	917	145	13	<10	583	171	-0.8%	18
Imperial	1,556	829	16	93	454	164	13.2%	24
Inyo	178	95	<10	<10	47	24	-11.5%	23
Kern	9,204	3,410	264	140	4,056	1,334	1.0%	27
Kings	438	49	<10	13	252	116	-4.5%	9
Lake	531	338	<10	<10	148	39	6.2%	31
Lassen	99	18	<10	<10	43	24	-2.2%	11
Los Angeles	102,461	14,658	5,204	845	65,146	16,609	1.0%	22
Madera	861	148	<10	16	525	163	5.1%	15
Marin	4,419	1,221	186	19	2,559	435	3.7%	40
Mariposa	79	25	<10	<10	29	<10	2.5%	14
Mendocino	638	197	<10	<10	336	90	6.8%	20
Merced	1,462	507	13	38	569	335	13.3%	18
Modoc	39	<10	<10	<10	<10	<10	-3.1%	15
Mono	103	11	<10	<10	81	<10	0.5%	13
Monterey	2,990	575	41	134	1,749	491	-4.5%	17
Napa	1,429	149	26	20	1,096	137	1.2%	19
Nevada	1,078	195	18	<10	706	155	1.4%	31
Orange	59,829	12,538	2,615	506	36,848	7,323	2.2%	36
Placer	7,539	2,210	702	17	3,768	841	13.1%	40
Plumas	164	56	<10	<10	84	15	8.4%	26
Riverside	26,463	6,907	1,091	251	13,944	4,270	-1.2%	31
Sacramento	20,214	4,612	436	769	11,853	2,545	-0.2%	28
San Benito	383	16	<10	<10	298	56	1.2%	22
San Bernardino	18,054	2,369	786	94	9,550	5,255	2.1%	21
San Diego	53,888	14,213	1,945	472	32,746	4,512	-0.1%	35
San Francisco	36,479	16,381	1,119	211	18,173	594	1.0%	52
San Joaquin	6,919	1,145	950	212	2,995	1,617	4.6%	24

County Name	Total Clean Energy	Renewable Gen.	Storage/Grid	Clean Fuels	Energy Efficiency	Clean Vehicles	Job Growth	Workers Per 1K Jobs
San Luis Obispo	7,212	4,488	86	25	2,146	468	-4.1%	61
San Mateo	12,795	2,235	535	96	8,675	1,253	0.8%	31
Santa Barbara	4,652	660	110	82	3,276	525	-1.1%	22
Santa Clara	49,446	15,451	3,138	207	28,352	2,298	0.8%	44
Santa Cruz	2,555	441	60	61	1,413	580	1.0%	25
Shasta	1,771	429	29	11	976	326	7.0%	25
Sierra	11	<10	<10	<10	<10	<10	-6.0%	19
Siskiyou	260	68	<10	<10	153	31	-1.4%	19
Solano	3,140	164	237	23	2,054	662	1.7%	22
Sonoma	7,997	3,033	156	39	3,941	828	-0.3%	39
Stanislaus	4,507	512	87	431	2,641	836	-0.2%	23
Sutter	547	32	25	18	338	134	-2.2%	17
Tehama	254	46	17	<10	113	64	4.8%	13
Trinity	31	11	<10	<10	<10	<10	3.2%	11
Tulare	2,928	368	41	329	1,585	606	-1.8%	17
Tuolumne	345	65	<10	<10	197	74	6.7%	19
Ventura	8,594	1,296	222	147	5,718	1,210	-1.2%	26
Yolo	6,839	4,947	124	27	1,255	485	-3.5%	63
Yuba	264	58	<10	<10	165	33	1.3%	13
N/A	9,676	1,066	497	110	7,073	930	6.2%	16

Note: 9,676 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), October 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 on 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



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