Employment Trends: Findings from 2019 U.S. Energy & Employment report

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National Association of State Energy Officials

The 2019 U.S. Energy & Employment Report

A JOINT PROJECT OF NASEO & EFI



2019 U.S. Energy and Employment Report

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USEnergyJobs.org



Solar Electric Power Generation—BLS Q3

- U.S. solar jobs, Q3, 2017— 2,848.
- North Carolina—Q3, 2017— 163.
- 2017 U.S. solar jobs— 349,725 (250,271 more than 50%.)
- 2017 N.C. solar jobs—9,173 (7,622 more than 50%.)

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Quarterly Census of Employment and Wages

Private, NAICS 221114 Solar electric power generation, All States and U.S. 2017 Third Quarter, All establishment sizes Source: Quarterly Census of Employment and Wages - Bur.

Source: Quarterly Census of Employment and Wages - Bureau of Labor Statistics

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Download Source Data Build Anoth	her Table					rows per page			
State	Quarterly Establishments	July Employment	August Employment	September Employment	Totai Quarteriy Wages	Average Weekly Wage	September Employment Location Quotient	Total Quarterly Wages Location Quotient	
X X	VA	V A	V A	V A	N N	V A	¥ .	Y A	
U.S. TOTAL	281	2,835	2,879	2,848	\$71,773,574	\$1,934	1.00	1.00	
Arizona	11	383	406	390	9,745,588	1,908	7.17	7.76	
California	52	606	614	609	19,200,736	2,423	1.80	1.90	
Colorado	7	150	157	157	4,166,883	2,072	3.03	3.03	
District of Columbia	3	5	5	5	209,016	3,216	0.33	0.32	
Florida	31	241	241	214	4,770,021	1,582	1.31	1.30	
Georgia	7	15	12	15	254,116	1,396	0.18	0.12	
Hawaii	7	121	124	122	1,796,525	1,130	9.46	5.95	
Illinois	12	20	23	21	469,584	1,693	0.18	0.15	
Massachusetts	19	86	90	79	1,524,222	1,379	1.12	0.69	
Michigan	4	4	3	3	47,837	1,104	0.04	0.02	
New Jersey	16	118	118	132	2,711,498	1,700	1.66	1.21	
New Mexico	7	82	86	87	1,380,898	1,250	5.41	4.24	
New York	16	80	70	78	3,747,391	3,793	0.42	0.68	
North Carolina	15	160	157	163	3,117,744	1,499	1.90	1.63	
Ohio	3	38	39	38	1,347,404	2,704	0.36	0.56	
South Carolina	10	69	66	71	1,051,640	1,178	1.77	1.28	
Texas	10	138	141	141	4,003,433	2,200	0.60	0.66	
Utah	12	106	112	107	5,033,013	3,574	3.76	8.16	
Virginia	7	13	17	17	215,182	1,057	0.22	0.11	
Footnotes: This table excludes rows with suppressed employment and wages									
						Page 1	of 1		

Private, NAICS 221114 Solar electric power generation, All States and U.S. 2017 Third Quarter, All establishment sizes



Overview—2019 USEER

- The USEER is based on an annual supplemental employer survey, integrated with the BLS Quarterly Census on Employment and Wages.
- It studies employment in the following sectors:
 - Fuels
 - Electric Power Generation (EPG)
 - Transmission, Distribution, and Storage (TDS)
 - Energy Efficiency (EE)
 - Motor Vehicles
- Fuels, EPG, and TDS make up the Traditional Energy Sector.



USEER Content

 The survey covers direct employment in 53 different energy, energy efficiency and motor vehicle technologies across 186 NAICS codes located in seven broad industrial classifications.

• The survey determines:

- Employment numbers
- Employer hiring expectations for the next 12 months
- Hiring difficulty by technology and industrial classification
- High demand jobs and skills gaps
- Workforce demographics by race, ethnicity, gender, and veteran's status
- Geographic location by state, county, congressional and legislative districts, and MSA
 of each technology and industrial classifications



2018--Some Examples of Undercounting

Electric Power Generation:

National

Electric Power Generation:

North Carolina

Fuel Source	QCEW-BLS	2018 USEER	Fuel Source	QCEW-BLS	2018 USEER
Fossil fuels	92,817	212,669	Fossil fuels	n/a*	5,324
Nuclear	44,753	64,743	Nuclear	n/a*	1,697
Wind	6,050	107,444	Wind	n/a*	759
Solar	2,848	349,725 (250,271)	Solar	163	9,173 (7,622)
СНР	1,649	27,239	СНР	n/a*	n/a
Hydro	17,501	66,872	Hydro	60	551
Geothermal	1,117	7,927	Geothermal	n/a*	344
Biomass	1,693	12,385	Biomass	61	1,528

*The federal government is required to suppress data when it would reveal an employer's identity.



- "Energy Efficiency employment covers both the production and installation of energy-saving products and the provision of services that reduce end-use energy consumption. These jobs, as specified in the current survey, include the manufacture of ENERGY STAR[®]-labeled products, as well as building design and contracting services that provide insulation, improve natural lighting, and reduce overall energy consumption across homes and businesses."
- Does not include energy efficiency employment in manufacturing processes.
- Includes CHP and waste heat to power, but in EPG numbers.



U.S. Economy Has Become More Energy Efficient



- Total US energy expenditures peaked in 2005 at \$1.6 Trillion and have now fallen by 37% or \$600B.
- Energy has fallen from 14% of US GDP in 1980 to 5.6% in 2016.
- Meanwhile US GDP has grown by 665%.





2019 Key Takeaways



226,000 New Jobs in 2018 in 5 Sectors

- Traditional Energy and Energy Efficiency added 152,000 jobs in 2018, out performing the economy for the 4th year in a row by 0.5 percentage point, 2.3% to 1.8%.
- Fuels production added 52,000 new jobs, 33,000 in oil and 17,000 in natural gas, while coal mining held firm.
- Generation declined by 8,000 jobs with coal, solar, and nuclear declining, partially offset by natural gas, wind, CHP, and geothermal
- TDS added 33,000 new jobs, concentrated in utility projects and storage.
- Energy efficiency added 76,000 jobs; 275,000 in last 3 years
- Motor vehicles added 74,000 jobs, while alternative fuel vehicles bounced back, adding almost 34,000 jobs.



Energy Efficiency Jobs by Technology & Industry--2018

Table 44.

Energy Efficiency Sector – Employment by Detailed Technology Application and Industry, Q2 2018

	Total	Construction Manu- facturin		Wholesale Trade	Professional Services	Other Services	
ENERGY STAR Appliances	167,828	86,547	17,350	12,852	46,671	4,408	
LED, CFL and Other Efficient Lighting	370,562	184,471	49,408	39,266	93,901	3,517	
Traditional HVAC goods, control systems, and services	582,108	322,181	33,023	54,354	156,326	16,224	
ENERGY STAR/ High Efficiency heating and cooling equipment	427,503	275,285	74,791	26,362	46,421	4,644	
Renewable Heating and Cooling (including Solar Thermal)	128,896	82,513	7,823	7,865	29,909	785	
Advanced Building Materials/Insulation	357,765	204,245	74,377	22,462	54,297	2,384	
Recycled building materials	82,423	46,921	11,844	2,801	17,849	3,007	
Reduced water consumption products and appliances	91,555	58,069	6,109	5,291	20,728	1,358	
Other	116,225	35,550	46,856	9,086	18,379	6,354	
TOTAL	2,324,865	1,295,782	321,581	180,339	484,481	42,681	

Overview

- Construction is the largest industry sector of EE at 55.7%.
- Professional Services is second at 20.8%.
- Manufacturing is third at 13.8%
- The largest technology is Traditional HVAC at 25.0%
- EnergyStar/High efficiency HVAC is second at 18.4%.
- LED, CFL, and other efficient lighting is third at 15.9%.



Year-over-Year Growth in Energy Efficiency





Projected EE Construction Job Growth vs. Actual

Anticipated Employer Growth Has Been Challenged by Hiring Difficulty in Construction





Pathways for Deep Decarbonization



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The Energy Futures Initiative would like to thank the following organizations for sponsoring this report.

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California Natural Gas Vehicle Coalition

Renewable Natural Gas Coalition



Energy Efficiency Provides the Largest Potential for GHG Reductions by 2030



Some decarbonization strategies are applicable to multiple sectors of the economy. Of these, energy efficiency/demand reduction is most significant, representing the largest emissions reduction potential and cutting across all five sectors. Source: EFI, 2019



Energy Efficiency Jobs Generally Pay a Premium, but Location & Unions Count.

Description	U.S. Median BLS Hourly Earnings	U.S. I Hourly	Median EE y Earnings	Wage or D	Premium Discount	Minr	iesota EE	Ĩ	MN Wage Premium o Discoun
Boilermakers	\$ 29.93	\$	30.83	\$	0.90	\$	48.64	\$	18.71
Brickmasons and Blockmasons	\$ 23.93	\$	24.65	\$	0.72	\$	38.89	\$	14.96
Carpenters	\$ 21.71	\$	22.36	\$	0.65	\$	35.28	\$	13.57
Construction Laborers	\$ 16.60	\$	17.10	\$	0.50	\$	26.98	\$	10.38
Operating Engineers and Others	\$ 22.61	\$	23.29	\$	0.68	\$	36.74	\$	14.13
Electricians	\$ 26.01	\$	26.79	\$	0.78	\$	42.27	\$	16.26
Insulation Workers, Floor, Ceiling, and Wall	\$ 17.81	\$	18.34	\$	0.53	\$	28.94	\$	11.13
Insulation Workers, Mechanical	\$ 21.90	\$	22.56	\$	0.66	\$	35.59	\$	13.69
Plumbers and Pipefitters	\$ 25.28	\$	26.04	\$	0.76	\$	41.08	\$	15.80
Roofers	\$ 18.74	\$	19.30	\$	0.56	\$	30.46	\$	11.72
Sheet Metal Workers	\$ 23.07	\$	23.76	\$	0.69	\$	37.49	\$	14.42
Structural Iron and Steel Workers	\$ 25.30	\$	26.06	\$	0.76	\$	41.12	\$	15.82



2019 USEER

NASEO National Association of State Energy Officials

Thank you!

Questions?

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Download the 2019 USEER and State Fact Sheets at: <u>www.usenergyjobs.org</u>

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