

GREEN JOBS REPORT

VENTURA COUNTY
2018



VENTURA COUNTY COMMUNITY COLLEGE DISTRICT
ECONOMIC & WORKFORCE
DEVELOPMENT DIVISION

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Ventura County Green Jobs Report

Starting in 2010, the federal Bureau of Labor Statistics received funding to begin collecting data on green jobs.

Green jobs are defined according to two measures:

1. Output Approach: Jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources. There are five categories:

- *Energy from renewable sources.* Electricity, heat, or fuel generated from renewable sources. These energy sources include wind, biomass, geothermal, solar, ocean, hydropower, and landfill gas and municipal solid waste.
- *Energy efficiency.* Products and services that improve energy efficiency. Included in this group are energy-efficient equipment, appliances, buildings, and vehicles, as well as products and services that improve the energy efficiency of buildings and the efficiency of energy storage and distribution, such as Smart Grid technologies.
- *Pollution reduction and removal, greenhouse gas reduction, and recycling and reuse.* These are products and services that:
 - Reduce or eliminate the creation or release of pollutants or toxic compounds, or remove pollutants or hazardous waste from the environment.
 - Reduce greenhouse gas emissions through methods other than renewable energy generation and energy efficiency, such as electricity generated from nuclear sources.
 - Reduce or eliminate the creation of waste materials; collect, reuse, remanufacture, recycle, or compost waste materials or wastewater.
- *Natural resources conservation.* Products and services that conserve natural resources. Included in this group are products and services related to organic agriculture and sustainable forestry; land management; soil, water, or wildlife conservation; and stormwater management.
- *Environmental compliance, education and training, and public awareness.* These are products and services that:
 - Enforce environmental regulations.
 - Provide education and training related to green technologies and practices.
 - Increase public awareness of environmental issues.

2. Process Approach: Jobs in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources. There are four main categories:



- *Energy from renewable sources.* Generating electricity, heat, or fuel from renewable sources primarily for use within the establishment. These energy sources include wind, biomass, geothermal, solar, ocean, hydropower, and landfill gas and municipal solid waste.
- *Energy efficiency.* Using technologies and practices to improve energy efficiency within the establishment. Included in this group is cogeneration (combined heat and power).
- *Pollution reduction and removal, greenhouse gas reduction, and recycling and reuse.* Using technologies and practices within the establishment to:
 - Reduce or eliminate the creation or release of pollutants or toxic compounds, or remove pollutants or hazardous waste from the environment.
 - Reduce greenhouse gas emissions through methods other than renewable energy generation and energy efficiency.
 - Reduce or eliminate the creation of waste materials; collect, reuse, remanufacture, recycle, or compost waste materials or wastewater.
- *Natural resources conservation.* Using technologies and practices within the establishment to conserve natural resources. Included in this group are technologies and practices related to organic agriculture and sustainable forestry; land management; soil, water, or wildlife conservation; and stormwater management.

Environmentally friendly production processes may include the following:

- Conducting research and development of processes to conserve energy or natural resources or to reduce pollution (for example, a chemical engineer who develops a chemical manufacturing process that results in lower air pollution emissions),
- Planning, implementing, and monitoring of these processes (for example, a worker who operates renewable energy generation equipment to produce electricity for use within the establishment),
- Maintaining or installing equipment or infrastructure associated with the processes (for example, a control valve installer in a manufacturing plant who installs systems that reduce water pollution emissions), and
- Measuring and controlling outputs of the process (for example, a chemical technician who tests air samples for pollution emissions levels).



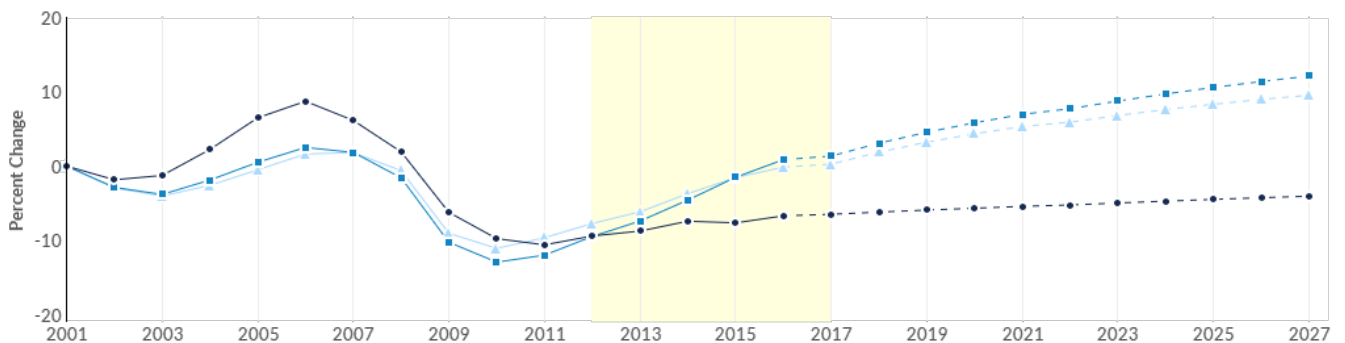
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|---|---|---|
| 57,975 Jobs (2012) 6% below National average | 3.2% % Change (2012-2017) Nation: 8.6% | \$21.72/hr Median Hourly Earnings Nation: \$20.22/hr |
|---|---|---|

In 2011, the U.S. economy had 3.4 million jobs associated with the production of green goods and services, which represented 2.6 percent of total employment and resulted from an increase of 157,746 jobs from 2010.

Number and percent distribution of establishments in industries where green goods and services are classified, by industry sector, 2009

| Industry sector | Number of establishments | Percent distribution |
|--|--------------------------|----------------------|
| Construction | 820,700 | 38.1 |
| Professional and business services | 779,100 | 36.2 |
| Other services (Repair and maintenance services, Professional organizations) | 183,300 | 8.5 |
| Natural resources and mining | 88,700 | 4.1 |
| Information | 77,000 | 3.6 |
| Manufacturing | 77,700 | 3.6 |
| Trade, transportation, and utilities | 49,300 | 2.3 |
| Public administration | 42,100 | 2.0 |
| Education and health services | 26,400 | 1.2 |
| All other sectors | 10,400 | 0.5 |
| Total | 2,154,700 | 100.0 |

Regional Job Growth Trends



| Region | 2012 Jobs | 2017 Jobs | Change | % Change |
|------------------|------------|------------|-----------|----------|
| ● Ventura County | 57,975 | 59,845 | 1,870 | 3.2% |
| ● State | 2,802,631 | 3,137,570 | 334,939 | 12.0% |
| ● Nation | 25,685,207 | 27,905,578 | 2,220,371 | 8.6% |



| Description | 2017 Jobs | 2012 - 2017 Change | 2012 - 2017 % Change | Annual Openings | Competitive Effect | 2017 Net Commuters | Annual Replacement Jobs | Median Hourly Earnings | Regional Completions (2015) | 2017 Resident Workers |
|--|-----------|--------------------|----------------------|-----------------|--------------------|--------------------|-------------------------|------------------------|-----------------------------|-----------------------|
| General and Operations Managers | 5,376 | 262 | 5% | 481 | (194) | (931) | 421 | \$49.97 | 850 | 6,307 |
| Marketing Managers | 470 | (26) | (5%) | 42 | (77) | (159) | 40 | \$57.73 | 24 | 629 |
| Industrial Production Managers | 380 | (10) | (3%) | 28 | (29) | (65) | 27 | \$46.60 | 760 | 445 |
| Transportation, Storage, and Distribution Managers | 250 | (1) | (0%) | 21 | (25) | (67) | 19 | \$45.81 | 824 | 317 |
| Construction Managers | 932 | 19 | 2% | 81 | (18) | (84) | 62 | \$32.10 | 760 | 1,016 |
| Architectural and Engineering Managers | 534 | 0 | 0% | 38 | (26) | (66) | 36 | \$62.74 | 11 | 600 |
| Natural Sciences Managers | 426 | (29) | (6%) | 37 | (53) | 97 | 35 | \$59.99 | 896 | 329 |
| Buyers and Purchasing Agents, Farm Products | 70 | 7 | 11% | 9 | 3 | 6 | 8 | \$32.64 | 0 | 64 |
| Wholesale and Retail Buyers, Except Farm Products | 272 | 9 | 3% | 33 | (11) | (149) | 30 | \$22.44 | 0 | 421 |
| Financial Analysts | 433 | (38) | (8%) | 39 | (74) | (256) | 37 | \$37.50 | 60 | 689 |
| Personal Financial Advisors | 845 | 28 | 3% | 71 | (76) | (159) | 61 | \$31.39 | 60 | 1,004 |
| Architects, Except Landscape and Naval | 153 | (2) | (1%) | 13 | (22) | (135) | 11 | \$27.89 | 0 | 288 |
| Landscape Architects | 43 | 1 | 2% | 4 | (3) | (20) | 3 | \$25.17 | 0 | 63 |
| Aerospace Engineers | 164 | (4) | (2%) | 10 | (5) | (83) | 10 | \$63.94 | 0 | 247 |
| Chemical Engineers | 150 | 5 | 3% | 11 | (0) | 42 | 9 | \$47.46 | 0 | 108 |
| Civil Engineers | 606 | 24 | 4% | 48 | (13) | (116) | 42 | \$49.43 | 0 | 722 |
| Electrical Engineers | 402 | (19) | (5%) | 27 | (34) | (117) | 26 | \$49.09 | 0 | 519 |
| Electronics Engineers, Except Computer | 1,253 | 43 | 4% | 93 | 27 | 198 | 77 | \$51.13 | 0 | 1,055 |
| Environmental | 163 | 3 | 2% | 12 | (10) | (2) | 10 | \$38.79 | 0 | 165 |

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|--|-----|------|-------|------------|------|-------|------------|---------|----|-----|
| Engineers | | | | | | | | | | |
| Health and Safety Engineers, Except Mining Safety Engineers and Inspectors | 39 | 0 | 0% | 3 | (3) | (21) | 2 | \$54.20 | 0 | 60 |
| Industrial Engineers | 427 | (21) | (5%) | 29 | (46) | (127) | 28 | \$39.92 | 0 | 554 |
| Mechanical Engineers | 660 | (2) | (0%) | 44 | (42) | (40) | 41 | \$45.03 | 0 | 700 |
| Nuclear Engineers | 12 | (1) | (8%) | Insf. Data | (1) | (1) | Insf. Data | \$45.22 | 0 | 13 |
| Architectural and Civil Drafters | 212 | 16 | 8% | 21 | 2 | (89) | 17 | \$26.28 | 22 | 301 |
| Electrical and Electronics Engineering Technicians | 742 | 11 | 2% | 70 | (1) | 46 | 62 | \$37.29 | 18 | 696 |
| Electro-Mechanical Technicians | 28 | (2) | (7%) | 3 | (2) | (16) | 2 | \$31.86 | 2 | 44 |
| Environmental Engineering Technicians | 31 | 0 | 0% | 3 | (3) | (11) | 3 | \$24.03 | 2 | 42 |
| Industrial Engineering Technicians | 66 | (14) | (18%) | 6 | (17) | (17) | 6 | \$23.79 | 2 | 83 |
| Zoologists and Wildlife Biologists | 43 | (1) | (2%) | 4 | (3) | (12) | 4 | \$36.15 | 0 | 55 |
| Conservation Scientists | 33 | 0 | 0% | 3 | (1) | 2 | 3 | \$38.26 | 0 | 31 |
| Atmospheric and Space Scientists | 13 | (1) | (7%) | Insf. Data | (2) | (2) | Insf. Data | \$54.12 | 0 | 15 |
| Chemists | 615 | (68) | (10%) | 61 | (99) | 136 | 57 | \$30.72 | 44 | 479 |
| Materials Scientists | 21 | (1) | (5%) | Insf. Data | (2) | (11) | Insf. Data | \$48.82 | 0 | 32 |
| Environmental Scientists and Specialists, Including Health | 332 | (4) | (1%) | 31 | (26) | (11) | 30 | \$39.29 | 37 | 343 |
| Geoscientists, Except Hydrologists and Geographers | 72 | (4) | (5%) | 7 | (4) | (14) | 7 | \$44.77 | 5 | 86 |
| Hydrologists | 31 | 1 | 3% | 3 | (1) | 0 | 3 | \$54.73 | 5 | 31 |

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|--|-----|------------|------------|------------|------|------------|------------|------------|-----|-----|
| Urban and Regional Planners | 119 | 2 | 2% | 10 | (3) | (28) | 9 | \$38.58 | 0 | 147 |
| Agricultural and Food Science Technicians | 97 | (3) | (3%) | 10 | (10) | (5) | 10 | \$22.52 | 78 | 102 |
| Chemical Technicians | 89 | (24) | (21%) | 10 | (28) | (42) | 9 | \$22.50 | 0 | 131 |
| Geological and Petroleum Technicians | 18 | (3) | (14%) | 2 | (1) | (13) | Insf. Data | \$32.99 | 0 | 31 |
| Nuclear Technicians | <10 | Insf. Data | Insf. Data | Insf. Data | (1) | Insf. Data | Insf. Data | Insf. Data | 0 | <10 |
| Environmental Science and Protection Technicians, Including Health | 113 | 0 | 0% | 14 | (9) | 0 | 13 | \$27.74 | 37 | 113 |
| Forest and Conservation Technicians | 329 | 5 | 2% | 42 | 4 | 66 | 37 | \$20.36 | 0 | 263 |
| Arbitrators, Mediators, and Conciliators | 18 | 2 | 13% | Insf. Data | (0) | (11) | Insf. Data | \$31.81 | 28 | 29 |
| Farm and Home Management Advisors | 18 | 3 | 20% | 2 | 2 | (9) | Insf. Data | \$25.34 | 78 | 27 |
| Commercial and Industrial Designers | 132 | 3 | 2% | 13 | (10) | (22) | 12 | \$29.09 | 0 | 154 |
| Reporters and Correspondents | 52 | (2) | (4%) | 9 | 1 | (45) | 6 | \$20.55 | 41 | 97 |
| Public Relations Specialists | 509 | 2 | 0% | 54 | (40) | (121) | 49 | \$31.25 | 279 | 630 |
| Occupational Health and Safety Specialists | 141 | 3 | 2% | 9 | (7) | (5) | 7 | \$39.14 | 0 | 146 |
| Occupational Health and Safety Technicians | 32 | 2 | 7% | 2 | (1) | (2) | Insf. Data | \$18.46 | 0 | 34 |
| Fish and Game Wardens | <10 | Insf. Data | Insf. Data | Insf. Data | 0 | Insf. Data | Insf. Data | Insf. Data | 0 | 0 |

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|---|-------|------------|------------|------------|------|------------|------------|------------|----|-------|
| Structural Iron and Steel Workers | 108 | 10 | 10% | 13 | (6) | (14) | 11 | \$27.12 | 0 | 122 |
| Helpers--Carpenters | 71 | 10 | 16% | 12 | (2) | (4) | 9 | \$14.60 | 0 | 75 |
| Construction and Building Inspectors | 222 | 6 | 3% | 25 | (8) | (31) | 23 | \$35.24 | 8 | 253 |
| Hazardous Materials Removal Workers | 94 | 10 | 12% | 14 | 2 | (11) | 10 | \$17.28 | 0 | 105 |
| Rail-Track Laying and Maintenance Equipment Operators | <10 | Insf. Data | Insf. Data | Insf. Data | (2) | Insf. Data | Insf. Data | Insf. Data | 0 | <10 |
| Service Unit Operators, Oil, Gas, and Mining | 73 | (40) | (35%) | 14 | (6) | 6 | 12 | \$26.98 | 0 | 67 |
| Continuous Mining Machine Operators | 16 | 0 | 0% | 2 | 4 | Insf. Data | Insf. Data | \$29.11 | 0 | <10 |
| First-Line Supervisors of Mechanics, Installers, and Repairers | 785 | 16 | 2% | 72 | (40) | (131) | 65 | \$34.70 | 0 | 916 |
| Electrical and Electronics Repairers, Commercial and Industrial Equipment | 93 | (4) | (4%) | 8 | (7) | (32) | 8 | \$25.36 | 8 | 125 |
| Automotive Service Technicians and Mechanics | 1,910 | 169 | 10% | 206 | 47 | (71) | 168 | \$15.64 | 39 | 1,981 |
| Heating, Air Conditioning, and Refrigeration Mechanics and Installers | 644 | 153 | 31% | 86 | 69 | (47) | 52 | \$21.68 | 23 | 691 |
| Industrial Machinery Mechanics | 397 | (12) | (3%) | 38 | (57) | (113) | 34 | \$26.62 | 0 | 510 |
| Millwrights | 36 | 3 | 9% | 4 | (3) | (13) | 3 | \$25.87 | 0 | 49 |

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|---|-------|------------|------------|------------|-------|------------|------------|------------|---|-------|
| Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products | 762 | (20) | (3%) | 83 | (67) | (178) | 76 | \$32.65 | 0 | 940 |
| Customer Service Representatives | 3,846 | (203) | (5%) | 507 | (613) | (1,299) | 494 | \$17.15 | 0 | 5,145 |
| Dispatchers, Except Police, Fire, and Ambulance | 374 | 26 | 7% | 38 | (9) | (73) | 32 | \$17.47 | 0 | 447 |
| Production, Planning, and Expediting Clerks | 835 | 28 | 3% | 91 | (29) | (281) | 82 | \$23.76 | 0 | 1,116 |
| Shipping, Receiving, and Traffic Clerks | 1,755 | 48 | 3% | 185 | (53) | (403) | 172 | \$15.38 | 0 | 2,158 |
| Agricultural Inspectors | 65 | (4) | (6%) | 9 | (6) | (23) | 9 | \$21.46 | 0 | 88 |
| Forest and Conservation Workers | 126 | (3) | (2%) | 20 | (9) | 7 | 20 | \$10.92 | 0 | 119 |
| Boilermakers | <10 | Insf. Data | Insf. Data | Insf. Data | (2) | Insf. Data | Insf. Data | Insf. Data | 0 | <10 |
| Carpenters | 2,845 | 183 | 7% | 321 | (51) | (42) | 250 | \$16.91 | 0 | 2,887 |
| Cement Masons and Concrete Finishers | 522 | 56 | 12% | 80 | (51) | 45 | 56 | \$21.46 | 0 | 477 |
| Construction Laborers | 3,059 | 303 | 11% | 365 | (106) | 2 | 298 | \$14.23 | 0 | 3,057 |
| Operating Engineers and Other Construction Equipment Operators | 755 | 19 | 3% | 93 | (29) | 105 | 82 | \$28.01 | 0 | 650 |
| Electricians | 1,188 | 85 | 8% | 145 | (54) | (182) | 123 | \$21.39 | 0 | 1,370 |
| Insulation Workers, Floor, Ceiling, and Wall | 42 | 7 | 20% | 6 | 2 | 0 | 4 | \$17.46 | 0 | 42 |
| Plumbers, Pipefitters, and Steamfitters | 1,284 | 387 | 43% | 188 | 235 | 91 | 109 | \$22.43 | 0 | 1,193 |
| Roofers | 379 | (20) | (5%) | 42 | (54) | (19) | 37 | \$23.24 | 0 | 398 |
| Sheet Metal Workers | 387 | 122 | 46% | 58 | 81 | 43 | 33 | \$20.64 | 0 | 344 |

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|---|-------|------|-------|-----|------|-------|-----|---------|----|-------|
| Helpers--Installation, Maintenance, and Repair Workers | 175 | 14 | 9% | 24 | (4) | (83) | 21 | \$14.97 | 0 | 258 |
| First-Line Supervisors of Production and Operating Workers | 1,094 | (27) | (2%) | 112 | (71) | (198) | 107 | \$28.66 | 0 | 1,292 |
| Aircraft Structure, Surfaces, Rigging, and Systems Assemblers | 63 | (9) | (13%) | 7 | (7) | (8) | 7 | \$20.22 | 0 | 71 |
| Electrical and Electronic Equipment Assemblers | 1,420 | 46 | 3% | 181 | 39 | 185 | 160 | \$15.22 | 0 | 1,235 |
| Engine and Other Machine Assemblers | 74 | (1) | (1%) | 8 | (6) | 15 | 8 | \$17.21 | 0 | 59 |
| Structural Metal Fabricators and Fitters | 104 | 15 | 17% | 13 | 9 | (34) | 10 | \$15.88 | 38 | 138 |
| Team Assemblers | 1,958 | 101 | 5% | 245 | (90) | (84) | 219 | \$13.88 | 0 | 2,042 |
| Computer-Controlled Machine Tool Operators, Metal and Plastic | 329 | 26 | 9% | 36 | (0) | (29) | 31 | \$21.78 | 38 | 358 |
| Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic | 311 | 1 | 0% | 37 | 9 | (37) | 35 | \$14.37 | 0 | 348 |
| Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic | 47 | (1) | (2%) | 5 | 2 | (7) | 5 | \$13.61 | 0 | 54 |
| Machinists | 1,060 | 18 | 2% | 114 | (33) | (32) | 105 | \$19.95 | 38 | 1,092 |
| Welders, Cutters, Solderers, and Brazers | 789 | 47 | 6% | 92 | 23 | (25) | 80 | \$16.93 | 21 | 814 |

| | | | | | | | | | | |
|---|--------|------------|------------|------------|---------|------------|------------|------------|----|--------|
| Nuclear Power Reactor Operators | <10 | Insf. Data | Insf. Data | Insf. Data | (0) | Insf. Data | Insf. Data | Insf. Data | 0 | <10 |
| Power Plant Operators | 157 | (31) | (16%) | 17 | (29) | 29 | 15 | \$39.90 | 0 | 128 |
| Chemical Plant and System Operators | 43 | (13) | (23%) | 5 | (14) | 7 | 5 | \$23.72 | 0 | 36 |
| Chemical Equipment Operators and Tenders | 169 | (31) | (16%) | 20 | (34) | 46 | 20 | \$19.83 | 0 | 123 |
| Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders | 162 | (1) | (1%) | 19 | (22) | (1) | 17 | \$20.18 | 0 | 163 |
| Mixing and Blending Machine Setters, Operators, and Tenders | 577 | 26 | 5% | 76 | (11) | 98 | 63 | \$10.87 | 0 | 479 |
| Inspectors, Testers, Sorters, Samplers, and Weighers | 1,368 | (49) | (3%) | 170 | (117) | (105) | 163 | \$18.23 | 0 | 1,473 |
| Bus Drivers, Transit and Intercity | 339 | (33) | (9%) | 46 | (53) | (88) | 41 | \$11.74 | 11 | 427 |
| Heavy and Tractor-Trailer Truck Drivers | 2,467 | 22 | 1% | 291 | (178) | (187) | 261 | \$19.75 | 11 | 2,654 |
| Railroad Conductors and Yardmasters | 18 | 1 | 6% | Insf. Data | (0) | (7) | Insf. Data | \$25.72 | 11 | 25 |
| Transportation Inspectors | 61 | (1) | (2%) | 6 | (4) | (11) | 6 | \$27.14 | 0 | 72 |
| Industrial Truck and Tractor Operators | 1,175 | 44 | 4% | 139 | (116) | (64) | 127 | \$14.69 | 0 | 1,239 |
| Laborers and Freight, Stock, and Material Movers, Hand | 4,939 | 218 | 5% | 721 | (332) | (1,385) | 652 | \$12.21 | 0 | 6,324 |
| Refuse and Recyclable Material Collectors | 285 | (13) | (4%) | 40 | (26) | (34) | 34 | \$26.99 | 0 | 319 |
| Total | 59,845 | 1,870 | 3% | 6,720 | (2,882) | (7,181) | 5,858 | | | 67,022 |