ENERGY, CONSTRUCTION & UTILITIES SECTOR PROFILE

Key Findings from the Los Angeles County Sector Analysis Project

August 2021

C·O·E
CENTERS OF EXCELLENCE
FOR LABOR MARKET RESEARCH

CALIFORNIA COMMUNITY COLLEGES
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POWERED BY
California Community Colleges

Prepared by:
Los Angeles County
Center of Excellence
for Labor Market Research

Introduction

To support the collaborative planning and development of career education (CE) programs and to inform regional investments in Los Angeles County, the Los Angeles County Center of Excellence has developed a series of sector profiles examining trends in the labor market and postsecondary education and training programs addressing local hiring needs.[1]

These profiles highlight in-demand and well-paid middle-skill jobs—those jobs that typically require some form of education or training beyond a high school diploma, but less than a bachelor's degree. These occupations are a critical component of the workforce overall and support the economic vitality of the region and state.

This profile of the energy, construction, and utilities (ECU) sector summarizes key findings on current and projected workforce demand, hourly wages, job postings, and program and training data from area community colleges and other training providers. For the purpose of this analysis, ECU occupations with a promising outlook have been divided into two groups:

1) Construction occupations
2) Energy & Utilities occupations

Quick Facts

Employment

123,748
Jobs in 2019

11,704
Annual Job Openings

2.2%
5-year Projected Growth

$35.13
Average Hourly Earnings

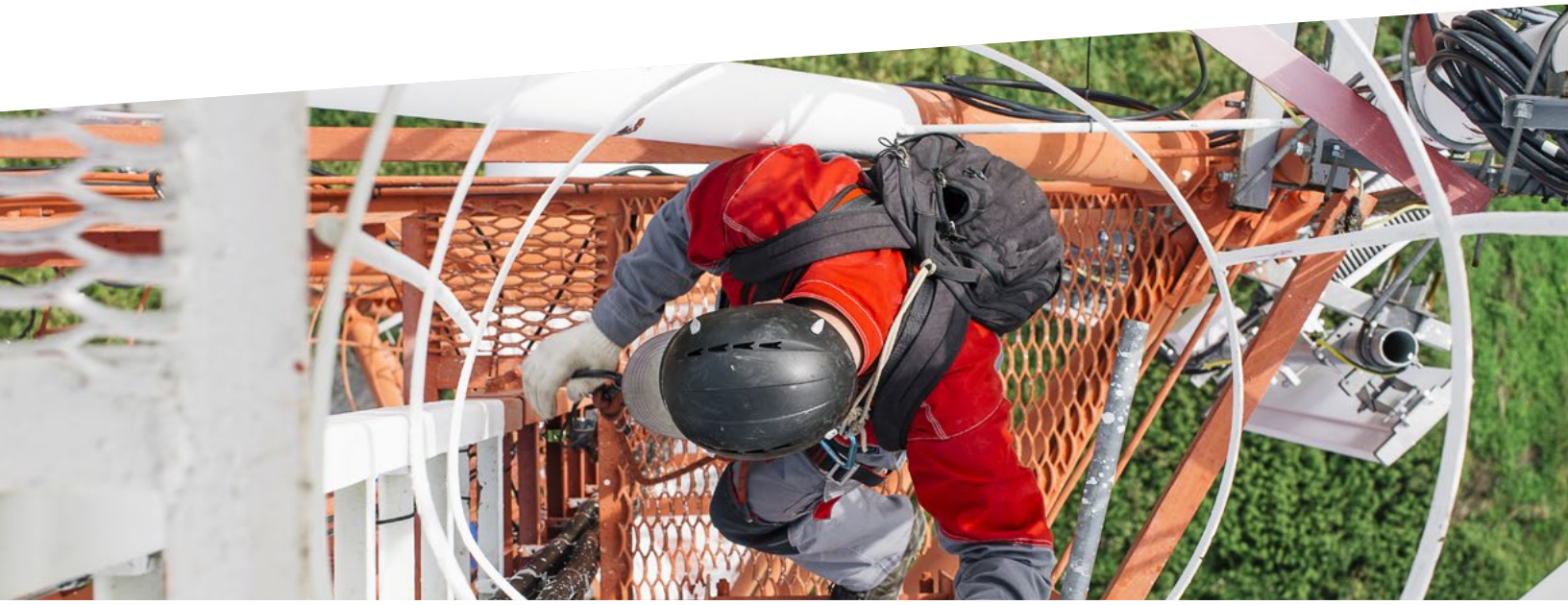
Education

26
Community Colleges and Other Training Providers with Programs

13,948
Community College Students Enrolled (2018-19)

1,625
Community College Awards (2019-20)

312
Awards from Proprietary Schools/Other Training Providers (2018-19)

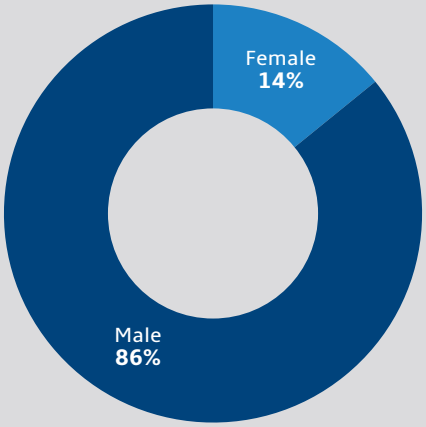


[1] **Impact of the COVID-19 pandemic:** This profile relies largely on 2019 employment and education data preceding the pandemic. The exception is job posting data from 2020. Due to severe economic impacts from the pandemic, job posting data should not be considered an accurate depiction of employer demand; however, the frequency of certain data points can provide insights into the types of workers and skill sets that employers are seeking. Annual job openings are derived from the labor market analytics firm Emsi whose projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. At this time, it is not possible to quantify the economic impact of COVID-19 on projections of occupational employment. A complete list of data sources is provided on the last page of this profile.

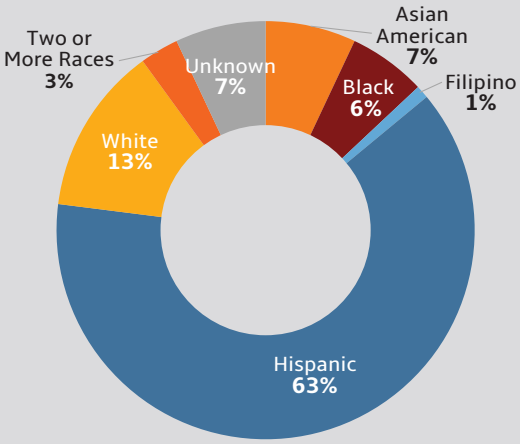
Introduction

Student Demographics

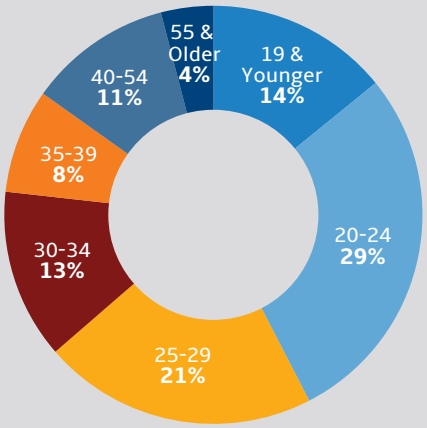
Student Gender



Student Race/Ethnicity[2]



Student Age



[2] Please note: This report uses race and ethnicity data from LaunchBoard collected by the California Community Colleges. The terms in this document, including white, Hispanic, and Black, adhere to the terms and definitions the California Community Colleges use in collecting its data. For definitions, please refer to https://webdata.cccco.edu/ded/std/std10.pdf.

Student Employment Outcomes

Data on community college students exiting ECU programs in Los Angeles County shows an increase from 69% to 76% in students who obtained employment in a job closely related to their field of study over the last five years of available data. On average, these students earned a median income of $44,352 after exiting an ECU program.

Exhibit 1. Students with a job closely related to their field of study

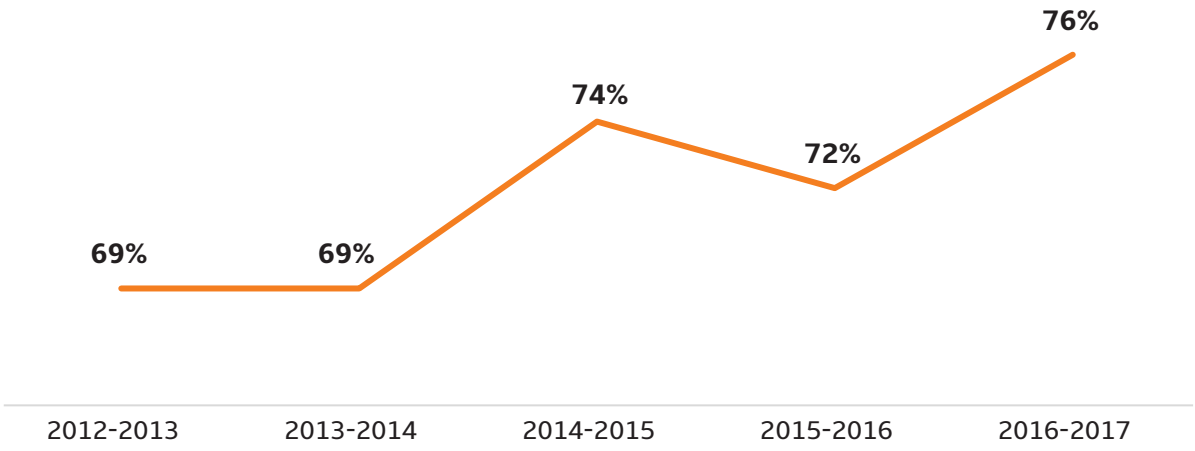
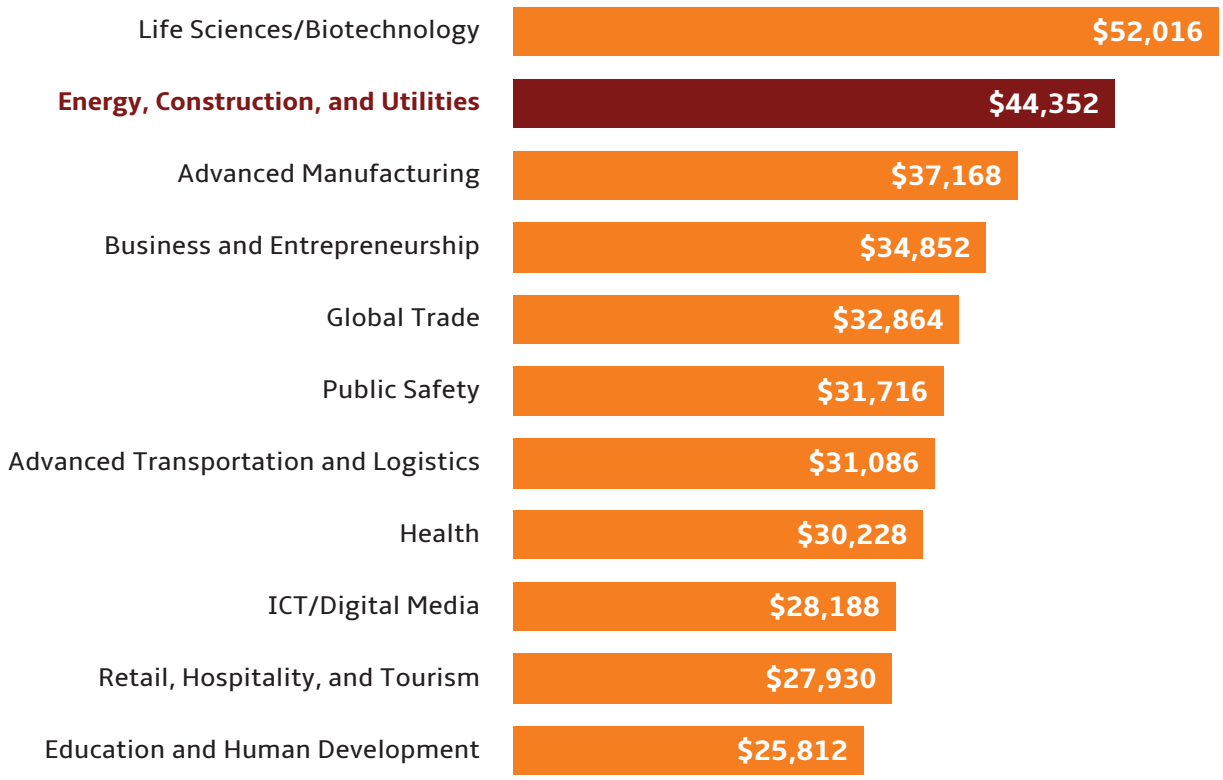


Exhibit 2. Median annual earnings for exiting students, 2017-18

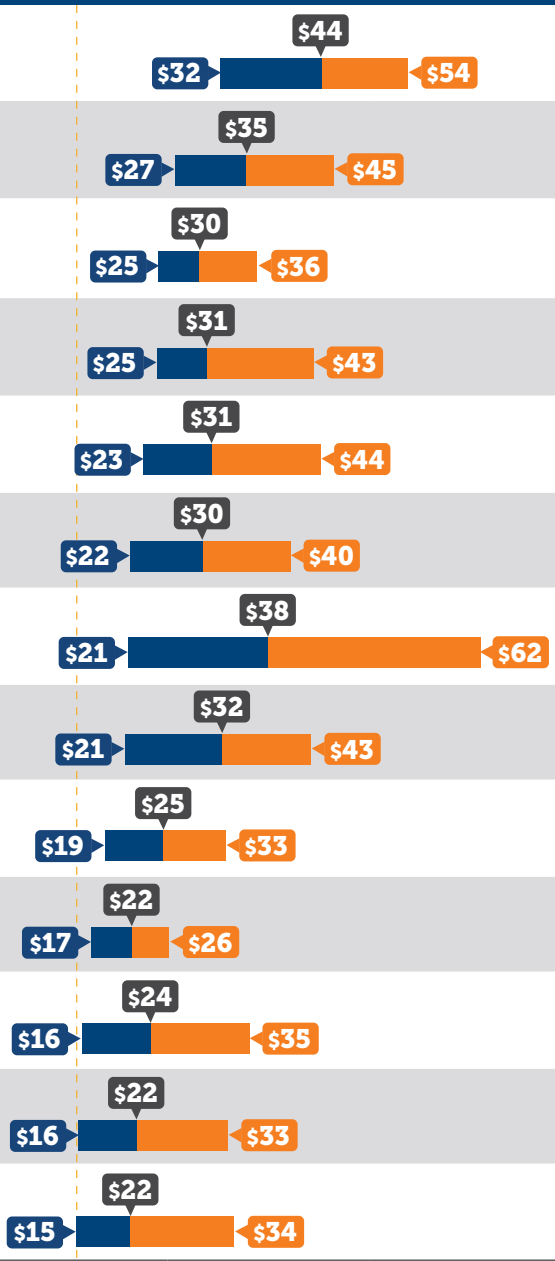


Employment Demand Analysis

Within the ECU sector, 13 middle-skill occupations are closely related to construction and account for 112,473 jobs in Los Angeles County. Combined they have 10,761 projected annual openings (new + replacement jobs). The largest occupation, in number of 2019 jobs, is carpenters. This occupation is projected to have the most annual job openings, 2,840.

Exhibit 3. Occupational employment, annual openings, and wages

Occupation (SOC Code)	2019 Jobs	Average Annual Openings	Entry-Level 25th Percentile Hourly Earnings	Median 50th Percentile Hourly Earnings	Experienced 75th Percentile Hourly Earnings
Construction and Building Inspectors (47-4011)	2,816	325	$32	$44	$54
First-Line Supervisors of Construction Trades and Extraction Workers (41-1011)	14,578	1,383	$27	$35	$45
Architectural and Civil Drafters (17-3011)	2,989	259	$25	$30	$36
Electrical and Electronics Drafters (17-3012)	766	65	$25	$31	$43
Cost Estimators (13-1051)	5,507	455	$23	$31	$44
Electricians (47-2111)	16,933	1,891	$22	$30	$40
Construction Managers (11-9021)	13,397	1,056	$21	$38	$62
Structural Iron and Steel Workers (47-2221)	1,788	184	$21	$32	$43
Heating, Air Conditioning, and Refrigeration Mechanics and Installers (49-9021)	7,512	691	$19	$25	$33
Solar Photovoltaic Installers (47-2231)	847	139	$17	$22	$26
Carpenters (47-2031)	30,791	2,840	$16	$24	$35
Plumbers, Pipefitters, and Steamfitters (47-2152)	11,844	1,224	$16	$22	$33
Sheet Metal Workers (47-2211)	2,706	249	$15	$22	$34



Construction Occupations

Job Posting Finding

Construction management positions dominate the job titles in job postings associated with the 13 construction occupations. Common management-related job titles use key words such as project manager, construction manager, superintendent, and foreman.

A search of online job postings shows 13,915 postings related to this group of occupations in 2020 in Los Angeles County. The top five job titles associated with the 13 construction occupations were listed in 1,299 postings. The job title that occurred most frequently, construction project manager, appeared in more than 300 postings.

Exhibit 4. Top job titles in job postings

Job Title	Job Postings
Construction Project Manager	327
Superintendent	268
Construction Superintendent	264
Electrician	228
Estimator	212

In Los Angeles County, employers who posted the most ads for the grouping of construction occupations were Sears, Northrop Grumman, and The Boeing Company.

Exhibit 5. Top employers in job postings

Employer	Job Postings
Sears	200
Northrop Grumman	145
The Boeing Company	118
Sunrun	49
Edison International	47

Construction Occupations

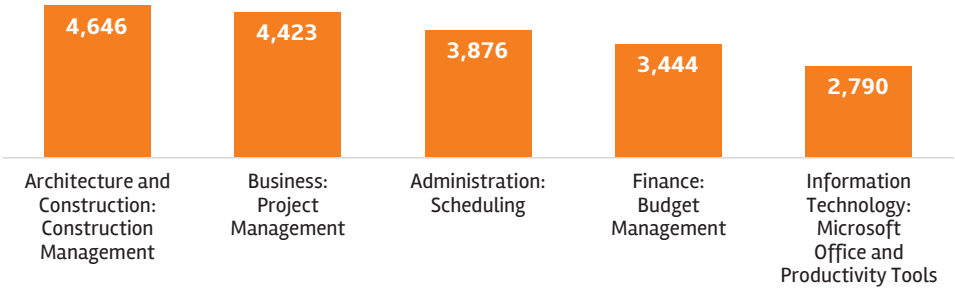
Job postings show how employers of the construction occupations are grouped by industry. In Los Angeles County, businesses in the aircraft manufacturing industry posted the most job ads, a total of 270, followed by department stores, 202 job ads, and engineering services, 74 job ads.

Exhibit 6. Top industries in job postings[3]

Industry	Job Postings
Aircraft Manufacturing	270
Department Stores (except Discount Department Stores)	202
Engineering Services	74
Colleges, Universities, and Professional Schools	59
Electrical Contractors and Other Wiring Installation Contractors	53

One way to determine how in-demand skills coalesce across occupations and industries is to look at skill clusters which can offer a broader picture of employer needs. Two skill cluster areas are about equally in demand for the grouping of construction occupations—Architecture and Construction: Construction Management and Business: Project Management.

Exhibit 7. In-demand skill clusters



[3] Note: 88% of records have been excluded because they do not include an industry. As a result, this table may not be representative of the full sample.

Education & Training Supply Analysis

In Los Angeles County, 16 community colleges as well as three proprietary schools and other training providers offer programs related to the grouping of construction occupations. In the 2019-20 academic year, community colleges conferred 1,083 awards, and proprietary schools and other training providers conferred 196 awards in the 2018-19 academic year.

Exhibit 8. Total awards by academic year[4]

	2017	2018	2019
Community Colleges	1,160	1,091	1,083
Proprietary Schools & Other Training Providers	148	146	196

Exhibit 9. Education and training programs

Community Colleges	· Architecture and Architectural Technology (TOP 0201.00) · Architectural Drafting (TOP 0953.10) · Carpentry (TOP 0952.10) · Civil and Construction Management Technology (TOP 0957.00) · Civil Drafting (TOP 0953.20) · Construction Crafts Technology (TOP 0952.00) · Construction Inspection (TOP 0957.20) · Drafting Technology (TOP 0953.00) · Electrical (TOP 0952.20) · Electrical, Electronic, and Electro-Mechanical Drafting (TOP 0953.30) · Energy Systems Technology (TOP 0946.10) · Environmental Control Technology (TOP 0946.00) · Mill and Cabinet Work (TOP 0952.20) · Plumbing, Pipefitting and Steamfitting (TOP 0952.30) · Public Works (TOP 2102.10) · Sheet Metal and Structural Metal (TOP 0956.40)
Proprietary Schools and Training Providers	· Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology/ Technician (CIP 15.0501) · Electrician (CIP 46.0302)

[4] Due to different data collection periods, the most recent three-year period of available data for community colleges is 2017-18 to 2019-20 while the three-year period for proprietary schools and other training providers is 2016-17 to 2018-19.

Energy & Utilities Occupations

Employment Demand Analysis

In the ECU sector, seven middle-skill occupations are related to energy and utilities. They account for 11,275 jobs and have a combined total of 943 projected annual openings in Los Angeles County. The largest occupation, electrical and electronics engineering technicians, has 3,874 current jobs and 320 annual job openings.

Exhibit 10. Occupational employment, annual openings, and wages

Occupation (SOC Code)	2019 Jobs	Average Annual Openings	Entry-Level 25th Percentile Hourly Earnings	Median 50th Percentile Hourly Earnings	Experienced 75th Percentile Hourly Earnings
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	513	37		$55	$46 $61
Power Plant Operators (51-8013)	1,721	137		$44	$39 $49
Power Distributors and Dispatchers (51-8012)	683	55		$40	$36 $44
Electrical Power-Line Installers and Repairers (49-9051)	1,674	165		$50	$32 $59
Water and Wastewater Treatment Plant and System Operators (51-8031)	2,145	176		$39	$32 $48
Electro-Mechanical Technicians (17-3024)	665	53		$29	$23 $36
Electrical and Electronics Engineering Technicians (17-3023)	3,874	320		$30	$22 $39

$15.04/hour Living Wage

A search of online job postings shows 1,985 postings related to the grouping of seven energy and utilities occupations in 2020 in Los Angeles County. The most advertised job titles were electrical/electronic technician with 136 postings and test technician with 110 postings.

Exhibit 11. Top job titles in job postings

Job Title	Job Postings
Electrical/Electronic Technician	136
Test Technician	110
Low Voltage Technician	63
Calibration Technician	47
Electromechanical Technician	47

Energy & Utilities Occupations

Job Posting Finding

Job titles that referenced electrical or electronic assembly or repair were concentrated among job postings for the grouping of energy and utilities occupations, which is apparent in the top five job titles identified for this analysis. Other common job titles are electro mechanical assembler, electrical repair technician, automation technician, and electrical assembly technician.

In Los Angeles County, the employers who posted the most ads for the seven energy and utilities occupations were The Boeing Company, Northrop Grumman, and SpaceX.

Exhibit 12. Top employers in job postings

Employer	Job Postings
The Boeing Company	52
Northrop Grumman	31
SpaceX	23
Asurion	23
Golden State Water Company	20

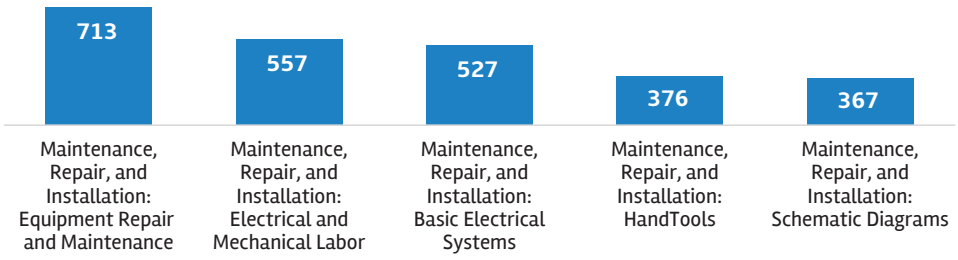
In Los Angeles County, the industries with the greatest concentration of job postings for the seven energy and utilities occupations were aircraft manufacturing, insurance-related activities, and nonhazardous waste treatment and disposal.

Exhibit 13. Top industries in job postings[5]

Industry	Job Postings
Aircraft Manufacturing	95
All Other Insurance Related Activities	23
Other Nonhazardous Waste Treatment and Disposal	20
General Medical and Surgical Hospitals	18
Colleges, Universities, and Professional Schools	14

The job posting analysis shows that the maintenance, repair, and installation skill cluster accounts for the top five skill clusters within job postings. Within that cluster, individual skills that are in demand include equipment repair and maintenance, electrical and mechanical labor, and basic electrical systems.

Exhibit 14. In-demand skill clusters



[5] Note: 79% of records have been excluded because they do not include an industry. As a result, this table may not be representative of the full sample.

Energy & Utilities Occupations

Education & Training Supply Analysis

In Los Angeles County, 14 community colleges as well as six proprietary schools and other training providers offer programs related to the grouping of energy and utilities occupations. In the 2019-20 academic year, community colleges conferred 691 awards, and proprietary schools and other training providers conferred 272 awards in the 2018-19 academic year.

Exhibit 15. Total awards by academic year[6]

	2017	2018	2019
Community Colleges	772	660	691
Proprietary Schools & Other Training Providers	269	247	272

Exhibit 16. Education and training programs

Community Colleges	· Computer Electronics (TOP 0934.10) · Electrical (TOP 0952.20) · Electrical Systems and Power Transmission (TOP 0934.40) · Electronics and Electric Technology (TOP 0934.00) · Engineering Technology, General (TOP 0924.00) · Telecommunications Technology (TOP 0934.30) · Water and Wastewater Technology (TOP 0958.00)
Proprietary Schools and Training Providers	· Engineering Technology, General (CIP 15.0000) · Electrical, Electronic and Communications Engineering Technology/Technician (CIP 15.0303) · Water Quality and Wastewater Treatment Management and Recycling Technology/ Technician (CIP 15.0506) · Computer Engineering Technology/Technician (CIP 15.1201) · Electrician (CIP 46.0302)

[6] Due to different data collection periods, the most recent three-year period of available data for community colleges is 2017-18 to 2019-20 while the three-year period for proprietary schools and other training providers is 2016-17 to 2018-19.

More About the Centers of Excellence

The Centers of Excellence (COE) for Labor Market Research deliver regional workforce research and technical expertise to California Community Colleges for program decision-making and resource-development. This information has proven valuable to colleges in beginning, revising, or updating economic development and Career Education (CE) programs, strengthening grant applications, assisting in the accreditation process, and in supporting strategic planning efforts.

The Centers of Excellence Initiative is funded in part by the Chancellor's Office, California Community Colleges, Economic and Workforce Development Program. The Centers aspire to be the leading source of regional workforce information and insight for California Community Colleges. More information about the Centers of Excellence is available at coeccc.net.

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Sources

Emsi 2021.1, QCEW, non-QCEW, Self-Employed; Centers of Excellence Skill/Occupation Crosswalk; Burning Glass Technologies' Labor Insight Real-time Labor Market Information tool; CalPASS Plus/LaunchBoard; California Community Colleges Chancellor's Office Data Mart; Integrated Postsecondary Education Data System (IPEDS); Chancellor's Office Curriculum Inventory System (COCI).

Important Disclaimer

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host college/district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

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