Labor Market Analysis for Program Recommendation: 0952.20/Electrical *(Residential Electrician)*

Orange County Center of Excellence, January 2025

Summary

Program LMI Endorsement	Endorsed: All LMI Criteria Met ☐	Endorsed: Some LMI Criteria Met ☒	Not LMI Endorsed ☐

Program LMI Endorsement Criteria		
Supply Gap:	Yes ☑	No ☐
	Comments: there is projected to be **2,349 annual job openings** throughout Los Angeles and Orange counties for *electricians*, which **is more than the 815 awards conferred by educational institutions.**	
Self-Sufficiency Standard Living Wage[1]:	Yes ☐	No ☑
	Comments: **the entry-level wages for** *electricians* are **$25.43, which is below the OC living wage of $27.13.**	
Education:	Yes ☑	No ☐
	Comments: though the typical entry-level education for *electricians* is a **high school diploma, nearly 47% of workers in the field have completed some college or an associate degree as their highest level of education.**	

Additional Considerations			
Emerging Occupation(s):	Yes ☐	Some ☐	No ☑
	Comments: N/A		
OC Resilient Job(s):	Yes ☑	Some ☐	No ☐
	Comments: See Resilient Jobs and US News & World Report Best Jobs		
U.S. News & World Report 2024 Best Jobs List[2]:	Yes ☑	Some ☐	No ☐
	Comments: See Resilient Jobs and US News & World Report Best Jobs		

The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to determine whether there is a supply gap in the Los Angeles/Orange County regional labor market related to this middle-skill occupation:

- *Electricians* (47-2111)

Based on the available data there appears to be a supply gap for *electricians* and typical education requirements for this occupation align with a community college education. However, the typical entry-level wages are below the Self-Sufficiency Standard living wage. **Therefore, due to some of the regional labor market criteria being met, the COE endorses this proposed program.**

[1] At the direction of the California Community College Chancellor's Office, the living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage, to determine Orange County's living wage of $27.13, last updated in March 2024.
[2] "100 Best Jobs of 2024," U.S. News & World Report, accessed May 7, 2024, https://money.usnews.com/careers/best-jobs/rankings/the-100-best-jobs.

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the occupations included in this report.

Exhibit 1: Labor Market Endorsement Summary

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Electricians (47-2111)	LA: 1,487 OC: 861	LA: 471 OC: 344	OC: $25.43	High school diploma or equivalent	47%
Total	**2,349**	**815**	**N/A**	**N/A**	**N/A**

Demand:

- The number of jobs related to *electricians* is projected to increase by 6% through 2028, equating to 2,349 annual job openings.
- Hourly entry-level wages for *electricians* are $25.43 in Orange County, which is below the Self-Sufficiency Standard living wage.
- There were 1,817 online job postings for *electricians* over the past 12 months. The highest number of postings were for electricians, low voltage technicians, and journeyman electricians.
- The typical entry-level education for *electricians* is a high school diploma or equivalent.
- Approximately 47% of workers in the field have completed some college or an associate degree as their highest level of educational attainment.

Supply:

- There was an average of 223 awards conferred by 5 community colleges in Los Angeles and Orange Counties from 2020 to 2023.
- Non-community college institutions conferred an average of 592 awards from 2019 to 2022.
- Orange County community college students that exited electrical programs in the 2020-21 academic year had a median annual wage of $80,916 ($38.90 per hour) after exiting the program and 83% attained the regional living wage.
- Throughout Orange County, 64% of electrical students that exited their program in 2019-20 reported that they are working in a job closely related to their field of study.

Demand

Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for *electricians* from 2018 through 2028. Though there was a 7% decline across all occupations in Los Angeles and Orange counties from 2019 to 2020 due to the COVID-19 pandemic, employment for this occupation decreased 9% during the same period.

In the two years preceding the pandemic, employment for this occupation increased in Orange County. After a decrease in employment in 2020, employment stagnated in 2021, increased in 2022, and decreased in 2023. This occupation in Orange County is projected to increase at a similar higher rate through 2028.

Exhibit 2: Annual Percent Change in Jobs for Electricians, 2018-2028

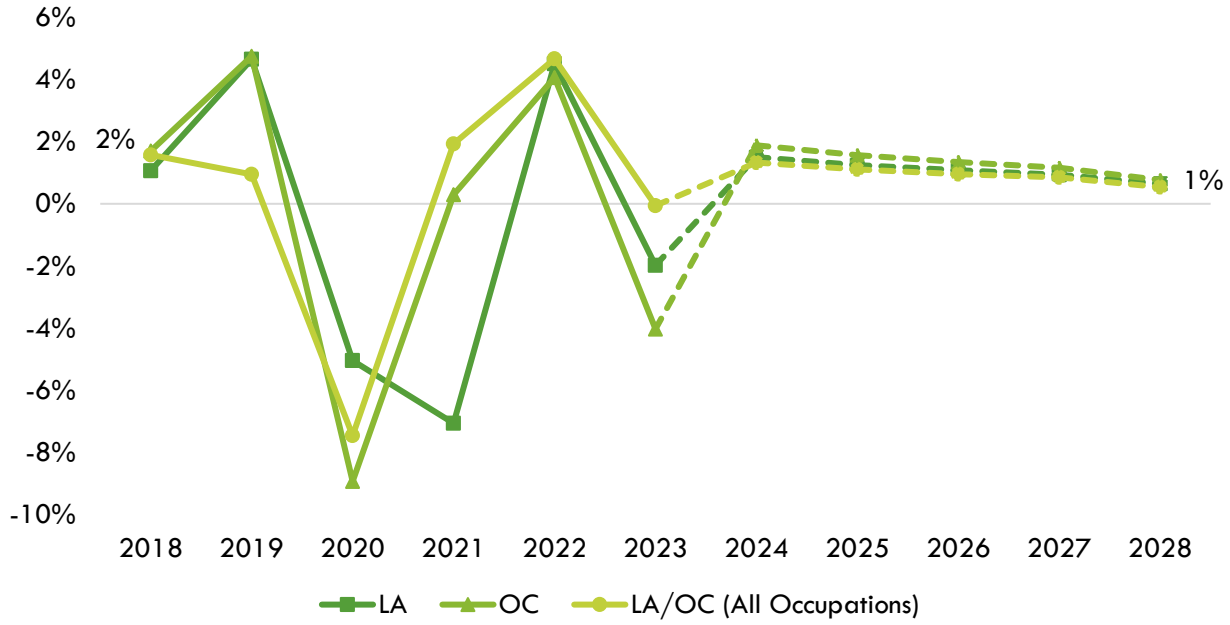


Exhibit 3 shows the five-year occupational demand projections for *electricians*. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to increase by 6% through 2028. There is projected to be 2,349 jobs available annually.

Exhibit 3: Occupational Demand in Los Angeles and Orange Counties[3]

Geography	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	Annual Openings
Los Angeles	14,829	15,648	819	6%	1,487
Orange	8,299	8,871	572	7%	861
Total	**23,128**	**24,519**	**1,390**	**6%**	**2,349**

Wages:

The labor market endorsement in this report considers the entry-level hourly wages for *electricians* in Orange County as they relate to the county's living wage. Los Angeles County wages are included below to provide a complete analysis of the LA/OC region.

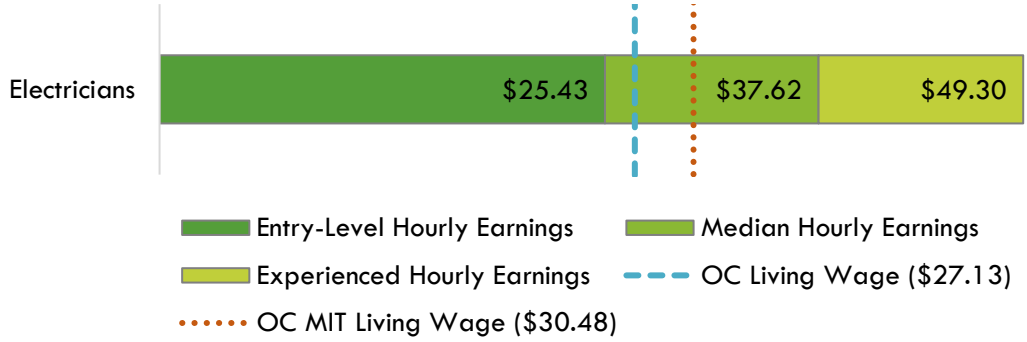
At the direction of the California Community College Chancellor's Office, the living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage, to determine Orange County's living wage of $27.13, last updated in March 2024. Additionally, data for the MIT Living Wage, updated on February 14, 2024, is provided as a reference. Currently, the MIT Living Wage in Orange County is $30.48. Both figures, which account for geographic-specific costs of necessities such as housing, food, health care, and transportation to assess the cost of living, are notated in the exhibits below.

Entry-level wages for *electricians* are $25.43, which is below the Self-Sufficiency Standard living wage for one adult ($27.13 in Orange County). However, median hourly wages for *electricians* are $37.62, which is significantly above the living wage. Orange County's average wages are slightly above the average

[3] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

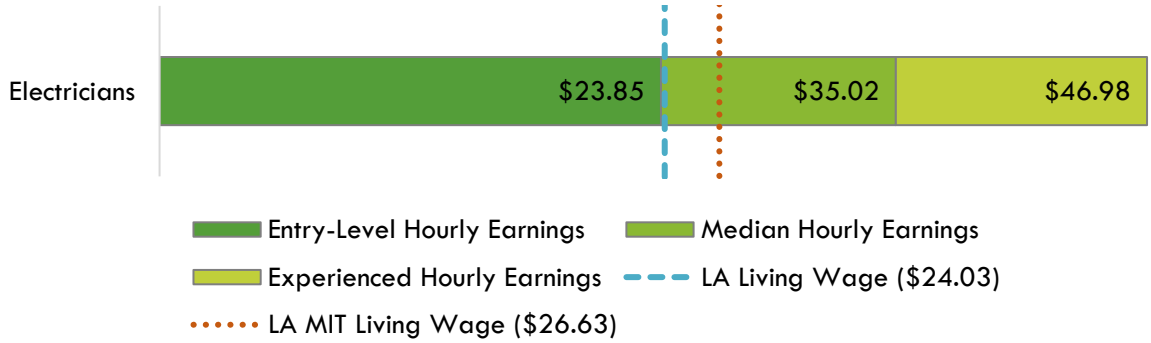
statewide wage of $39.82 for this occupation. Exhibit 4 shows the wage range for *electricians* in Orange County and how it compares to the regional living wage.

Exhibit 4: Wages by Occupation in Orange County



Entry-level wages for *electricians* are $23.85, which is slightly below the Self-Sufficiency Standard living wage for one adult ($24.03 in Los Angeles County). However, median hourly wages for *electricians* are $35.02, which is significantly above the living wage. Los Angeles County's average wages are slightly below the average statewide wage of $39.82 for this occupation. Exhibit 5 shows the wage range for *electricians* in Los Angeles County and how it compares to the regional living wage.

Exhibit 5: Wages by Occupation in Los Angeles County



Resilient Jobs and U.S. News & World Report Best Jobs:

Exhibit 6 shows if each occupation is considered an Orange County Great Recession-Resilient, COVID-19 Pandemic Recession-Resilient Job, or a 2024 U.S. News & World Report (USN&WR) Best Job. *Electricians* met the criteria to be considered a Great Recession-Resilient and 2024 USN&WR Job. However, this occupation did not meet the criteria to be considered a COVID-19 Pandemic Recession-Resilient Job.

Exhibit 6: Resilient Jobs and USN&WR Best Jobs Designations

Occupation	Great Recession-Resilient Job	COVID-19 Pandemic Recession-Resilient Job	2024 USN&WR Best Job
Electricians	☑	☐	☑

Job Postings:

Important Online Job Postings Data Note: *Online job postings data is sourced from Lightcast, a labor market analytics firm that scrapes, collects, and organizes data from online job boards such as LinkedIn, Indeed, Glassdoor, Monster, GovernmentJobs.com, and thousands more. Lightcast uses natural language processing (NLP) to determine the related company, industry, occupation, and other information for each job posting. However, NLP has limitations that include understanding contextual words of phrases; determining differences in words that can be used as nouns, verbs, and/or adjectives; and misspellings or grammatical errors.*[4] *For these reasons, job postings could be assigned to the wrong employer, industry, or occupation within Lightcast's database.*

Additionally, there are several limitations when analyzing job postings. A single job posting may not represent a single job opening, as employers may be creating a pool of candidates for future openings or hiring for multiple positions with a single posting. Additionally, not all jobs are posted online, and jobs may be filled through other methods such as internal promotion, word-of-mouth advertising, physical job boards, or a variety of other channels.

There were 1,817 online job postings related to *electricians* listed in the past 12 months. Exhibit 7 shows the number of job postings by occupation.

Exhibit 7: Number of Job Postings by Occupation (n=1,817)

Occupation	Job Postings	Percentage of Job Postings
Electricians	1,817	100%
Total Postings	**1,817**	**100%**

The top employers in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 8: Top Employers by Number of Job Postings (n=1,817)

Employer	Job Postings	Percentage of Job Postings
Aerotek	102	6%
Powell Electric	58	3%
Disney	34	2%
Orange	29	2%
Patriot Electric	22	1%
Sunrun	22	1%
PeopleReady	21	1%
Tradesmen International	14	1%
Bergelectric	13	1%
California State University	13	1%

[4] K. R. Chowdhary, Fundamentals of Artificial Intelligence (Basingstoke: Springer Nature, 2020), https://link.springer.com/book/10.1007/978-81-322-3972-7.

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 9.

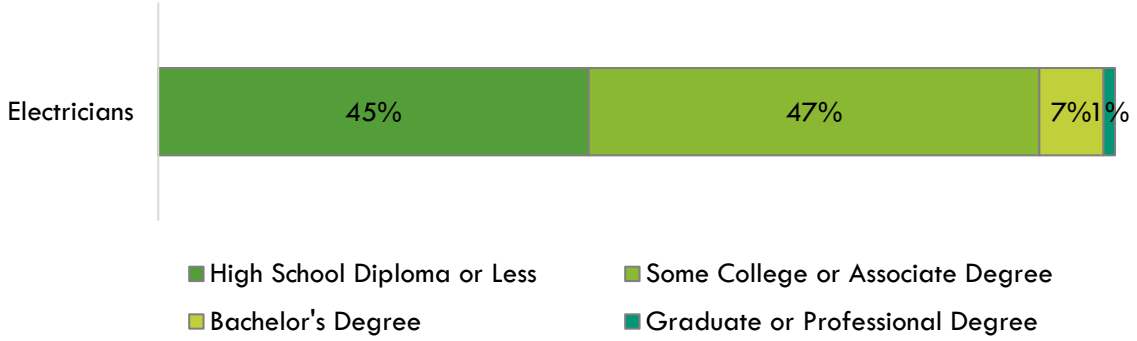
Exhibit 9: Top Skills by Number of Job Postings (n=1,817)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Electrical Wiring (613)	Troubleshooting (Problem Solving) (702)	Microsoft Outlook (50)
Electrical Systems (467)	Communication (436)	Microsoft Office (49)
Blueprinting (405)	Operations (221)	Microsoft Excel (47)
Hand Tools (378)	Customer Service (186)	IBM Maximo (39)
Low Voltage (345)	Problem Solving (181)	Microsoft Word (24)
Power Tool Operation (299)	Lifting Ability (168)	Autodesk Revit (23)
Electrical Equipment (233)	Good Driving Record (161)	AutoCAD (17)
Network Switches (226)	Detail Oriented (155)	Spreadsheets (17)
Transformers (Electrical) (225)	Management (140)	Microsoft PowerPoint (14)
Electronic Components (153)	English Language (126)	Design Software (13)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent as the typical entry-level education for *electricians*. However, the national-level educational attainment data indicates 47% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 10 shows the educational attainment for this occupation, sorted by highest community college educational attainment to lowest.

Exhibit 10: National-level Educational Attainment for Occupations



Of the 24% of the cumulative job postings for *electricians* that listed a minimum education requirement in Los Angeles/Orange County, 88% (388) requested a high school diploma, vocational training, or an associate degree and 10% (46) requested a bachelor's degree.

Educational Supply

Community College Supply:

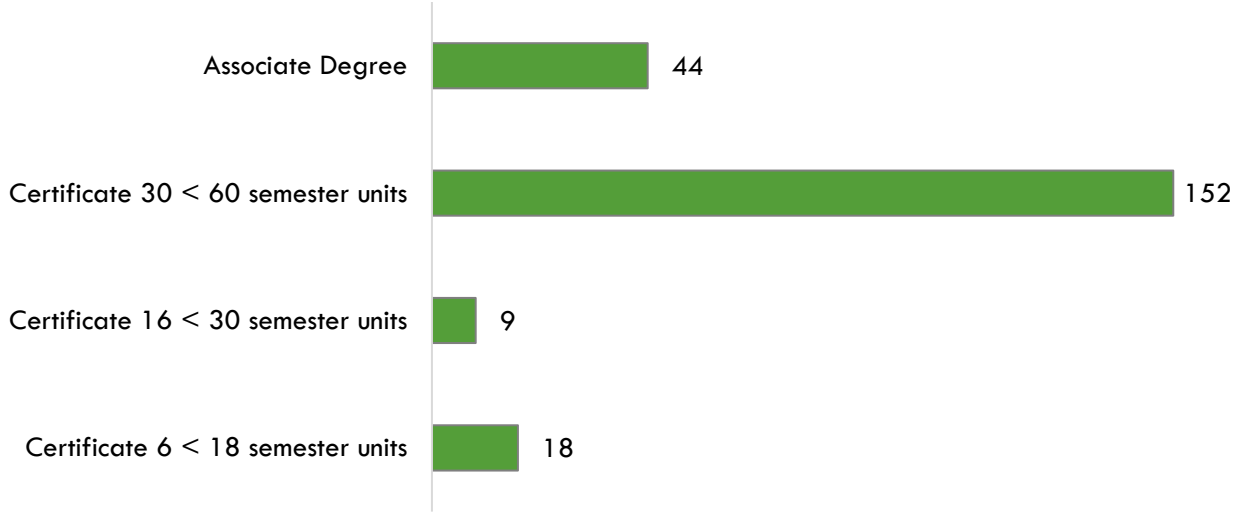
Exhibit 11 shows the three-year average number of awards conferred by community colleges in the related TOP code: Electrical (0952.20). The colleges with the most completions in the region are LA Trade, Santiago Canyon, and Irvine. Over the past 12 months, there were no other related program recommendation requests from regional community colleges.

Exhibit 11: Regional Community College Awards (Certificates and Degrees), 2020-2023

TOP Code	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
0952.20	Electrical	LA Trade	135	147	150	144
		LA Subtotal	**135**	**147**	**150**	**144**
		Coastline	0	1	0	0
		Irvine	21	12	31	21
		Orange Coast	0	3	0	1
		Santiago Canyon	33	0	137	57
		OC Subtotal	**54**	**16**	**168**	**79**
		Supply Subtotal/Average	**189**	**163**	**318**	**223**
		Supply Total/Average	**189**	**163**	**318**	**223**

Exhibit 12 shows the annual average community college awards by type from 2020-21 to 2022-23. The plurality of the awards are for certificates between 30 and less than 60 semester units, distantly followed by associate degrees and certificates between 6 and less than 18 semester units.

Exhibit 12: Annual Average Community College Awards by Type, 2020-2023



Community College Student Outcomes:

Exhibit 13 shows the Strong Workforce Program (SWP) metrics for electrical programs in Rancho Santiago Community College District (RSCCD), the Orange County Region, and California. Of the 513 Orange County electrical students in the 2021-22 academic year, 66% (340) attended an RSCCD college.

RSCCD students that exited electrical programs in the 2021-22 academic year had higher median annual earnings ($86,628 or $41.65 per hour) compared to all electrical students in Orange County ($80,916 or $38.90 per hour). A higher percentage of RSCCD electrical students attained the living wage (87%) when compared to all electrical students in Orange County (83%).

Exhibit 13: Electrical (0952.20) Strong Workforce Program Metrics, 2021-22[5]

SWP Metric	RSCCD	OC Region	California
SWP Students	340	513	7,716
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	66%	52%	32%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	72%	26%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	17	17	861
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	Insufficient Data	11	37
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	100%	64%	76%
Median Annual Earnings for SWP Exiting Students (2020-21)	$86,628 ($41.65)	$80,916 ($38.90)	$61,032 ($29.34)
Median Change in Earnings for SWP Exiting Students (2020-21)	130%	113%	51%
SWP Exiting Students Who Attained the Living Wage (2020-21)	87%	83%	74%

Non-Community College Supply:

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering electrical programs. Exhibit 14 displays the annual and three-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) code: Electrician (46.0302). The available data covers 2019 to 2022. During this period, non-community college institutions in the region conferred an average of 592 awards annually in related programs.

Exhibit 14: Regional Non-Community College Awards, 2019-2022

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
46.0302	Electrician	Baldwin Park Adult & Community Education	61	74	75	70
		Capstone College	4	23	29	19

[5] All SWP metrics are for 2021-22 unless otherwise noted.

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		InterCoast Colleges-Santa Ana	35	12	9	19
		InterCoast Colleges-West Covina	86	54	84	75
		Southern California Institute of Technology	190	281	268	246
		UEI College-Huntington Park	0	0	120	40
		UEI College-West Covina	6	144	220	123
Supply Subtotal/Average			**382**	**588**	**805**	**592**
Supply Total/Average			**382**	**588**	**805**	**592**

Regional Demographics

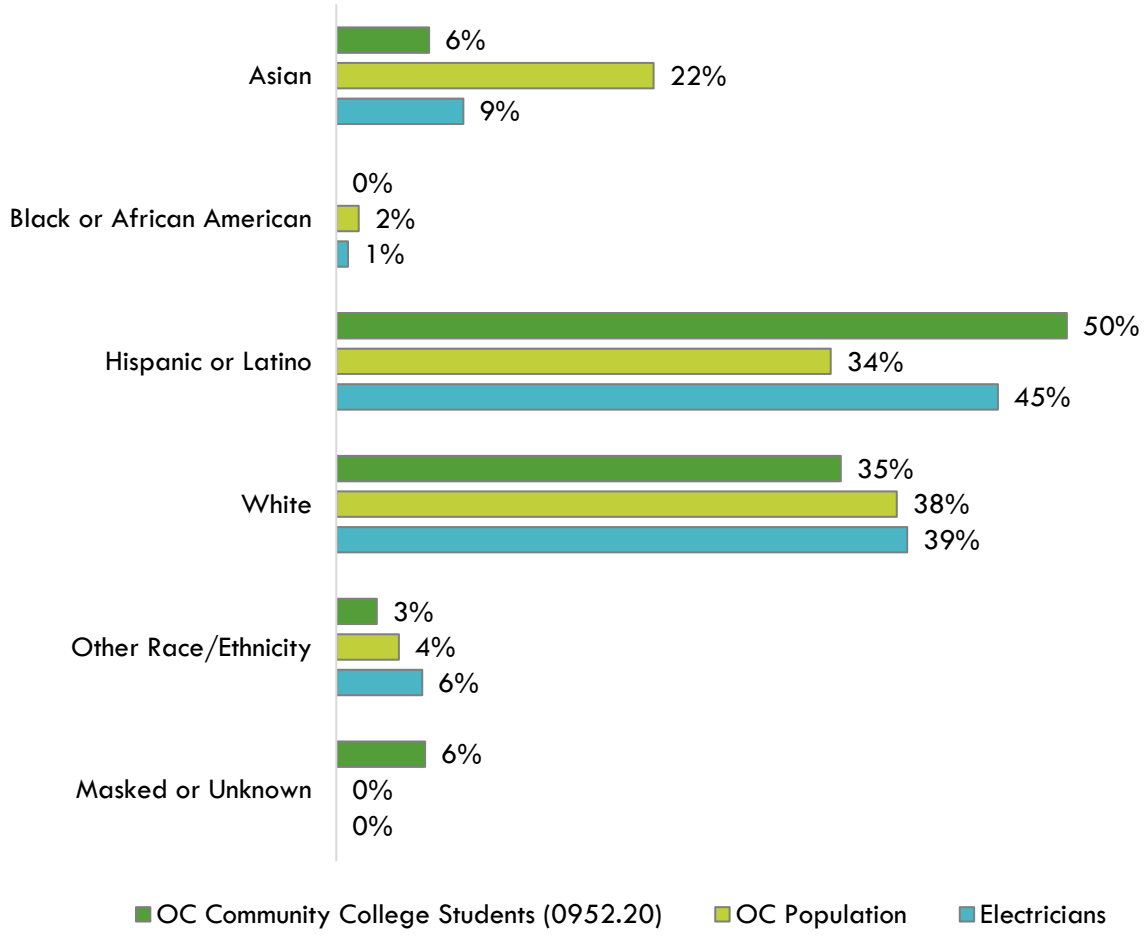
This section examines demographic data for Orange County community college students in electrical programs compared to the OC population, along with occupational data, to identify potential diversity and equity issues addressable by community college programs.

Ethnicity:

Exhibit 15 compares the ethnicity of Orange County community college students enrolled in electrical programs, the overall Orange County population, and occupation-specific data for *electricians*.

Half (50%) of community college electrical students are Hispanic or Latino, which is higher than workers in the field (45%) and the population (29%). Conversely, 39% of workers in the field are white, which is slightly higher than the population (38%) and community college electrical students (35%). In addition, though comprising 22% of the population, Asian individuals account for only 9% of workers in the field and 6% of community college electrical students.

Exhibit 15: Program and County Demographics by Ethnicity

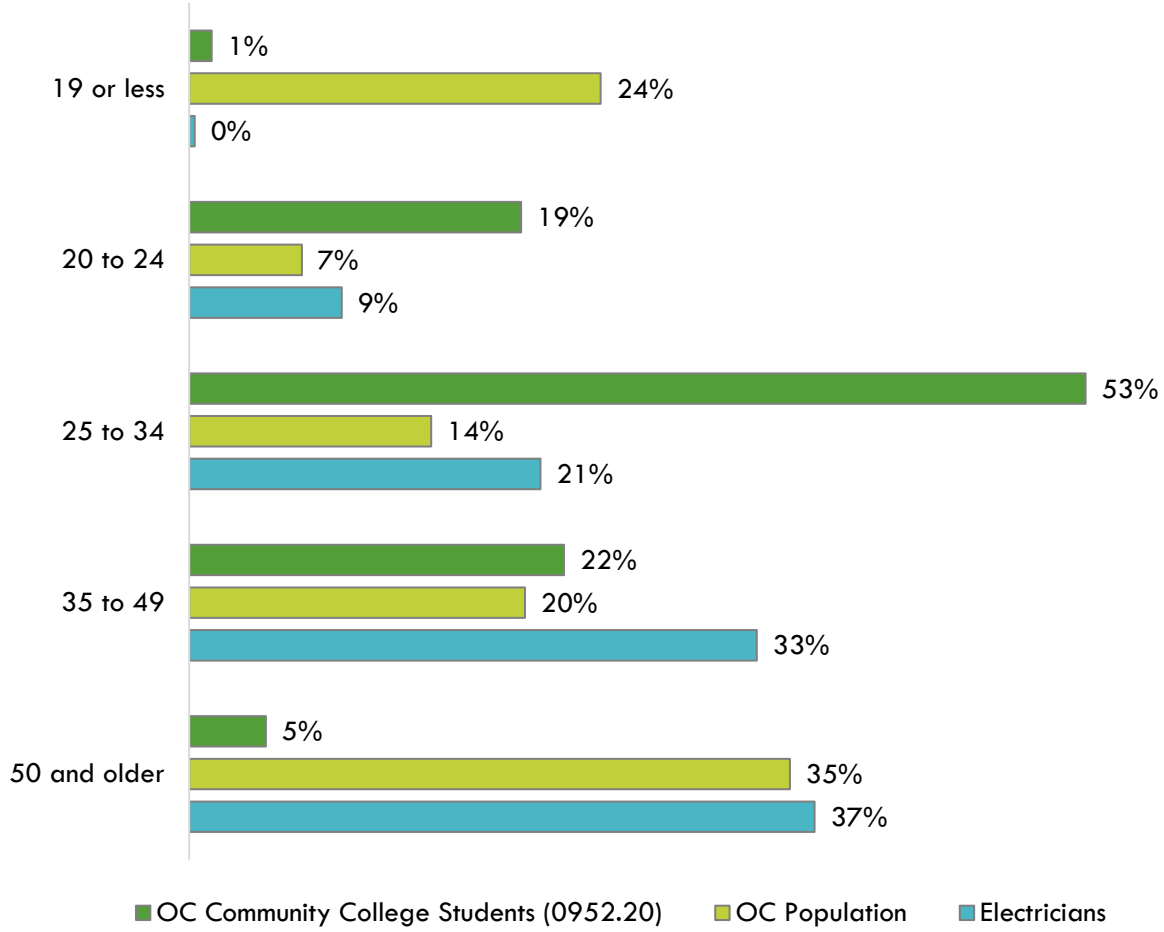


Age:

Exhibit 16 compares the age of Orange County community college students enrolled in electrical programs, the overall Orange County population, and occupation-specific data for *electricians*.

Over half (53%) of community college electrical students are aged 25 to 34, which is significantly higher than the workers in the field (21%) and the population (14%). Conversely, 37% of workers in the field are aged 50 or older, which is slightly higher than the population (35%) but is significantly higher than the community college electrical students (5%).

Exhibit 16: Program and County Demographics by Age

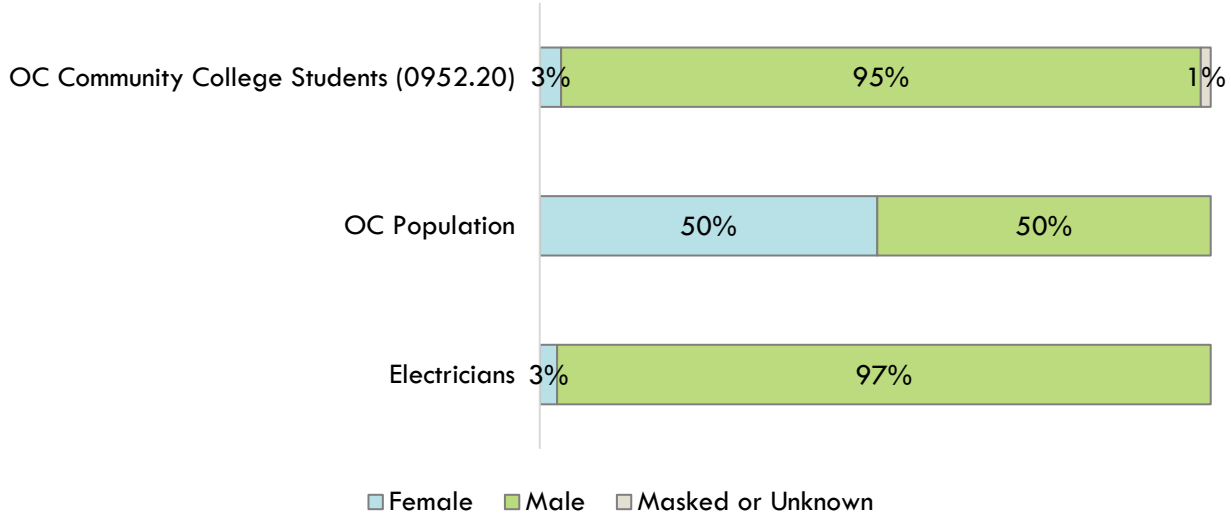


Sex:

Exhibit 17 compares the sex of Orange County community college students enrolled in electrical programs, the overall Orange County population, and occupation-specific data for *electricians*.

Though the population is split evenly between women and men, only 3% of community college electrical students and workers in the field are women.

Exhibit 17: Program and County Demographics by Sex



Appendix A: Methodology

The OC COE prepared this report by analyzing data from occupations and education programs. Occupational data is derived from Lightcast, a labor market analytics firm that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS) and other government agencies. Program supply data is drawn from two systems: Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP).

Using a TOP-SOC crosswalk, the OC COE identified middle-skill jobs for which programs within these TOP codes train. Middle-skill jobs include:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

The OC COE determined labor market supply for an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a "supply table" with this information, which is the source of the program supply data for this report. TOP code data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP code data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS. TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education in the United States and Canada. Institutions outside of the California Community College system do not use TOP codes in their reporting systems.

Data included in this analysis represent the labor market demand for relevant positions most closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study which can signal demand and show what employers are looking for in potential employees but is not a perfect measure of the quantity of open positions.

All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; 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 findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host 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.

Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics and the American Community Survey. For more information, see https://lightcast.io/
Living Wage	"Living Wage" measures the income necessary for an individual or family to afford basic expenses by assessing the costs such as housing, food, child care, health care, transportation, and taxes. Per the CCCCCO's this report's endorsement criteria uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard last updated in March 2024, which is $27.13 per hour ($56,451 annually) in Orange County. For more information, see: http://www.selfsufficiencystandard.org/California The MIT Living Wage, updated on February 14, 2024, is a nationally recognized living wage metric and is provided for reference. The current MIT Living Wage in Orange County is $30.48. For more information, see: https://livingwage.mit.edu/counties/06059
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations. For more information, see https://www.onetonline.org/help/online/
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions
Student Metrics and Demographics	LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx

Data Type	Source
Population and Occupation Demographics	The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. For more information, see: https://www.census.gov/programs-surveys/acs Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: https://usa.ipums.org/usa/about.shtml

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