

Electrician Occupations

Labor Market Analysis: Imperial County

December 2020

Summary



The brief provides labor market information about *Electrician Occupations* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. *Electrician Occupations* include “Electricians,” “Electrical and Electronics Installers and Repairers, Transportation Equipment,” “Electrical and Electronics Repairers, Powerhouse, Substation, and Relay,” and “Maintenance and Repair Workers, General.” According to available labor market information, *Electrician Occupations* in Imperial County have a labor market demand of 81 annual job openings (while average demand for a single occupation in Imperial County is 14 annual job openings), and one educational institution in Imperial County supplies 29 awards for these occupations, suggesting that there is a supply gap in the labor market. Entry-level and median wages for all occupations are above the living wage. This brief recommends proceeding with developing a **new** program because 1) entry-level and median earnings are above the living wage; 2) employers require up to a postsecondary non-degree award for these occupations; and 3) a supply gap exists for these positions.

Introduction

This report provides labor market information in Imperial County for the following occupational codes in the Standard Occupational Classification (SOC)¹ system:

- **Electricians (SOC 47-2111):** Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems.
- **Electrical and Electronics Installers and Repairers, Transportation Equipment (SOC 49-2093):** Install, adjust, or maintain mobile electronics communication equipment, including sound, sonar, security, navigation, and surveillance systems on trains, watercraft, or other mobile equipment.
- **Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (SOC 49-2095):** Inspect, test, repair, or maintain electrical equipment in generating stations, substations, and in-service relays.
- **Maintenance and Repair Workers, General (SOC 49-9071):** Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs.

For the purpose of this report, these occupations are referred to as *Electrician Occupations*.

¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

Projected Occupational Demand

Between 2019 and 2024, *Electrician Occupations* are projected to increase by 38 net jobs or six percent (Exhibit 1a). During this period, employers in Imperial County are projected to hire 81 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1a: Number of Jobs for Electrician Occupations (2009-2024)²

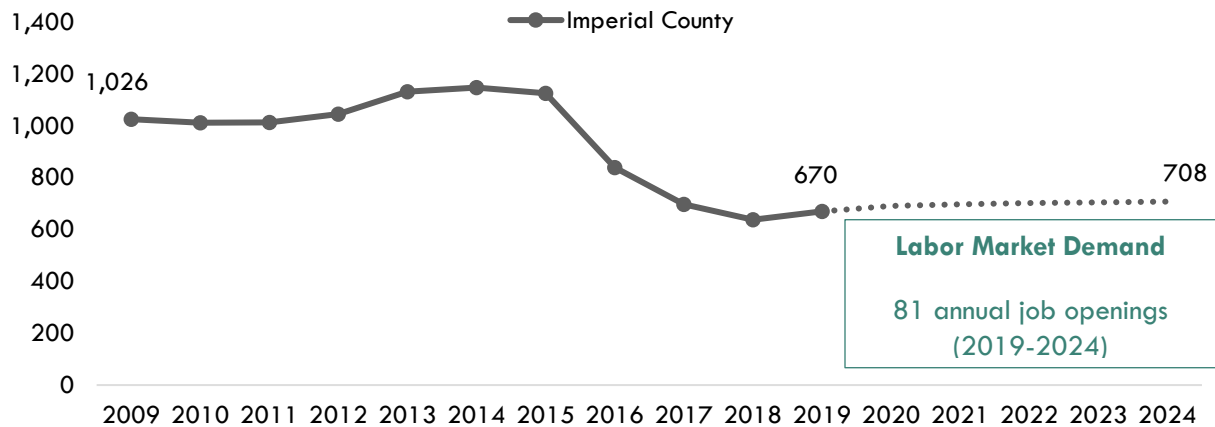


Exhibit 1b breaks down the projected number of jobs change by occupation more specifically: *Maintenance and Repair Workers, General* are projected to increase the most by 37 total jobs between 2019 and 2024. *Electricians*, however, are projected to decline during this period (Exhibit 1b).

Exhibit 1b: Number of Jobs for Electrician Occupations in Imperial County (2019-2024)³

Occupational Title	2019 Jobs	2024 Jobs	2019 - 2024 Net Jobs Change	2019-2024 % Net Jobs Change	Annual Job Openings (Demand)
Maintenance and Repair Workers, General	534	571	37	7%	61
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	<10	12	Insf. Data	Insf. Data	3
Electrical and Electronics Installers and Repairers, Transportation Equipment	<10	<10	Insf. Data	Insf. Data	<10
Electricians	131	123	-8	-6%	16
Total	670	708	38	6%	81

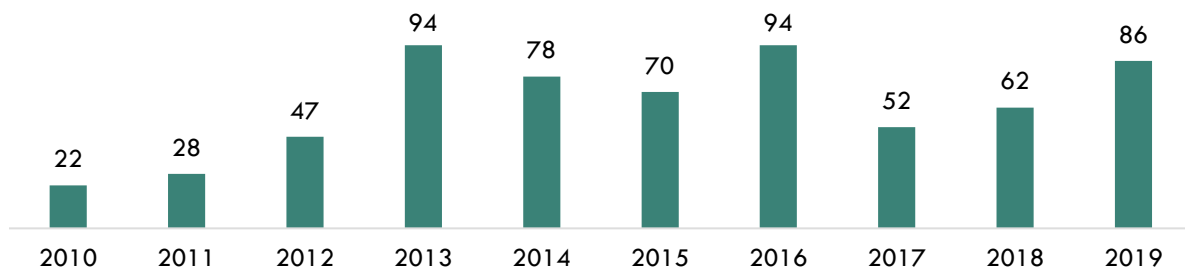
² EMSI 2020.04; QCEW, Non-QCEW, Self-Employed.

³ EMSI 2020.04; QCEW, Non-QCEW, Self-Employed.

Online Job Postings

This report analyzes not only historical and projected data (traditional labor market information or LMI), but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2010 and 2019, there was an average of 63 online job postings per year in Imperial County for *Electrician Occupations* (Exhibit 2). Please note that online job postings do not equal labor market demand; demand is represented by annual job openings (Exhibit 1b). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 2: Number of Online Job Postings for *Electrician Occupations* in Imperial County (2010-2019)⁴



Earnings

The entry-level hourly earnings for *Electrician Occupations* range from \$13.69 to \$22.36 (Exhibit 3a).

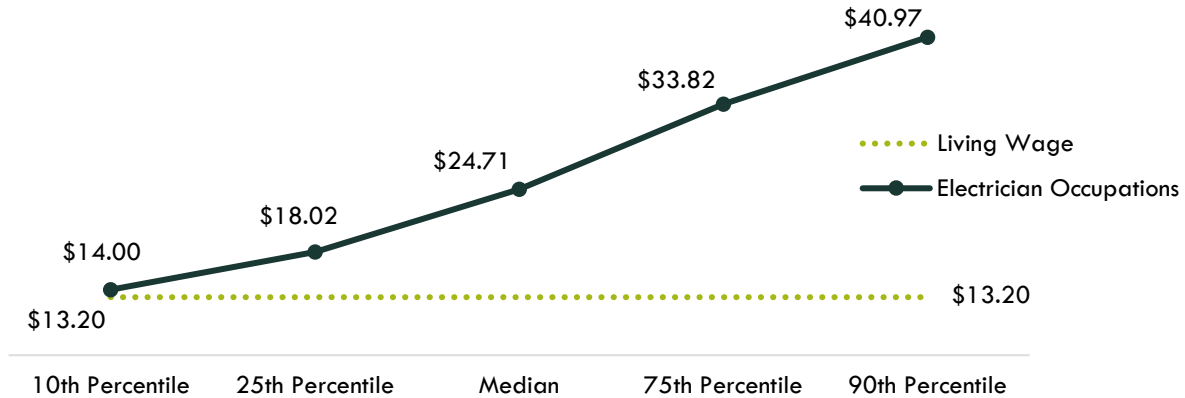
Exhibit 3a: Hourly Earnings for *Electrician Occupations* in Imperial County

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Electricians	\$22.36	\$31.79	\$43.07
Maintenance and Repair Workers, General	\$13.69	\$17.62	\$24.57
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	Insf. Data	Insf. Data	Insf. Data
Electrical and Electronics Installers and Repairers, Transportation Equipment	Insf. Data	Insf. Data	Insf. Data

⁴ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2019.

On average, the entry-level hourly earnings for *Electrician Occupations* is **\$18.03**; this is more than the living wage for a household of two adults and two school-age children in Imperial County, which is **\$13.20** per hour (Exhibit 3b).⁵

Exhibit 3b: Average Hourly Earnings⁶ for *Electrician Occupations* in Imperial County⁷



Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁸ There are **four** TOP codes and **seven** CIP codes related to *Electrician Occupations* (Exhibit 4).

Exhibit 4: Related TOP and CIP Codes for *Electrician Occupations*

Electrician Occupations

TOP 093400: Electronics and Electric Technology

TOP 093440: Electrical Systems and Power Transmission

TOP 094500: Industrial Systems Technology and Maintenance

TOP 095220: Electrical

CIP 15.0303: Electrical, Electronic and Communications Engineering Technology/Technician

CIP 15.0399: Electrical and Electronic Engineering Technologies/Technicians, Other

CIP 46.0301: Electrical and Power Transmission Installation/Installer, General

CIP 46.0302: Electrician

⁵ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. <https://insightcced.org/2018-family-needs-calculator/>.

⁶ 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

⁷ EMSI 2020.04; QCEW, Non-QCEW, Self-Employed.

⁸ TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data/).

<i>Electrician Occupations</i>
CIP 46.0303: Lineworker
CIP 47.0101: Electrical/Electronics Equipment Installation and Repair, General
CIP 47.0199: Electrical/Electronics Maintenance and Repair Technology, Other

According to TOP data, **one** community college supplies the region with awards for these occupations: **Imperial Valley College**. According to CIP data, **no** non-community-college institutions supply the region with awards (Exhibit 5).

Exhibit 5: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2014-15 through PY2018-19 Average)

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
093400	Electronics and Electric Technology	29	0	29
	<ul style="list-style-type: none"> Imperial Valley 	29	0	
			Total	29

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁹ suggests that there is a **supply gap** for these occupations in Imperial County, with **81** annual openings and **29** awards. Comparatively, there are **286,849** annual openings in California and **2,468** awards, suggesting that there is a supply gap across the state¹⁰ (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
Imperial	81	29	52
California	286,849	2,468	284,381

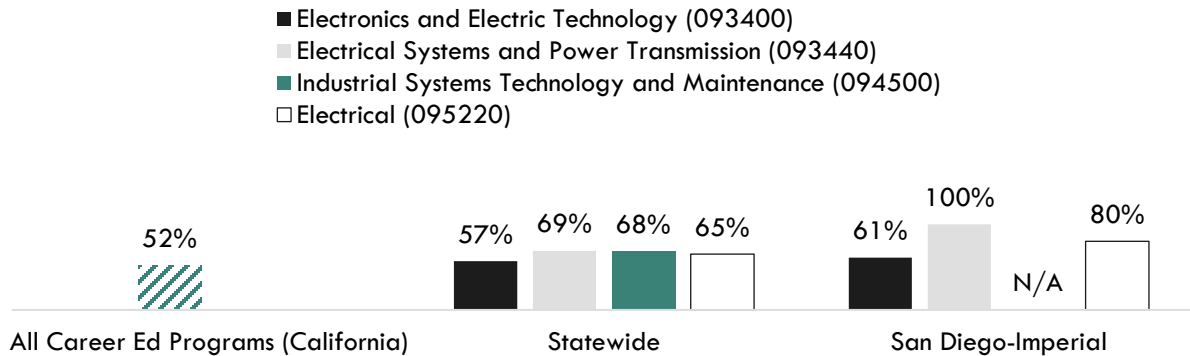
⁹ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.
¹⁰ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

Student Outcomes and Regional Comparisons

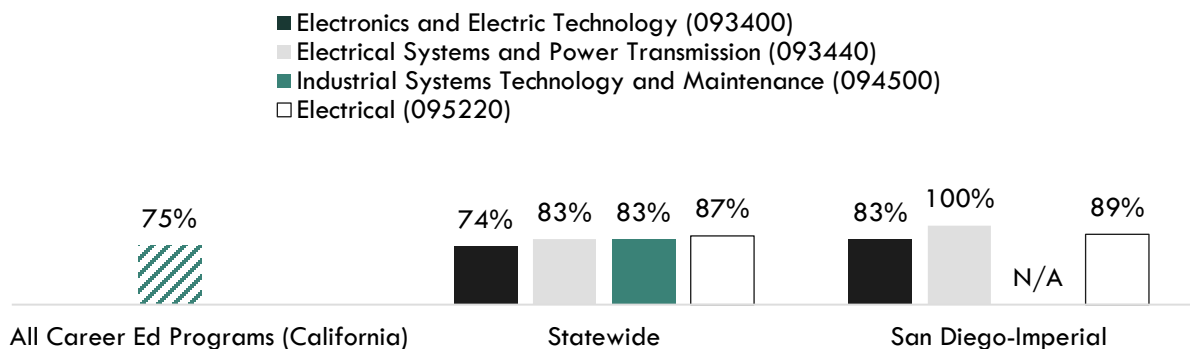
According to the California Community Colleges LaunchBoard, between 61 and 100 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Electrician Occupations*, compared to 57 to 69 percent statewide and 52 percent of students in Career Education programs in general across the state (Exhibit 7a).¹¹

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2017-18¹²



According to the California Community Colleges LaunchBoard, between 83 and 100 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a related program, compared to 74 to 87 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).¹³

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2016-17¹⁴



¹¹ calpassplus.org/LaunchBoard/SWP.aspx

¹² Among completers and skills builders who exited, the proportion of students who attained a living wage.

¹³ calpassplus.org/LaunchBoard/SWP.aspx

¹⁴ Most recent year with available data is Program Year 2016-17. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Top Employers

Between January 1, 2017 and December 31, 2019, the top five employers in Imperial County for these occupations were [ConAm Incorporated](#), [Imperial Irrigation District](#), [Empire Cat](#), [Siemens](#), and [RDO Equipment](#) (Exhibit 8).

Exhibit 8: Top Employers in Imperial County for *Electrician Occupations*¹⁵

Top Employers	
<ul style="list-style-type: none"> • ConAm Incorporated • Imperial Irrigation District • Empire Cat • Siemens • RDO Equipment 	<ul style="list-style-type: none"> • McDonald's • Imperial County Office Of Education • Union Elementary School • El Centro Regional Medical Center • New Gold Inc.

Education, Skills and Certifications

Electrician Occupations have a national educational attainment ranging from a [high school diploma or equivalent](#) to an [postsecondary non-degree award](#) (Exhibit 9a).

Exhibit 9a: National Educational Attainment for *Electrician Occupations*¹⁶

Occupational Title	Typical Entry-Level Education
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	Postsecondary non-degree award
Electrical and Electronics Installers and Repairers, Transportation Equipment	Postsecondary non-degree award
Maintenance and Repair Workers, General	High school diploma or equivalent
Electricians	High school diploma or equivalent

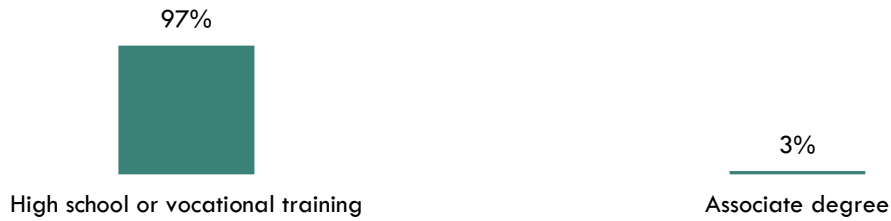
Based on online job postings between January 1, 2017 and December 31, 2019 in Imperial County, the top listed educational requirement for *Electrician Occupations* is a [high school or vocational training](#) (Exhibit 9b).¹⁷

¹⁵ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

¹⁶ EMSI 2020.04; QCEW, Non-QCEW, Self-Employed.

¹⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

Exhibit 9b: Educational Requirements for *Electrician Occupations* in Imperial County¹⁸



*May not add to 100% due to rounding

Exhibit 10 lists the top specialized, soft and software skills that appeared in online job postings between January 1, 2017 and December 31, 2019.

Exhibit 10: Top Skills for *Electrician Occupations* in Imperial County¹⁹

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Repair • Plumbing • Electrical Work • Predictive / Preventative Maintenance • Electrical Systems 	<ul style="list-style-type: none"> • Troubleshooting • Physical Abilities • Communication Skills • Preventive Maintenance • Computer Literacy 	<ul style="list-style-type: none"> • Microsoft Excel • Microsoft Word • Microsoft PowerPoint • Word Processing • Microsoft Operating Systems

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¹⁸ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified September 4, 2019. bls.gov/emp/tables/educational-attainment.htm.

¹⁹ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

Important Disclaimers

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 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.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.