




Energy Systems Technology

Labor Market Analysis for San Diego College of Continuing Education

September 2021

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
 Proceed with New Program	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> Bachelor's Degree+ <input type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate <input type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship
SUPPORT FOR PROGRAM MODIFICATION?	NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING	NUMBER OF ANNUAL JOB OPENINGS	
<input checked="" type="checkbox"/> <input type="checkbox"/>	LOW 	LOW 	

This report provides labor market information for occupations selected by San Diego College of Continuing Education for its *Energy Systems Technology* program. These occupations include “Commercial and Industrial Designers” and “Miscellaneous Construction and Related Workers.” According to available labor market information, *Energy Systems Technology Occupations* in San Diego County have a labor market demand of 107 annual job openings (while average demand for a single occupation in San Diego County is 242 annual job openings). On average, no institution supplies for-credit awards or noncredit awards in San Diego County for these occupations. In short, the region supplies zero for-credit and noncredit awards for 107 annual job openings, suggesting that there is a supply gap in the labor market. Entry-level and median wages for these occupations are above the living wage. This brief recommends proceeding with a new program or program modification because 1) there is a supply gap; and 2) entry-level and median wages are above the living wage. The college should note that **the typical entry-level education for these occupations is a bachelor’s degree.**

Introduction

This report provides labor market information in San Diego County for occupations related to the six-digit Taxonomy of Programs (TOP)¹ code, Energy Systems Technology (TOP 0946.10). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego College of Continuing Education (SDCCE), with program development and review. SDCCE identified the following occupational codes from the Standard Occupational Classification (SOC)² system for *Energy Systems Technology*, which will be the focus of this report:

- **Commercial and Industrial Designers** (SOC 27-1021): Design and develop manufactured products, such as cars, home appliances, and childrens toys. Combine artistic talent with research on product use, marketing, and materials to create the most functional and appealing product design.
- **Miscellaneous Construction and Related Workers** (SOC 47-4099): All construction and related workers not listed separately. For this report, miscellaneous construction and related workers include:
 - **Weatherization Installers and Technicians** (SOC 47-4099.03): Perform a variety of activities to weatherize homes and make them more energy efficient. Duties include repairing windows, insulating ducts, and performing heating, ventilating, and air-conditioning (HVAC) work. May perform energy audits and advise clients on energy conservation measures.

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

¹ Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.

² 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 2020 and 2025, *Energy Systems Technology Occupations* are projected to increase by **three** net jobs (Exhibit 1a). Employers in San Diego County will need to hire **107** workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

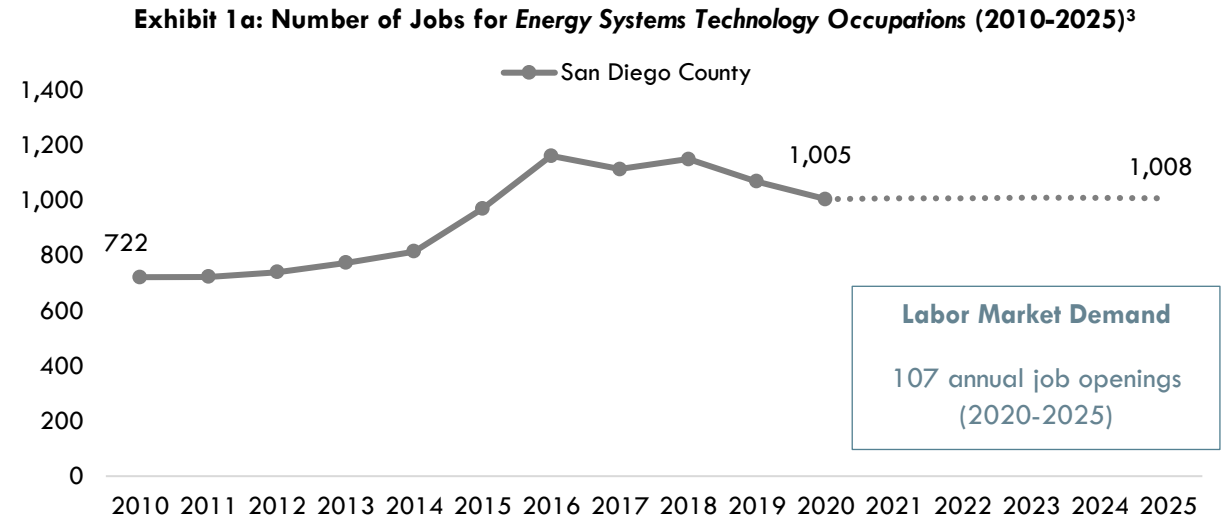


Exhibit 1b disaggregates the projected number of jobs change by occupation. “Miscellaneous Construction and Related Workers” are projected to have the most labor market demand between 2020 and 2025, with **73** annual job openings.

Exhibit 1b: Number of Jobs for Energy Systems Technology Occupations in San Diego County (2020-2025)⁴

Occupational Title	2020 Jobs	2025 Jobs	2020 - 2025 Net Jobs Change	2020-2025 % Net Jobs Change	Annual Job Openings (Demand)
Miscellaneous Construction and Related Workers	609	619	10	2%	73
Commercial and Industrial Designers	396	389	-7	-2%	34
Total	1,005	1,008	3	0%	107

³ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

⁴ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

Earnings

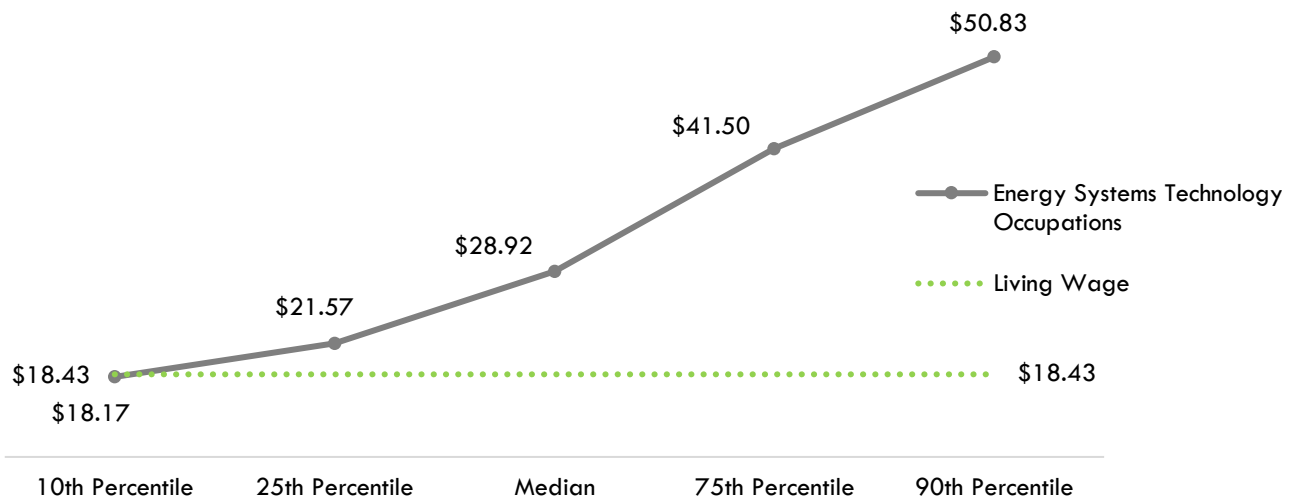
Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Energy Systems Technology Occupations* range from \$17.27 to \$25.86.

Exhibit 2a: Hourly Earnings for *Energy Systems Technology Occupations* in San Diego County⁵

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Commercial and Industrial Designers	\$25.86	\$36.58	\$54.76
Miscellaneous Construction and Related Workers	\$17.27	\$21.27	\$28.23

On average, the entry-level hourly earnings for *Energy Systems Technology Occupations* are \$21.57; this is more than the living wage for a single adult in San Diego County, which is \$18.43 per hour (Exhibit 2b).⁶

Exhibit 2b: Average Hourly Earnings⁷ for *Energy Systems Technology Occupations* in San Diego County⁸



⁵ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

⁶ "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. insightccd.org/family-needs-calculator/.

⁷ 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.

⁸ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

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.⁹ According to TOP and CIP¹⁰ data, no community college reported supplying the region with for-credit awards for Energy Systems Technology (TOP 0946.10) (Exhibit 3).

Exhibit 3: Number of For-Credit Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2017-18 through 2019-20)

College	Award Type	PY 17-18	PY 18-19	PY 19-20	3-Yr Total Average
N/A	N/A	0	0	0	0
Total		0	0	0	0

In terms of noncredit awards, San Diego College of Continuing Education does not provide any noncredit awards for Energy Systems Technology (TOP 0946.10), with a three-year average of zero noncredit awards (program years 2017-18 through 2019-20) (Exhibit 4).

Exhibit 4: Number of Noncredit Awards Conferred by SDCCE (Program Years 2017-18 through 2019-20)

Program Title	Award Type	PY 17-18	PY 18-19	PY 19-20	3-Yr Total Average
Weatherization Program	Noncredit	0	0	0	0

⁹ 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).

¹⁰ There are two CIP codes related to Energy Systems Technology (TOP 0946.10): Energy Management and Systems Technology/Technician (CIP 15.0503) and Solar Energy Technology/Technician (15.0505).

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply¹¹ suggests that there is a **supply gap** in San Diego County, with **107** annual openings and **zero** for-credit and noncredit awards supplied by the region (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Energy Systems Technology (TOP 0946.10)	107	0	0	107

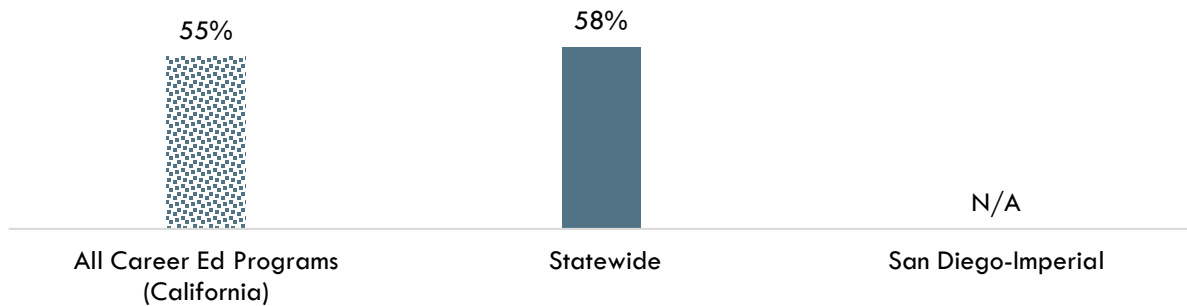
Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers;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

¹¹ 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.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 58 percent of students statewide earned a living wage after completing an Energy Systems Technology (0946.10) program, compared to 55 percent of students in Career Education programs in general across the state (Exhibit 6a).¹²

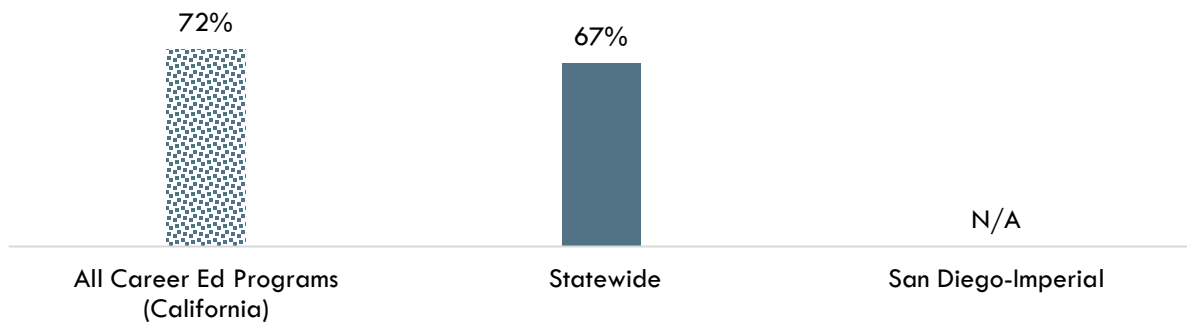
**Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program
(Energy Systems Technology, PY 2017-18)¹³**



"N/A" indicates insufficient data

According to the California Community Colleges LaunchBoard, 67 percent of students statewide obtained a job closely related to their field of study after completing an Energy Systems Technology (0946.10) program, compared to 72 percent of students in Career Education programs in general across the state (Exhibit 6b).¹⁴

**Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program
(Energy Systems Technology, PY 2016-17)¹⁵**



"N/A" indicates insufficient data

¹² "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹³ Among completers and skills builders who exited, the proportion of students who attained a living wage.

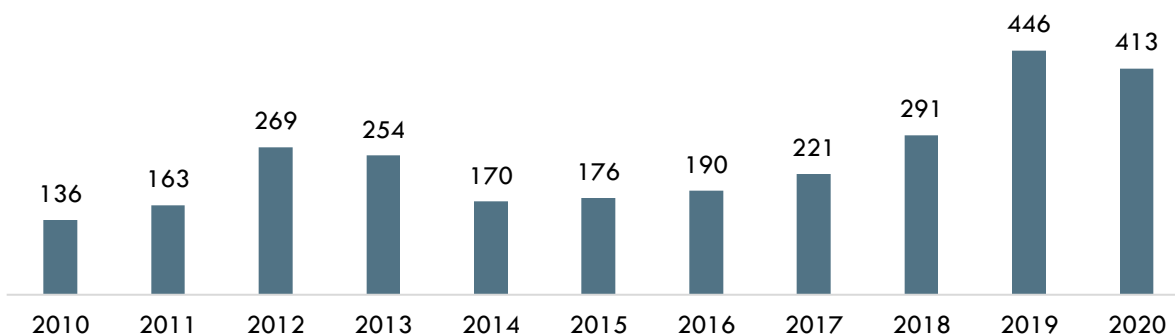
¹⁴ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹⁵ 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.

Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, 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 2020, there was an average of 248 online job postings per year for *Energy Systems Technology Occupations* in San Diego County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1b). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 7: Number of Online Job Postings for Energy Systems Technology Occupations in San Diego County (2010-2020)¹⁶



Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in San Diego County for *Energy Systems Technology Occupations* were *Intuit*, *Visa*, *Illumina*, *Viasat*, and *Becton Dickinson* based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for Energy Systems Technology Occupations in San Diego County¹⁷

Top Employers	
<ul style="list-style-type: none">• Intuit• Visa• Illumina Incorporated• Viasat• Becton Dickinson	<ul style="list-style-type: none">• Qualcomm• Seismic Company Incorporated• Walmart / Sam's• Ogio International, Inc.• Fate Therapeutics, Inc.

¹⁶ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.

¹⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, and Certifications

Energy Systems Technology Occupations have a national educational attainment ranging from a high school diploma or equivalent to a bachelor's degree (Exhibit 9a).

Exhibit 9a: National Educational Attainment for *Energy Systems Technology Occupations*¹⁸

Occupational Title	Typical Entry-Level Education
Commercial and Industrial Designers	Bachelor's degree
Miscellaneous Construction and Related Workers	High school diploma or equivalent

Based on online job postings between January 1, 2018 and December 31, 2020 in San Diego County, employers posted a bachelor's degree as the educational requirement for *Energy Systems Technology Occupations* (Exhibit 9b).¹⁹

Exhibit 9b: Educational Requirements for *Energy Systems Technology Occupations* in San Diego County²⁰



*may not total 100 percent due to rounding

¹⁸ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

¹⁹ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

²⁰ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified April 9, 2021. bls.gov/emp/tables/educational-attainment.htm.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 10: Top Skills for Energy Systems Technology Occupations in San Diego County²¹

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Product Development • Product Design • Prototyping • Interaction Design • Product Management • SolidWorks • Mechanical Engineering • Project Management • User Research • User Interface Design • UX Wireframes • Visual Design • Data Analysis • Industrial Engineering Industry Expertise • Budgeting 	<ul style="list-style-type: none"> • Communication Skills • Teamwork / Collaboration • Research • Creativity • Problem Solving • Detail-Oriented • Organizational Skills • Written Communication • Presentation Skills • Writing • Planning • Self-Starter • Troubleshooting • Physical Abilities • Time Management 	<ul style="list-style-type: none"> • Adobe Photoshop • SolidWorks • Microsoft Excel • Adobe Indesign • Adobe Illustrator • Adobe Acrobat • Adobe Creative Suite • Microsoft PowerPoint • JavaScript • Usability Testing • Computer Aided Drafting/Design • Software Engineering • Microsoft Word • Python • Software as a Service

²¹ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 11 lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 11: Top Certifications for *Energy Systems Technology Occupations* in San Diego County²²

Top Certifications in Online Job Postings

1. Security Clearance
 2. Certified Quality Auditor (CQA)
 3. Project Management Certification
 4. Certified Quality Engineer (CQE)
 5. American Society For Quality (ASQ) Certification
 6. Security Certified Network Specialist
 7. Real Estate Certification
 8. Project Management Professional (PMP)
 9. Engineer in Training Certification
 10. OSHA Safety 30 Hour
 11. North American Board of Energy Practitioners (NABCEP)
 12. First Aid CPR AED
 13. Certified Scrum Product Owner (CSPO)
 14. CDL Class A
 15. American Society of Mechanical Engineers (ASME) Certified
-

²² Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Prepared by:

Tina Ngo Bartel, Director (tngobartel@miracosta.edu)

John Edwards, Research Analyst (jedwards@miracosta.edu)

Priscilla Fernandez, Research Analyst (pfernandez@miracosta.edu)

San Diego-Imperial Center of Excellence for Labor Market Research



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.