










Heating, Air Conditioning, and Refrigeration Mechanics and Installers

Labor Market Analysis: Imperial County

May 2021

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED LEVEL OF EDUCATION
 Proceed with Caution	 	 	<input type="checkbox"/> Bachelor's Degree <input type="checkbox"/> Associate Degree <input checked="" 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	
 	MEDIUM 	HIGH 	

The San Diego-Imperial Center of Excellence for Labor Market Research (COE) developed this brief to assist the region's community colleges with strategic planning and program development. According to available labor market information, *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* in Imperial County have a labor market demand of 15 annual job openings (while average demand for a single occupation in Imperial County is 14 annual job openings), and one community college in Imperial County supplies fourteen awards for this occupation, suggesting that the supply gap is met in the labor market. Entry-level wages and median wages for this occupation are above the living wage. This brief recommends proceeding with caution when developing a new program, but supports a program modification because 1) there is a high number of annual job openings; 2) the supply gap is meet in the region; and 3) entry-level and median wages are above the living wage.

Introduction

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

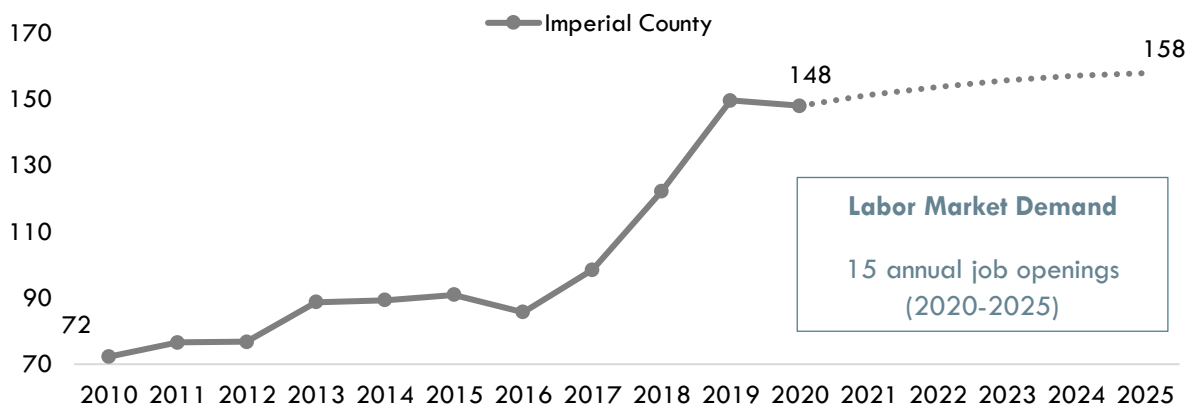
Heating, Air Conditioning, and Refrigeration Mechanics and Installers (SOC 49-9021): Install or repair heating, central air conditioning, HVAC, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves. Sample reported job titles include:

- Air Conditioning Technician
- Heating, Ventilation, Air Conditioning Installer
- Heating, Ventilation, Air Conditioning Mechanic
- Heating, Ventilation, and Air Conditioning Specialist
- Refrigeration Mechanic
- Refrigeration Operator
- Refrigeration Technician
- Service Technician
- Systems Mechanic
- Transportation Refrigeration Technician

Projected Occupational Demand

Between 2020 and 2025, *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* are projected to increase by 10 net jobs or seven percent (Exhibit 1). Employers in Imperial County will need to hire 15 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1: Number of Jobs for Heating, Air Conditioning, and Refrigeration Mechanics and Installers (2010-2025)²



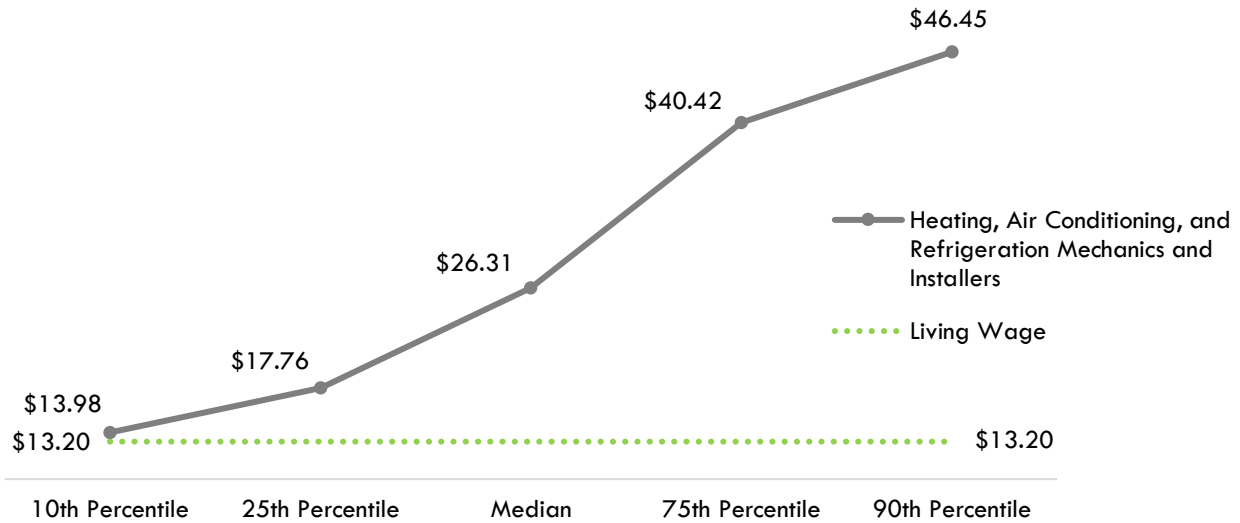
¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

² EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

Earnings

Heating, Air Conditioning, and Refrigeration Mechanics and Installers receive entry-level hourly earnings of \$17.76; 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 2).³

Exhibit 2: Hourly Earnings⁴ for Heating, Air Conditioning, and Refrigeration Mechanics and Installers in Imperial County⁵



³ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightccd.org/2018-self-sufficiency-standard.

⁴ 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.

⁵ EMSI 2021.1; 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.⁶ There are **two** TOP codes and **five** CIP codes related to *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers*

TOP or CIP Code	TOP or CIP Program Title
TOP 0946.00	Environmental Control Technology
TOP 0946.10	Energy Systems Technology
CIP 15.0406	Automation Engineer Technology/Technician
CIP 15.0501	Heating, Ventilation, Air Conditioning and Refrigeration Engineering Technology/Technician
CIP 15.0503	Energy Management and Systems Technology/Technician
CIP 15.0505	Solar Energy Technology/Technician
CIP 47.0201	Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology/Technician

⁶ 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).

According to TOP data, **one** community college supplies the region with awards for this occupation: **Imperial Valley College**. According to CIP data, **no** non-community-college institution supplies the region with awards (Exhibit 4).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Year 2016-17 through PY2019-20 Average)**

TOP or CIP Code	TOP or CIP Program Title	3-Yr Annual Average CC Awards (PY17-18 to PY19-20)	Other Educational Institutions 3-Yr Annual Average Awards (PY16-17 to PY18-19)	3-Yr Total Average Supply (PY16-17 to PY19-20)
0946.00	Environmental Control Technology	12	0	12
	<ul style="list-style-type: none"> • Imperial Valley 	12	0	
0946.10	Energy Systems Technology	2	0	2
	<ul style="list-style-type: none"> • Imperial Valley 	2	0	
			Total	14

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁷ suggests that the supply gap is met for this occupation in Imperial County, with 15 annual openings and 14 awards. Comparatively, there are 3,521 annual openings in California and 2,513 awards, suggesting that there is a supply gap across the state⁸ (Exhibit 5).

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

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
Imperial	15	14	1
California	3,521	2,513	1,008

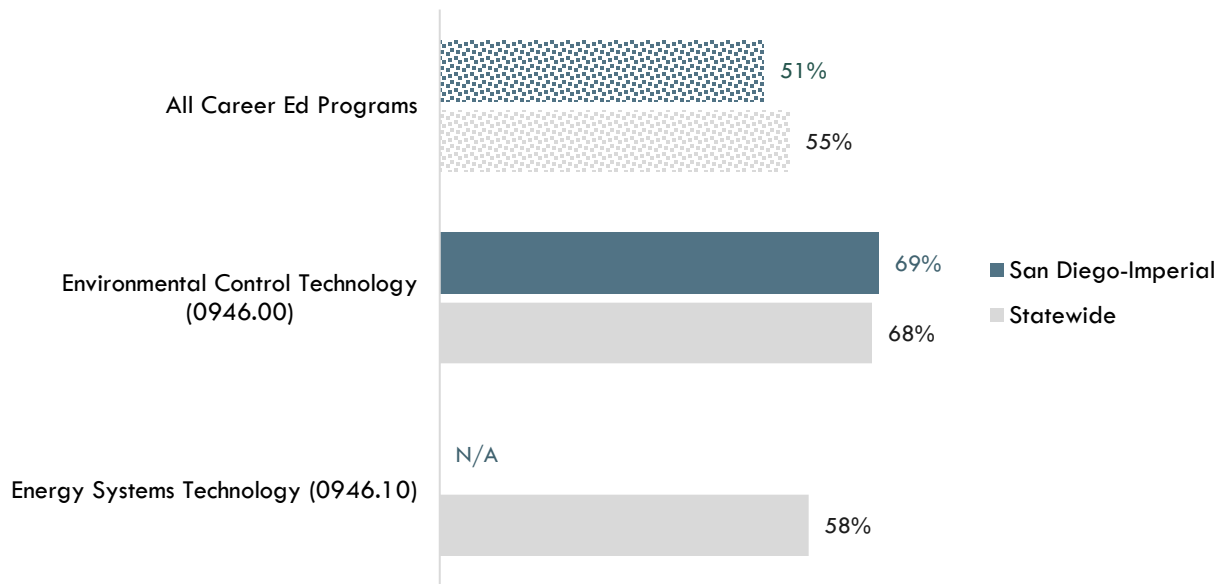
Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers;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

⁷ 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.
⁸ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 69 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Heating, Air Conditioning, and Refrigeration Mechanics and Installers*, compared to 58 to 68 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6a).⁹

Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program, PY2017-18¹⁰



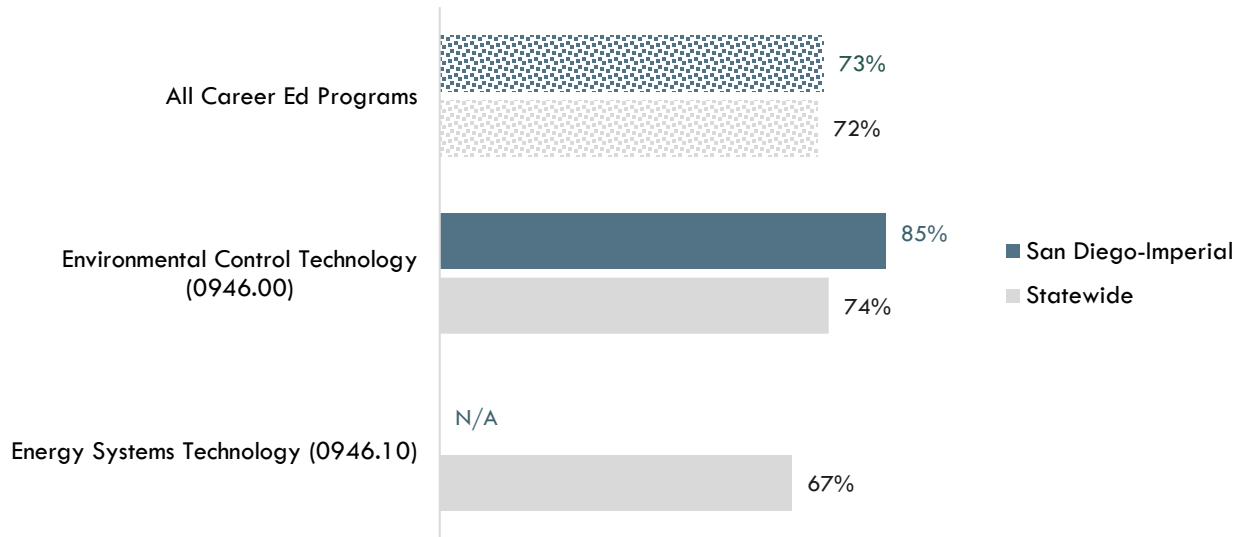
"N/A" indicates insufficient data

⁹ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹⁰ Among completers and skills builders who exited, the proportion of students who attained a living wage.

According to the California Community Colleges LaunchBoard, 85 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a program related to *Heating, Air Conditioning, and Refrigeration Mechanics and Installers*, compared to 67 to 74 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).¹¹

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2016-17¹²



"N/A" indicates insufficient data

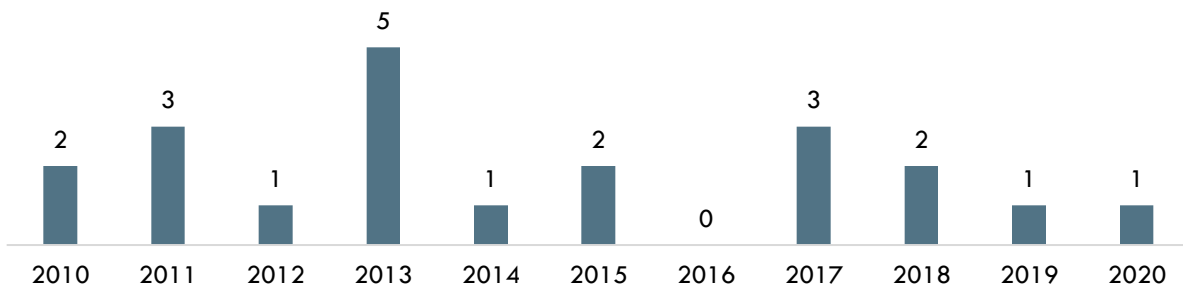
¹¹ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹² 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 two online job postings per year for *Heating, Air Conditioning, and Refrigeration Mechanics and Installers* in Imperial County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1). 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 Heating, Air Conditioning, and Refrigeration Mechanics and Installers in Imperial County (2010-2020)¹³



Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in Imperial County for this occupation were *Sears, Advanced Technology Services, Johnson & Johnson, Dover Corporation* and *Transform Home Services* based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for Heating, Air Conditioning, and Refrigeration Mechanics and Installers in Imperial County¹⁴

Top Employers	
<ul style="list-style-type: none"> • Sears • Advanced Technology Services • Johnson & Johnson • Dover Corporation • Transform Home Services 	<ul style="list-style-type: none"> • Sunbelt Rentals, Inc. • Legacy Air • Imperial Irrigation District • Chenega Corporation • Brawley Union High School District

¹³ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.

¹⁴ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, and Certifications

Exhibit 9 indicates the educational attainment for this occupation found currently in the national labor force. The typical entry-level education is a [postsecondary non-degree award](#).¹⁵

Exhibit 9: National Educational Attainment of Heating, Air Conditioning, and Refrigeration Mechanics and Installers¹⁶

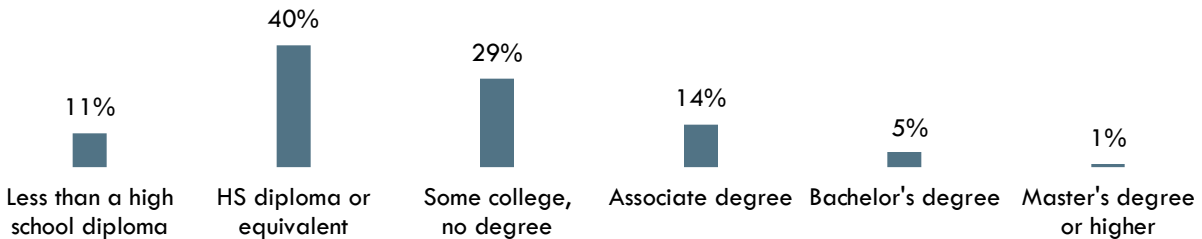


Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 10: Top Skills for Heating, Air Conditioning, and Refrigeration Mechanics and Installers in Imperial County¹⁷

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Repair • Heating, Ventilation and Air Conditioning • Test Equipment • Hand Tools • Welding • Metalworking Tools • Predictive / Preventative Maintenance • Electrical Work • Key Performance Metrics • Mechanical Knowledge • Product Sales • Sales • Appliance Repair • Residential Appliance • Training Programs 	<ul style="list-style-type: none"> • Physical Abilities • Troubleshooting • Preventive Maintenance • Problem Solving • Computer Literacy • Communication Skills • English • Organizational Skills • Analytical Skills • Bilingual • Building Effective Relationships • Editing • Range of Motion • Self-Starter • Spanish 	<ul style="list-style-type: none"> • Oracle

¹⁵ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

¹⁶ "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.

¹⁷ 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 Heating, Air Conditioning, and Refrigeration Mechanics and Installers in Imperial County¹⁸

Top Certifications in Online Job Postings

1. Environmental Protection Agency Certification
 2. EPA CFC/HCFC Certification
 3. OSHA Forklift Certification
 4. EPA 608
 5. Electrician Certification
 6. Commercial Refrigeration Certification
 7. Automotive Service Excellence (ASE) Certification
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¹⁸ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

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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.