** Electric and Hybrid Vehicle Occupations**

**Labor Market Information Report**

**Evergreen Valley College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

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# Recommendation

Based on all available data, there appears to be a significant undersupply of Electric and Hybrid Vehicle workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara County). There is a projected annual gap of about 1,809 students in the Bay region and 434 students in the Silicon Valley Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0948.40 - Alternative Fuels and Advanced Transportation Technology in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Evergreen Valley College and in the region.

# Introduction

This report profiles Electric and Hybrid Vehicle Occupations in the 12 county Bay region and in the Silicon Valley sub-region for two proposed new programs at Evergreen Valley College: 1) the Electric and Hybrid Vehicle Certification and 2) the Tesla Start Certificate. This LMI report can be used by Evergreen Valley College to document the labor market demand for both programs when submitting to the BACCC for the Program Recommendation process, because both the SOC code (SOC 49-3023)and the TOP code (TOP 0948.40) are the exact same for both programs.

Labor market information (LMI) is not available at the eight-digit SOC Code level for Automotive Master Mechanics (49-3023.01), therefore, the data shown in Tables 1 and 2 is for Automotive Service Technicians and Mechanics (at the six digit SOC level) and likely overstates demand for Automotive Master Mechanics. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for Automotive Master Mechanics (49-3023.01).

Similarly, labor market information (LMI) is not available at the eight-digit SOC Code level for Automotive Specialty Technicians (49-3023.02), therefore, the data shown in Tables 1 and 2 is for Automotive Service Technicians and Mechanics (at the six digit SOC level) and likely overstates demand for Automotive Specialty Technicians. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for Automotive Specialty Technicians (49-3023.02).

|  |
| --- |
| * **Automotive Service Technicians and Mechanics (SOC 49-3023):** Diagnose, adjust, repair, or overhaul automotive vehicles. Excludes “Automotive Body and Related Repairers" (49-3021), "Bus and Truck Mechanics and Diesel Engine Specialists" (49-3031), and "Electronic Equipment Installers and Repairers, Motor Vehicles" (49-2096). |
| Entry-Level Educational Requirement: Postsecondary nondegree *award* |
| Training Requirement: Short-term *on-the-job training* |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 33% |

# Occupational Demand

**Table 1. Employment Outlook for Electric and Hybrid Vehicle Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2018 Jobs | 2023 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Automotive Service Technicians and Mechanics | 17,328 | 18,225 | 897 | 5% | 9,105 | 1,821 | $12.67 | $23.13 |

*Source: EMSI 2019.2*

**Bay Region** includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Electric and Hybrid Vehicle Occupations in Silicon Valley Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2018 Jobs | 2023  Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Automotive Service Technicians and Mechanics | 4,148 | 4,361 | 213 | 5% | 2,171 | 434 | $12.81 | $22.87 |

*Source: EMSI 2019.2*

**Silicon Valley Sub-Region** includes Santa Clara County

### Job Postings in Bay Region and Silicon Valley Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (August 2018 - July 2019)**

| Occupation | Bay Region | Silicon Valley |
| --- | --- | --- |
| Automotive Specialty Technicians | 4,274 | 1,273 |
| Automotive Master Mechanics | 452 | 166 |
| **Total** | **4,726** | **1,439** |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Electric and Hybrid Vehicle Occupations for latest 12 months (August 2018 - July 2019) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Auto Technician | 733 | Technician, Retail Industry | 35 |
| Service Technician | 293 | Automotive Advisor | 32 |
| Lube Technician | 276 | Roadside Rescuer | 31 |
| Mechanic | 241 | Flat Rate Technician | 30 |
| Technician | 236 | Assessor | 30 |
| Detailer | 206 | Repair Technician | 28 |
| Auto Mechanic | 186 | Inspector | 27 |
| Automotive Service Advisor | 132 | Behavior Technician | 24 |
| Automotive Technician | 71 | Specialist | 23 |
| Fueler | 62 | Quality Technician | 22 |
| Shop Technician | 50 | Operator | 22 |
| Field Service Technician | 44 | Area Technician | 22 |
| Automotive Service Technician | 42 | 91B Light-Wheel Vehicle Mechanic | 22 |
| Oil Change Technician | 41 | Service Cashier | 20 |

**Table 4b. Top Job Titles for Electric and Hybrid Vehicle Occupations for latest 12 months (August 2018 - July 2019) Silicon Valley Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Silicon Valley | Common Title | Silicon Valley |
| Auto Technician | 209 | Flat Rate Technician | 14 |
| Service Technician | 119 | Automotive Service Technician | 14 |
| Lube Technician | 75 | Oil Change Technician | 13 |
| Technician | 73 | Spark Lead | 12 |
| Mechanic | 67 | Fueler | 11 |
| Detailer | 45 | Field Service Technician | 10 |
| Automotive Service Advisor | 43 | Behavior Technician, Information And Technology Industry | 10 |
| Auto Mechanic | 43 | Repair Technician | 8 |
| Automotive Technician | 31 | Service Cashier | 7 |
| Automotive Advisor | 23 | Service Consultant, Mandarin, Public Speaking | 6 |
| Behavior Technician | 21 | Service Consultant | 6 |
| Vehicle Operator | 17 | Service Advisor | 6 |
| Technician, Retail Industry | 16 | Roadside Rescuer | 6 |
| Operator | 16 | Quality Technician | 6 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Electric and Hybrid Vehicle Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2018) | Jobs in Industry (2022) | % Change (2018-22) | % in Industry (2018) |
| General Automotive Repair (811111) | 6,034 | 6,469 | 7% | 35% |
| New Car Dealers (441110) | 4,737 | 5,110 | 8% | 27% |
| Automotive Body, Paint, and Interior Repair and Maintenance (811121) | 918 | 916 | 0% | 5% |
| Automotive Parts and Accessories Stores (441310) | 610 | 546 | -10% | 4% |
| Other Automotive Mechanical and Electrical Repair and Maintenance (811118) | 492 | 476 | -3% | 3% |
| Local Government, Excluding Education and Hospitals (903999) | 425 | 406 | -4% | 2% |
| Tire Dealers (441320) | 396 | 439 | 11% | 2% |
| Car Washes (811192) | 368 | 383 | 4% | 2% |
| All Other Automotive Repair and Maintenance (811198) | 340 | 390 | 15% | 2% |
| Used Car Dealers (441120) | 317 | 406 | 28% | 2% |
| Automotive Transmission Repair (811113) | 178 | 144 | -19% | 1% |
| Gasoline Stations with Convenience Stores (447110) | 169 | 166 | -2% | 1% |

*Source: EMSI 2019.2*

**Table 6. Top Employers Posting Electric and Hybrid Vehicle Occupations in Bay Region and Silicon Valley Sub-Region (August 2018 - July 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | Silicon Valley |
| United Parcel Service Incorporated | 143 | Allstate Good Hands Rescue Network | 38 | Del Grande Dealer Group | 51 |
| Bridgestone / Firestone | 131 | Sunstate Equipment Company | 36 | Bridgestone / Firestone | 45 |
| Chrysler | 121 | Best Buy | 36 | Autonation | 42 |
| Jiffy Lube | 106 | Penske | 34 | Chrysler | 40 |
| Penske Automotive Group | 67 | US Army | 32 | Penske Automotive Group | 29 |
| Autonation | 65 | Chevrolet | 31 | Lexus | 27 |
| Allstate | 64 | Yourmechanic | 30 | Jiffy Lube | 27 |
| Pep Boys | 61 | Tesla Motors | 30 | United Parcel Service Incorporated | 24 |
| Honda | 61 | Hertz Corporation | 28 | Honda | 21 |
| Del Grande Dealer Group | 61 | FedEx | 28 | Toyota Motors | 20 |
| Carmax | 55 | Qvale Auto Group | 26 | Pep Boys | 18 |
| Toyota Motors | 54 | Lucid Motors Inc | 26 | Penske | 17 |
| Sonic Automotive | 54 | Kar Auction Services | 24 | Yourmechanic | 16 |
| Tesla | 47 | Hendrick Automotive Group | 23 | Sonic Automotive | 16 |
| Amerit Fleet Solutions | 46 | Subaru | 22 | US Army | 14 |
| Lithia Motors Incorporated | 45 | Skill Loan Llc | 21 | Tesla | 14 |
| Lexus | 38 | Nissan North America Incorporated | 21 | Subaru | 14 |

*Source: Burning Glass*

# Educational Supply

There is one community college in the Bay Region (City College of San Francisco) issuing 12 awards on average annually (last 3 years) on TOP 0948.40 - Alternative Fuels and Advanced Transportation Technology. There are no colleges in the Silicon Valley Sub-region issuing awards on this TOP code.

**Table 7. Awards on TOP 0948.40 - Alternative Fuels and Advanced Transportation Technology in Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Associates | Certificates | Noncredit | Total |
| City College of San Francisco | Mid-Peninsula | - | 12 | - | 12 |
| **Total Bay Region** | | **-** | **12** | **-** | **12** |
| **Total Silicon Valley Sub-Region** | | **-** | **-** | **-** | **-** |

# *Source: Data Mart*

Note: The annual average for awards is 2015-16 to 2017-18.

# Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 1,821 annual openings for the Electric and Hybrid Vehicle occupational cluster and 12 annual (3-year average) awards for an annual undersupply of 1,809 students. In the Silicon Valley Sub-Region, there is also a gap with 434 annual openings and no annual (3-year average) awards for an annual undersupply of 434 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0948.40 - Alternative Fuels and Advanced Transportation Technology**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay  (All CTE Programs) | Evergreen Valley College (All CTE Programs) | State (0948.40) | Bay (0948.40) | Silicon Valley (0948.40) | Evergreen Valley College (0948.40) |
| % Employed Four Quarters After Exit | 74% | 76% | 73% | 81% | 77% | 82% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $8,549 | $7,885 | $7,534 | $7,881 | $7,739 |
| Median % Change in Earnings | 46% | 75% | 64% | 93% | 69% | 75% |
| % of Students Earning a Living Wage | 63% | 53% | 45% | 49% | 48% | 48% |

*Source: Launchboard Pipeline (version available on 8/29/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for Electric and Hybrid Vehicle Occupations in Bay Region (August 2018 - July 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Repair | 2,515 | Motor Vehicle Operation | 219 | Manual Dexterity | 119 |
| Auto Repair | 1,175 | Mechanical Repair | 216 | Roadside Assistance | 118 |
| Customer Service | 1,023 | Lifting Ability | 204 | Data Entry | 110 |
| Automotive Services Industry Knowledge | 784 | Retail Industry Knowledge | 191 | Machinery | 106 |
| Customer Contact | 428 | Power Tools | 170 | Wiring | 106 |
| Vehicle Maintenance | 350 | Welding | 162 | Technical Training | 91 |
| Hand Tools | 342 | Brake Work | 156 | Purchasing | 90 |
| Vehicle Inspection | 333 | Inspection Records | 154 | Tire Repairs | 90 |
| Scheduling | 325 | Quality Assurance and Control | 150 | Retail Operations | 88 |
| Automotive Industry Knowledge | 307 | Test Equipment | 144 | Personal Protective Equipment (PPE) | 84 |
| Oil Changes | 296 | Transmission Repair | 133 | Python | 84 |
| Sales | 270 | Automotive Mechanical Diagnosis | 130 | Sales Goals | 83 |
| Electrical Systems | 259 | Occupational Health and Safety | 130 | Tire Pressure Check | 83 |
| Predictive / Preventative Maintenance | 254 | Store Management | 124 | Budgeting | 81 |
| Cleaning | 231 | Battery Testing and Installation | 119 | Highway Maintenance | 81 |

*Source: Burning Glass*

**Table 10. Certifications for Electric and Hybrid Vehicle Occupations in Bay Region (August 2018 - July 2019)**

Note: 43% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |  |  |
| --- | --- | --- | --- |
| Certification | Postings | Certification | Postings |
| Driver's License | 2,343 | MECP Basic Installation | 21 |
| Automotive Service Excellence (ASE) Certification | 598 | CDL Class C | 20 |
| Certified Lube Technician | 57 | MECP Advanced Certification | 16 |
| Chrysler Certified | 39 | Good Conduct | 15 |
| Mobile Electronics Certified Professional (MECP) | 36 | Electrical Certification | 11 |
| Mobile Electronics Certified Professional | 36 | Security Clearance | 10 |
| First Aid CPR AED | 33 | Occupational Safety and Health Administration Certification | 10 |
| Air Brake Certified | 33 | Environmental Protection Agency Certification | 10 |
| Registered Behavior Technician | 32 | Airframe and Powerplant (A and P) Certification | 10 |
| Certified Career Development Facilitator | 27 | CompTIA Network+ | 9 |
| CDL Class A | 27 | Forklift Operator Certification | 8 |
| Cdl Class B | 23 | Certified Fluid Power | 8 |

*Source: Burning Glass*

**Table 11. Education Requirements for Electric and Hybrid Vehicle Occupations in Bay Region**

Note: 66% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

|  |  |  |
| --- | --- | --- |
| Education (minimum advertised) | Latest 12 Mos. Postings | Percent 12 Mos. Postings |
| High school or vocational training | 328 | 4% |
| Associate Degree | 228 | 3% |
| Bachelor’s Degree or Higher | 6,836 | 93% |

*Source: Burning Glass*

# Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

# Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard [www.calpassplus.org/Launchboard/](http://www.calpassplus.org/Launchboard/)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor’s Office MIS system

# Contacts

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