



Electrical Vehicle Service Specialist

November 2017

Prepared by the Los Angeles/Orange County Center of Excellence for Labor Market Research

Program Recommendation

This report was compiled by the Los Angeles/Orange County Center of Excellence to provide regional labor market data for the program recommendation of electrical vehicle service specialist. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Based on the data, the COE has mixed findings, and cannot determine if there is an unmet need for the electrical vehicle service specialist program in Orange County. Reasons include:

- In 2016, there was only one online job posting in the region for an electrical vehicle service specialist, and no postings listed the Automotive Service Excellence (ASE) L3 – Light Duty Hybrid/Electric Vehicle Specialist Certification as a required or desired qualification
- There were 240 job postings in 2016 that mentioned “electric* vehicle” or “hybrid” on the posting; possibly signaling that employers are looking to hire automotive service workers with both traditional and alternative vehicle experience
- Automotive service technicians, an occupation which includes specialty technicians who work with electric vehicles and/or hybrids, is expected to grow by 5% in Orange County over the next five years

Occupation Codes and Descriptions

Currently, automotive technicians that specialize in electric and/or hybrid vehicles are classified by the standard occupational classification (SOC) system as automotive specialty technicians, which is an emerging occupation. The occupation title and description, as well as relevant tasks and reported job titles are included in Exhibit 1.¹

Exhibit 1 – Occupation, description, and sample job titles

O*NET Code	Title	Description	Sample of Reported Job Titles
49-3023.02	Automotive Specialty Technicians	Repair only one system or component on a vehicle, such as brakes, suspension, or radiator. Relevant tasks: change spark	Air Conditioning Technician, Automobile Mechanic, Automobile Technician, Automotive

¹ New and emerging occupations (N&E) are incorporated into the O*NET-SOC classification system based on the evolving nature of workforce requirements stemming from changes in technology, society, law, and business practices. Incorporating N&E occupations into the O*NET system makes O*NET information more beneficial and responsive. <https://www.onetcenter.org/reports/NewEmerging.html>

plugs, fuel filters, air filters, and batteries in hybrid electric vehicles; service internal combustion engine systems for hybrid electric vehicles; diagnose and repair regenerative braking systems or hydraulic systems in hybrid vehicles.

Technician, Drivability Technician, Heavy Line Technician, Lube Technician, Oil Bay Technician, Quick Service Technician, Service Technician

Source: O*NET Online

Current and Future Employment

In Orange County, the number of automotive service jobs is expected to increase by 5% over the next five years. More than 650 job opportunities in this occupation will be available annually through 2021 due to new job growth and replacement need (e.g., retirements). Since automotive specialty technician (49-3023.02) is an emerging occupation, data collection is underway and is not yet available; therefore, all current labor market data for this emerging occupation is included in the SOC code for automotive service technicians and mechanics (49-3023). It is important to consider that the available labor market data encompasses many different automotive service occupations, and does not only represent electrical vehicle service specialists. Exhibit 2 contains detailed employment projections data for the occupation of interest.

Exhibit 2 – 5-year projections for automotive service technicians and mechanics in Orange County

SOC	Occupation	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	Annual Openings
49-3023	Automotive Service Technicians and Mechanics	6,457	6,765	308	5%	656

Source: Economic Modeling Specialists International (EMSI)

Earnings

In Orange County, the average entry-level wage for automotive service technicians is \$11.21, which is below the MIT Living Wage² estimate of \$14.48 per hour for a single adult. The average annual earnings for this occupation in the region is over \$48,000 per year, assuming full-time employment.

² MIT Living Wage Calculator. <http://livingwage.mit.edu/>

Exhibit 3 contains hourly wages and annual average earnings for this occupation. Entry-level hourly earnings is represented by the 10th percentile of wages, median hourly earnings is represented by the 50th percentile of wages, and experienced hourly earnings is represented by the 90th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for automotive service technicians and mechanics in Orange County

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings	Average Annual Earnings
49-3023	Automotive Service Technicians and Mechanics	\$11.21	\$20.80	\$40.91	\$48,200

Source: Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is employing workers in the field of electrical vehicle service, and what they are looking for in potential candidates. To identify job postings related to electrical vehicle service specialists, the following search terms were used were used: Automotive Service Technicians and Mechanics (49-3023), and job postings must include “electric*” or “hybrid”. **In 2016, there was only one job posted for a specialist in electrical vehicle service.**

Each of the remaining job postings (n=239) mentioned responsibilities and duties related to electric and/or hybrid vehicles, such as:

“...troubleshooting and repairing complex hydraulic systems, generators and electrical systems, hybrids, and on-board computer systems.”

“...diagnose and repair vehicles...from tough trucks to fuel-efficient hybrids.”

“Knowledge of wheelchair lift repair, hybrids, CNG, a PLUS.”

“Continuously learn new technical information and techniques in formal training sessions in order to stay abreast with rapidly changing automotive technology.”

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top titles for Orange County employers posting job ads related to electric vehicle service are listed in Exhibit 4. Auto mechanic/technician was the most mentioned job title, and was present in 74% of all relevant job postings (178 postings). Only one regional job posting mentioned electric vehicles in the job title (Automotive Technician – EV/Hybrid).

Exhibit 4 –Job titles (n=240)

Title	Job Postings, Full Year 2016
Auto Mechanic/Technician	178
C Technician Automotive Mechanic	15
B Technician Automotive Mechanic	11
A Technician Automotive Mechanic	7

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 5 lists the major employers hiring electrical vehicle service professionals. Top employers postings job ads included Bridgestone/Firestone, Chrysler and Pep Boys. The top worksite cities in the region for these occupations were Anaheim, Tustin, Irvine, Costa Mesa, Huntington Beach and Santa Ana.

Exhibit 5 – Top employers (n= 229)

Employer	Job Postings, Full Year 2016
Bridgestone/Firestone	74
Chrysler	49
Pep Boys	33
Group Automotive Incorporated	10
Theodore Robins Ford	7

Source: Labor Insight/Jobs (Burning Glass)

Certifications

Automotive Service Excellence (ASE) Certification was the only sought-after certification for this occupation, and was included on 93% of the postings that specified a certification. Most job postings desired candidates who have completed ASE certifications in multiple areas; however, no job posting in the region specifically requested ASE Certification L3 – Light Duty Hybrid/Electric Vehicle Specialist Certification.

Exhibit 6 –Job certifications (n=266) and job skills (n=426)

Certification	Job Postings, Full Year 2016
Automotive Service Excellence (ASE) Certification	107

Source: Labor Insight/Jobs (Burning Glass)

Advertised Education Levels

Exhibit 7 displays the education level requested by employers in online job ads. The majority of employers were looking for a candidate with a high school or vocational training level of education. Approximately 58% of job postings did not specify a level of education.

Exhibit 7 – 2016 Online job ads with minimum advertised education requirements for jobs related to electrical vehicle service (n=101)



Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Automotive service jobs in Orange County are most often found in the general automotive repair industry (48% of total jobs in the industry). Exhibit 8 shows the industries that are the largest employers of automotive service jobs in Orange County.

Exhibit 8 – Industries with the most automotive service jobs, 2016

NAICS (6-Digit)	Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
811111	General Automotive Repair	2,123	33%
441110	New Car Dealers	1,623	25%
811121	Automotive Body, Paint, and Interior Repair and Maintenance	418	7%
441310	Automotive Parts and Accessories Stores	265	4%

Source: Economic Modeling Specialists International (EMSI)

Education and Training

Exhibit 9 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training, and percentage of workers in the field who hold a community college award or have completed some postsecondary courses. One-third of the workforce in automotive service occupations has completed some community college education as their highest level of education.

Exhibit 9 – Education and training requirements 2016-2021

SOC	Occupation	Typical entry-level education	Typical on-the-job training	% of Community College Award Holders or Some Postsecondary Coursework
49-3023	Automotive Service Technicians and Mechanics	Postsecondary non-degree award	Short-term	33%

Source: Economic Modeling Specialists International, Bureau of Labor Statistics Employment Projections (Educational Attainment)

Currently, there are five community colleges in the Los Angeles/Orange County region that train students in programs related to the field of alternative fuels and advanced technology. Exhibit 10 displays the headcount and annual average community college awards for each of the colleges training in this field. Headcount is the actual number of students enrolled, regardless of credit hours. It is also important to note that an award is not equivalent to a single person in search of a job opening, since a student may earn more than one award (e.g. an associate degree and a certificate).

Between 2012 and 2015, the total annual average community college awards conferred was 48 (3 associate degrees and 45 certificates) across one program: Alternative Fuels and Advanced Transportation Technology (0948.40).

Exhibit 10 – CCC Student Awards (by TOP and College)

0948.40 – Alternative Fuels and Advanced Technology					
College	Headcount	CCC Associate Degrees	CCC Certificates	Total CC Awards	Program Title(s)
Golden West	12	-	-	-	-
LA Trade-Tech	N/A	N/A	12	12	Hybrid & Electric Plug-In Vehicle Technology
Long Beach	70	1	28	29	Advanced Transportation Technology – Alternative Fuels; Advanced Transportation Technology – Electric Vehicles
Rio Hondo	58	1	2	3	Alternative Fuels and Advanced Transportation Technology; Electric Vehicle and Fuel Cell Technology Technician
Saddleback	N/A	1	3	4	Alternative Fuel Vehicle Specialist
TOTAL	140	3	45	48	

Source: California Community Colleges Chancellor’s Office MIS Data Mart

Regional supply data shows that there is a supply of students who have completed program(s) in non-California community college institutions. The following institutions have awarded the following:

California Career School (Orange County): 9 Average Annual Awards (0 Associate degrees and 9 certificates/other awards)

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Alternative Fuels and Advanced Technology Taxonomy of Program (TOP) code (0948.40) in the Los Angeles/Orange County region for the 2014-2015 academic year.

- The median annual wage after program completion is \$22,956
- 38% of students are earning a living wage
- 68% of students are employed within six months after completing a program

Source: CTE LaunchBoard

Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represents the labor market demand for positions most closely related to electrical vehicle service specialist, as well as alternative fuels and advanced technology. Standard occupational classification (SOC) codes were chosen based on the national education level required for employment (associate degree and postsecondary certificate) as well as the proportion of current workers who hold a community college award or have had some community college training. This selection process narrows the labor market analysis to the most relevant employment opportunities for students with community college education and/or training.

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 and should not be used to establish current job openings, because the numbers may include duplicate job postings or postings intended to gather a pool of applicants. Real-time labor market information 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.