

Labor Market Assessment: 0948.40/Alternative Fuels and Advanced Transportation Technology Hybrid and Electric Vehicle Technology (Certificate)
Los Angeles Center of Excellence, May 2022

Summary

| | | | |
|--|--|--|--|
| Program Endorsement: | Endorsed: All Criteria Met <input type="checkbox"/> | Endorsed: Some Criteria Met <input checked="" type="checkbox"/> | Not Endorsed <input type="checkbox"/> |
| Program Endorsement Criteria | | | |
| Supply Gap: | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> (See comments below) | |
| Living Wage: (Entry-Level, 25th) | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | |
| Education: | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Emerging Occupation(s) | | | |
| Yes <input type="checkbox"/> | | No <input checked="" type="checkbox"/> | |

The Los Angeles Center of Excellence for Labor Market Research (LA COE) prepared this report to provide regional labor market supply and demand data related to two middle-skill occupations: *electronic equipment installers and repairers, motor vehicles (49-2096)*, and *automotive service technicians (49-3023)*. Middle-skill occupations typically require some postsecondary education, but less than a bachelor’s degree.¹ This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data, there does not appear to be a supply gap for these two occupations related to hybrid and electric vehicle technology in the region. However, since the supply data is overstated due to the inclusion of auto-awarded certificates by Santa Ana College in the 2017-18 academic year, the COE cannot reliably determine if there is a supply gap for these occupations in the region. However, if the auto-issued awards from Santa Ana were smoothed out for the 2017-18 academic year to more closely reflect the annual average from other years (roughly 150 awards), there would undoubtedly be a sufficient supply gap worthy of program endorsement. Although the Bureau of Labor Statistics (BLS) lists a postsecondary non-degree award as the typical entry-level education for *automotive service technicians and mechanics*, the entry-level wage is below the self-sufficiency standard wage in both Los Angeles and Orange counties. **Due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **2,293 jobs available annually** in the region due to retirements and workers leaving the field,

¹ The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor’s degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

which is more than the 2,069 awards conferred annually by educational institutions in the region.

- In the 2017-18 academic year, there were 1,253 low-unit certificates automatically conferred (also known as auto-awarded) by Santa Ana College. These awards were automatically conferred to current and past students who had completed the unit requirements within the past few years. However, this low-unit program may not have necessarily prepared students for the occupations studied in this report, as compared to higher-unit programs at Santa Ana College and throughout the region. Therefore, the three year-average number of awards is overstated.
- It is important to note that the *automotive service technicians and mechanics* (49-3023) SOC code includes all automotive occupations and not solely hybrid and electric vehicles. Therefore, the **demand data is likely overstated**.
- Over the past 12 months, there were **344 online job postings for hybrid and electric vehicle technology jobs**. The highest number of job postings were for automotive technicians, mobile service technicians, heavy duty technicians, and mechanics.
- **Living Wage Criteria** –Within Los Angeles County, both occupations have entry-level wages **below the self-sufficiency standard hourly wage** (\$18.10/hour).²
- **Educational Criteria** –Within the greater LA/OC region, **97% of the annual job openings** for occupations related to hybrid and electric vehicle technology **typically require a postsecondary non-degree award**.
 - Furthermore, the national-level educational attainment data indicates **between 36% and 48% of workers in the field have completed some college or an associate degree**.

Supply:

- There are **16 community colleges** in the greater LA/OC region that issue awards related to automotive and/or alternative fuels technology, conferring an average of **1,669 awards annually** between 2017 and 2020.
 - In the 2017-18 academic year, there were 1,253 low-unit certificates automatically conferred (also known as auto-awarded) by Santa Ana College. These awards were automatically conferred to current and past students who had completed the unit requirements within the past few years; however, this low-unit program may not have necessarily prepared students for the occupation studied in this report, as compared to higher-unit programs at Santa Ana College and throughout the region. Therefore, the three year-average number of awards is overstated.

Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California on 5/25/2022. For more information, visit: <http://selfsufficiencystandard.org/california>.

- Between 2016 and 2019, there was an average of **400 awards conferred annually** in related training programs by non-community college institutions throughout the greater LA/OC region.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for these hybrid and electric vehicle technology occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to decrease by 4% through 2025. However, there will be nearly 2,300 job openings per year through 2025 due to retirements and workers leaving the field. It is important to note that the *automotive service technicians and mechanics* (49-3023) SOC code includes all automotive occupations and not solely hybrid and electric vehicles. Therefore, the data in Exhibit 1 is likely overstated for hybrid and electric vehicle technology occupations.

This report includes employment projection data by Emsi which uses EDD information. Emsi's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the full impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the full impacts of COVID-19 into account.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties³

| Geography | 2020 Jobs | 2025 Jobs | 2020-2025 Change | 2020-2025 % Change | Annual Openings |
|--------------|---------------|---------------|------------------|--------------------|-----------------|
| Los Angeles | 17,522 | 16,597 | (926) | (5%) | 1,677 |
| Orange | 6,318 | 6,187 | (130) | (2%) | 616 |
| Total | 23,840 | 22,784 | (1,056) | (4%) | 2,293 |

Wages

The labor market endorsement in this report considers the entry-level hourly wages for these hybrid and electric vehicle technology occupations in Los Angeles County as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the greater LA/OC region. Detailed wage information, by county, is included in Appendix A.

Los Angeles County—Both occupations have entry-level wages **below** the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$14.28 and \$14.80. While experienced *automotive service technicians and mechanics* can expect to earn \$28.41, which is higher than the self-sufficiency standard,

³ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

experienced *electronic equipment installers and repairers, motor vehicles*, can expect to earn lower than the self-sufficiency standard wage (\$19.05).

Orange County—Both occupations have entry-level wages **below** the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$15.76 and \$16.81. Experienced workers can expect to earn wages between \$20.27 and \$31.75, which are nearly equal to or higher than the self-sufficiency standard.

Job Postings

There were 344 online job postings for hybrid and/or electric vehicle technicians listed in the past 12 months. The highest number of job postings were for automotive technicians, mobile service technicians, heavy duty technicians, and mechanics. The top skills were auto repair, knowledge of electric vehicles, automotive services industry knowledge, and electrical systems. The top employers, by number of job postings, in the region were: Tesla, LACarGuy, FedEx, and Canoo.

It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the full impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.

Educational Attainment

The Bureau of Labor Statistics (BLS) lists the following typical entry-level education for the occupations in this report:

- **Postsecondary non-degree award:** *Automotive service technicians and mechanics*
- **High school diploma or equivalent:** *Electronic equipment installers and repairers, motor vehicles*

In the greater LA/OC region, the majority of annual job openings (97%) typically require a postsecondary non-degree award. Furthermore, the national-level educational attainment data indicates between 36% and 48% of workers in the field have completed some college or an associate degree. Of the 46% of hybrid and electric vehicle technology job postings listing a minimum education requirement in the greater Los Angeles/Orange County region, 91% (143) requested high school or vocational training, and 9% (14) requested an associate degree.

Educational Supply

Community College Supply—Exhibit 2 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Automotive Technology (0948.00), and Alternative Fuels and Advanced Transportation Technology (0948.40). The colleges with the most completions in the region are: Santa Ana*, Cypress, and LA Trade-Tech.

Exhibit 2: Regional community college awards (certificates and degrees), 2017-2020

| TOP Code | Program | College | 2017-18 Awards | 2018-19 Awards | 2019-20 Awards | 3-Year Average |
|----------|---------|----------|----------------|----------------|----------------|----------------|
| 0948.00 | | Cerritos | 57 | 58 | 71 | 62 |

| TOP Code | Program | College | 2017-18 Awards | 2018-19 Awards | 2019-20 Awards | 3-Year Average | | |
|--------------------------------|-----------------------|--------------------------------|--|----------------|----------------|----------------|--------------|--------------|
| | Automotive Technology | Citrus | 85 | 114 | 13 | 71 | | |
| | | Compton | 21 | 15 | 1 | 12 | | |
| | | East LA | 84 | 70 | 35 | 63 | | |
| | | El Camino | 97 | 70 | 77 | 81 | | |
| | | LA Pierce | 137 | 86 | 110 | 111 | | |
| | | LA Trade-Tech | 147 | 157 | 67 | 124 | | |
| | | Long Beach | - | - | 24 | 8 | | |
| | | Pasadena | 40 | 107 | 125 | 91 | | |
| | | Rio Hondo | 85 | 90 | 86 | 87 | | |
| | | Santa Monica | - | 2 | - | 1 | | |
| | | LA Subtotal | 753 | 769 | 609 | 710 | | |
| | | Cypress | 173 | 362 | 262 | 266 | | |
| | | Fullerton | 49 | 26 | 24 | 33 | | |
| | | Golden West | 37 | 51 | 55 | 48 | | |
| | | Saddleback | 23 | 48 | 26 | 32 | | |
| | | Santa Ana | 1,291 | 119 | 182 | 531 | | |
| | | OC Subtotal | 1,573 | 606 | 549 | 909 | | |
| | | Supply Subtotal/Average | | | 2,326 | 1,375 | 1,158 | 1,620 |
| | | 0948.40 | Alternative Fuels and Advanced Transportation Technology | Cerritos | - | 1 | - | 0 |
| LA Trade-Tech | 18 | | | 10 | 4 | 11 | | |
| Long Beach | 3 | | | 7 | 8 | 6 | | |
| Rio Hondo | 19 | | | 8 | 53 | 27 | | |
| LA Subtotal | 40 | | | 26 | 65 | 44 | | |
| Saddleback | 8 | | | 8 | 2 | 6 | | |
| OC Subtotal | 8 | | | 8 | 2 | 6 | | |
| Supply Subtotal/Average | | | 48 | 34 | 67 | 50 | | |
| Supply Total/Average | | | 2,374 | 1,409 | 1,225 | 1,669 | | |

*Supply data includes 1,253 low-unit certificates automatically conferred (also known as auto-awarded) by Santa Ana College in the 2017-18 academic year. These awards were automatically conferred to current and past students who had completed the unit requirements within the past few years; however, this low-unit program may not have necessarily prepared students for the occupation studied in this report, as compared to higher-unit programs at Santa Ana College and throughout the region. Therefore, *the three year-average number of awards is overstated.*

Non-Community College Supply—For a comprehensive regional supply analysis, it is also important to consider the supply from other institutions in the region that provide training programs for hybrid and electric vehicle technology. Exhibit 3 shows the annual and three-year

average number of awards conferred by these institutions in programs crosswalked to the community college programs listed in Exhibit 2. Due to different data collection periods, the most recent three-year period of available data is from 2016 to 2019. Between 2016 and 2019, four-year colleges in the region conferred an average of 400 awards annually in related training programs.

Exhibit 3: Regional non-community college awards, 2016-2019

| CIP Code | Program | Institution | 2016-17 Awards | 2017-18 Awards | 2018-19 Awards | 3-Year Average |
|-----------------------------|--|---|----------------|----------------|----------------|----------------|
| 47.0604 | Automobile/ Automotive Mechanics Technology/ Technician | Baldwin Park Adult & Community Education | 10 | 9 | 13 | 11 |
| | | GDS Institute | 5 | 9 | - | 5 |
| | | Hacienda La Puente Adult Education | 46 | 21 | 9 | 25 |
| | | UEI College-Gardena | 69 | 46 | 72 | 62 |
| | | United Education Institute-West Covina | - | - | 32 | 11 |
| | | Universal Technical Institute-Southern CA | 245 | 329 | 277 | 284 |
| 47.0612 | Vehicle Emissions Inspection and Maintenance Technology/Technician | California Career School | - | - | 7 | 2 |
| Supply Total/Average | | | 375 | 414 | 410 | 400 |

Appendix A: Occupational demand and wage data by county

Exhibit 4. Los Angeles County

| Occupation (SOC) | 2020 Jobs | 2025 Jobs | 5-Yr Change | 5-Yr % Change | Annual Openings | Entry-Level Hourly Earnings (25 th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 th Percentile) |
|---|---------------|---------------|--------------|---------------|-----------------|---|------------------------|---|
| Electronic Equipment Installers and Repairers, Motor Vehicles (49-2096) | 702 | 606 | (96) | (14%) | 51 | \$14.80 | \$17.03 | \$19.05 |
| Automotive Service Technicians and Mechanics (49-3023) | 16,820 | 15,990 | (829) | (5%) | 1,626 | \$14.28 | \$21.03 | \$28.41 |
| Total | 17,522 | 16,597 | (926) | (5%) | 1,677 | | | |

Exhibit 5. Orange County

| Occupation (SOC) | 2020 Jobs | 2025 Jobs | 5-Yr Change | 5-Yr % Change | Annual Openings | Entry-Level Hourly Earnings (25th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75th Percentile) |
|---|--------------|--------------|--------------|---------------|-----------------|---|------------------------|---|
| Electronic Equipment Installers and Repairers, Motor Vehicles (49-2096) | 304 | 268 | (36) | (12%) | 22 | \$15.76 | \$18.13 | \$20.27 |
| Automotive Service Technicians and Mechanics (49-3023) | 6,013 | 5,919 | (94) | (2%) | 593 | \$16.81 | \$23.72 | \$31.75 |
| Total | 6,318 | 6,187 | (130) | (2%) | 616 | | | |

Exhibit 6. Los Angeles and Orange Counties

| Occupation (SOC) | 2020 Jobs | 2025 Jobs | 5-Yr Change | 5-Yr % Change | Annual Openings | Typical Entry-Level Education |
|---|---------------|---------------|----------------|---------------|-----------------|--------------------------------|
| Electronic Equipment Installers and Repairers, Motor Vehicles (49-2096) | 1,006 | 874 | (132) | (13%) | 73 | HS diploma or equivalent |
| Automotive Service Technicians and Mechanics (49-3023) | 22,833 | 21,910 | (924) | (4%) | 2,220 | Postsecondary non-degree award |
| Total | 23,840 | 22,784 | (1,056) | (4%) | 2,293 | - |

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women's Welfare, University of Washington
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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