



Memorandum

TO: HONORABLE MAYOR
AND CITY COUNCIL

FROM: Lori Mitchell

SUBJECT: Electrification Workforce
Development Programs

DATE: August 18, 2025

Approved

Date:

8/26/2025

COUNCIL DISTRICT: Citywide

RECOMMENDATION

Adopt a resolution approving the proposed electrification workforce development programs.

SUMMARY AND OUTCOME

Over the next decade, state and local rules to reduce air pollution and climate change will transition the existing building stock away from natural gas appliances to electric, and internal combustion engine cars to electric vehicles (EVs).¹ This will grow demand for building trades and specialized auto repair workers locally and require training on a range of technologies including heat pumps, EV systems, and chargers. Operated by the City of San José's Energy Department, San José Clean Energy (SJCE) offers incentive programs to residents and businesses that meet the multiple objectives of supporting the local workforce, rapidly reducing greenhouse gas emissions, lowering costs for ratepayers, and promoting equity. In a region that has a very high cost of living, it is important that SJCE encourages the creation of "high road" jobs that will support workers' ability to reside here².

Energy Department staff has engaged 30 stakeholders during the past year on electrification workforce development. This included discussions with five labor union and construction trades association representatives, seven community colleges and

¹ In May 2025, the U.S. Senate voted to block California's mandate that all new cars sold by 2035 are electric. California and 10 other states sued in response. While the lawsuit plays out, in June 2025 Governor Newsom directed the California Air Resources Board to develop new zero-emissions vehicle regulations.

² According to the California Workforce Development Board, high road employers pay family supporting wages, compete based on the quality of their services and products, and engage workers in building their skills ([High Road Overview, June 2018](#)).

training facilities, six local non-governmental agencies involved in the electrification workforce space, four non-union contractors, and three automotive trade associations, dealerships, and Original Equipment Manufacturers. The purpose of these meetings was to explore stakeholders' views on the current electrification workforce and to identify ways that SJCE could support existing and new workforce programs.

These feedback sessions informed staff's recommendation to develop two workforce programs that support existing local training programs. Staff also recommend incorporating learnings into SJCE's existing and future building electrification programs to increase and shape demand for heat pumps and EVs and support the development of local high road jobs. Approval will result in the Energy Department creating two programs with a total budget of \$500,000 in external funding that will support hundreds of new skilled trainees entering the buildings trades and auto repair workforce.

1. \$400,000 for multiple grants to fund the purchase of new electrification-related training equipment (EVs, heat pumps, basic electric equipment, etc.) and the development of new curricula to support classes at local training facilities.
2. \$100,000 to the San José-Evergreen Community College District to fund scholarships for students in electrification-related training programs.

BACKGROUND

Emissions from buildings and transportation make up 81% of San José's total greenhouse gas emissions.³ Retrofitting buildings from natural gas to electric, and transitioning to EVs are crucial to reducing emissions, as the electricity produced by SJCE is on track to achieve carbon neutrality by 2030.^{4,5}

Total spending on residential building electrification in the Bay Area by both homeowners and public agencies is expected to reach \$1.2 billion in 2025. This work is being met by an estimated 3,000 to 5,000 full-time equivalent workers, mainly in Heating, Ventilation, and Air Conditioning (HVAC), general construction, and electrical trades and a smaller portion specialized in engineering, envelope/insulation, and plumbing.⁶ Beginning in 2027, the Bay Area Air District's regulations restricting nitrogen oxide emissions will prevent the sale of natural gas appliances for space and water heating. As the regulations phase in from 2027 to 2031, existing homes and businesses replacing old space and water heating appliances will need to install electric heat pump HVAC systems and heat pump water heaters. In addition, existing and future building

³ [Climate Smart San José 2023 Communitywide Greenhouse Gas Inventory](#)

⁴ In 2022, the City Council adopted the Framework for Carbon Neutrality that identifies four key pathways for the City to prioritize in progressing toward its carbon neutrality by 2030 goal: developing a carbon neutral electricity supply, converting natural gas uses in buildings to electric, increasing passenger EV adoption, and reducing vehicle miles traveled.

⁵ SJCE's standard GreenSource service was 96% carbon-free in 2023 ([Power Content Label](#)).

⁶ [Sarah Thomason, Chelsey Bryant, Sharon Jan, and Kelly Haines \(2024\): Bay Area Residential Decarbonization Industry and Workforce Overview](#)

and energy codes (including the existing San José Reach Code⁷ and the upcoming 2025 California Building Energy Efficiency Standards)⁸ are moving towards strongly favoring electric water and space heating. In a 2024 building electrification workforce assessment and gap analysis, the Energy Department's consultant, Energeia Consulting LLC, estimated that 424 more full-time equivalent electrification workers are needed locally in 2030 to meet the demand in the installation of electric appliances driven by these rules and codes, when accounting for upgrading the skills of existing workers.⁹ To attract new workers, Energeia Consulting LLC recommended that firms offer bonuses for retraining and participating in apprenticeships to make the trades more attractive to new hires.

Santa Clara County has the highest EV adoption rate of any county in the state.¹⁰ In 2024, EVs accounted for nearly 8% of the total light-duty vehicle population and nearly 40% of new car registrations in the county. Certain technical components of EVs, such as high-voltage systems, are unique and require specialized skills and training for maintenance. With EV adoption growing rapidly, there is an urgent need for workforce retraining to ensure technicians are prepared to service the increasing number of EVs on the road. Additionally, the California Energy Commission's Zero-Emission Vehicle Workforce Training and Development Strategy does not include any objectives or funding specifically related to workforce development for passenger EVs.

The importance of investing in our local workforce to meet the increasing demands of electrification is compounded factoring in the affordability challenges for families in the region. The cost of living in Santa Clara County is increasing at a faster rate than wages across all income levels. While its median income has gone up nearly 75% over the past 10 years, the median rent of a two-bedroom apartment has risen about 90% over the same period. A household needs an annual income of \$125,280 to afford a two-bedroom apartment in Santa Clara County, based on the National Low Income Housing Coalition's 2024 Out of Reach report. About 32.1% of Santa Clara County households have an annual income of less than \$100,000 and would not be able to afford a fair market two-bedroom apartment.¹¹ To put it in a larger context, San José is in the top 0.1% of most expensive cities to live in the world, ranking eighth out of the nearly 10,000 cities evaluated.¹² The median hourly wage of Bay Area residential electrification workers is \$32.87 per hour, lower than the median wage for all residential and commercial construction workers (\$34) and workers across all industries (\$36) in the Bay Area.¹³

⁷ [SAN JOSE REACH CODE | City of San José](#)

⁸ [2025 Building Energy Efficiency Standards](#)

⁹ The study was completed before the beginning of the second Trump Administration and thus does not factor in potential impacts from tariffs or removal of federal tax incentives and Inflation Reduction Act program funding.

¹⁰ [New Zero Emission Vehicle Sales in California \(California Energy Commission\)](#)

¹¹ [Silicon Valley wages lag behind cost of living – NBC Bay Area](#)

¹² [Cost of Living in San Jose, CA: rent, food, transport \(2025\)](#)

¹³ [Sarah Thomason, Chelsey Bryant, Sharon Jan, and Kelly Haines \(2024\): Bay Area Residential Decarbonization Industry and Workforce Overview](#)

As the local trades workforce grows and is retrained to meet consumer demand for heat pumps and electric vehicles, there is an opportunity for the City of San José (City) to help drive growth of high road jobs and improve quality of life. High road workforce development aims to improve both the quality of jobs and increase access to career ladder jobs for people who face barriers to accessing or holding onto jobs that can sustain their families, such as low-income, unhoused, and formerly incarcerated individuals. In a region that has a very high cost of living, it is important that SJCE encourages the creation of high road jobs that will support workers' ability to reside, grow families, and thrive here.

Funding for Workforce Development Programs

The City enters into long-term power purchase agreements with energy developers to source electricity for SJCE customers. Staff has negotiated into a number of these agreements that the energy developer provide funding to the City for community and workforce development. To date, SJCE has received \$1.345 million from five developers, \$375,000 of which has been spent by the City Manager's Office of Economic Development and Cultural Affairs on scholarships, leaving \$970,000.

Stakeholder Input

To understand how SJCE can support workers in the transition to electrification, Energy Department staff had discussions with 30 different groups listed in the Attachment that support or employ workers, including the City Manager's Office of Economic Development and Cultural Affairs work2future program, the Department of Public Works' Office of Equality Assurance, unions, non-union contractors, trade associations, auto dealerships and Original Equipment Manufacturers, trade schools and training facilities, local organizations involved in the building trades and electrification, and neighboring Community Choice Aggregators. Staff also toured building trades union training centers. Takeaways are summarized in Table 1.

Table 1. Key Takeaways from Stakeholder Discussions on Electrification Workforce Development

Stakeholder group	Takeaways
Building trades union and workforce representatives	• There are currently large waitlists for people applying to join the union apprenticeship programs. • Based on their understanding of consumer demand for work, union representatives believe that there are enough tradespeople in the current workforce and do not have any near-term plans to expand the number of people that they admit to their apprenticeship programs. Representatives note that this is due to the current slowdown in new construction. • Most union members work in commercial construction and generally would not look to bid on one-off residential appliance

	replacements. They did note that if a larger number of these jobs were aggregated, it could potentially appeal to union contractors. • Many unions offer their own training facilities, some of which are linked with local community colleges. • These training facilities offer trainings for apprenticeships and ongoing training for existing members to meet state certification requirements.
Trade schools and training facilities	• Most trade classes are in high demand and often have wait lists. • Finding instructors for the classes is sometimes difficult. • As electrification equipment continues to evolve, it is difficult for schools to train students on the latest technologies. • While students generally have better earnings potential upon completion of trainings, without landing in apprenticeship programs it may still be difficult to make ends meet given the high costs of living in the South Bay. • There is an opportunity cost for students, as being in classes prevents them from earning an income in another job.
Auto industry stakeholders	• There is a skills gap among existing automotive mechanics when it comes to EV maintenance, particularly around high-voltage systems, network communication, and basic computer engineering. While many Original Equipment Manufacturers offer dedicated EV training programs for dealership and fleet technicians, only EV-certified technicians are allowed to perform high-voltage repairs, and not all dealership staff currently hold that certification. • Most EV-focused technicians are cross-trained in both EV and internal combustion engine systems. Stakeholders believe incoming workers should be trained in both EV and internal combustion engine systems to remain competitive. • Local dealerships are currently able to meet EV service demands via Original Equipment Manufacturer provided trainings. However, the demand for skilled EV technicians is expected to grow alongside EV adoption and as more EVs age into regular maintenance cycles. • There is a significant gap in workforce training available locally for brand agnostic EV maintenance.

ANALYSIS

In response to stakeholder discussions, staff recommends utilizing a portion of the available community development funds to support local training programs. Table 2 outlines two programs that invest in students who are making the effort to be well-trained and support local educational and non-profit facilities in acquiring the latest equipment needed to train their students on building electrification and EV maintenance. Staff learned that workforce initiatives must carefully balance the supply of workers with consumer demand as supplying more trained workers than jobs available pushes wages lower. The City can also play a role in increasing and shaping demand for workers through incentives; regulations, codes, and standards; and market transformation programs.

Table 2. Recommended San José Clean Energy Electrification Workforce Development Programs

Program	Funding
Grants to support electrical training equipment purchase, as well as develop new electrical and EV training curricula	\$400,000
Scholarships for students studying electrification-related trades at San José training facilities	\$100,000

Grants for Electrification Training Equipment and the Development of Related Curricula

Staff recommends allocating \$400,000 to create a grant program to help fund equipment purchases and curriculum development for various electrification programs at local training providers and educational institutions. Two community colleges in San José – San José City College and Evergreen Valley College – provide hands-on training in electrical, plumbing and HVAC trades and automotive technology, respectively. Additionally, there are other educational and non-profit institutions providing training in the trades in the City and region that could apply for these grant funds, such as Goodwill, the Center for Employment Training, and Silicon Valley Career Technical Education, among others. Discussions with training institutions, primarily the local community colleges, revealed a need for new electric training equipment, such as solar photovoltaic systems, electrical wiring, high voltage testing equipment, EVs, vehicle lifts, and chargers.

The grant funds could also go towards developing or expanding existing curriculum and programs, including EV maintenance programs at local community colleges. For example, Evergreen Valley College would like to develop and launch an EV maintenance-focused graduate program that could provide hands-on EV and high-voltage systems training for up to 24 students per session. Currently, Evergreen Valley College has a proprietary Tesla maintenance program serving 12 students per session that are recruited by Tesla. The proposed grant program funding could allow applicants

to develop and receive accreditation for new EV-focused curriculum. Funding would be available on a first come, first served basis and capped per applicant.

The grant program would be split into two offerings:

- **Building Electrification Educational Grant:** Local educational institutes and non-profit institutions providing training in the building electrification-related trades can apply. Grant funds would be available to cover the costs associated with building electrification-focused curriculum development and accreditation, as well as the purchase of building electrification related training equipment.
- **Electric Vehicle Technology and Maintenance Grant:** Community colleges in San José with existing automotive technology or maintenance programs can apply to cover the costs of equipment purchases and curriculum development for new or expanded for-credit EV-focused courses to be offered for a minimum of five years.

Scholarships for Students Studying Electrification-related Trades at San José Community Colleges

Staff recommends allocating \$100,000 to the San José-Evergreen Community College District scholarship program for approximately 25 students enrolled in electrification-related trades programs. This pilot would provide scholarships for educational expenses as well as living expenses like rent and transportation, provided they are meeting certain qualifications related to their education. The scholarships would be aimed at the Trades Orientation Program, which is a one-year pre-apprenticeship program at San José City College run by Working Partnerships that prepares students to become working apprentices in the construction trades, including becoming carpenters, electricians, HVAC technicians, roofers, pipefitters, plasterers, ironworkers, and sheet metal workers. The Trades Orientation Program is free to students and primarily focuses preparing underrepresented and low-income community members—particularly women, people of color, and formerly incarcerated individuals—for apprenticeship programs.

Success can be measured by the number of scholarship students that fully complete their degree or certificate. If the pilot is successful in propelling more graduates into trades jobs, staff may return to the City Council to seek approval for expanding the scholarship to more students, as well as other schools and training centers.

Increasing and Shaping Demand for Workers in the Electrification Transition

Cities can play a role in increasing and shaping demand for workers and the creation of high road jobs. SJCE does this today by incentivizing electrification. In April 2025, the City Council approved SJCE to spend \$14 million on customer energy programs in fiscal year 2025-2026, approximately \$9.7 million of which is estimated to be spent on incentivizing building and transportation electrification. Staff proposes the following

initiatives related to SJCE customer energy programs to further increase and shape demand for workers.

Exploring new building electrification program designs - direct

install/aggregation: To date, SJCE has provided rebates and on-bill financing to residential customers to incentivize one-off replacement of gas appliances with electric. While these programs are reducing greenhouse gas emissions and costs for ratepayers, the one-off projects are less appealing for high road contractors, who are generally looking for larger projects. Stakeholders shared that aggregating several projects (e.g., 10 homes) could make these installs more appealing for high road contractors to bid on and achieve economies of scale. Staff has conducted initial interviews to better understand the landscape and opportunity for direct install programs. Some Community Choice Aggregators have launched direct install and aggregation programs focused on vetting and hiring a group of contractors to install multiple energy efficiency measures and electric appliances. Often, direct install programs are aimed at multifamily housing, affordable housing, and/or income-qualified customers and layer multiple funding sources to cover all or most of the project costs for the customer, requiring a large program budget. Staff will continue to explore the design of a potential SJCE direct install program with stakeholders, including types and vintages of buildings, measures, scale, and labor policies, and bring forth a recommendation to the City Council during one of the next SJCE Programs Roadmap updates.

Adjustments to SJCE's existing EcoHome Rebate home electrification program:

As a result of stakeholder discussions, staff is making four adjustments to SJCE's EcoHome Rebate program to help improve the quality of installations.¹⁴

1. SJCE requires installations to be permitted, but previously staff accepted proof of the pulled permit, and not a final inspection, to issue a rebate. Stakeholders urged that SJCE require that the inspection occur, and the permit be final before issuing a rebate. Since the waiting period for an inspection is just three days, staff began requiring a final permit in late May 2025.
2. Contractors who install three projects can have their contact information displayed online in SJCE's EcoHome Network directory.¹⁵ To promote high road jobs in the electrification transition, staff will add a voluntary additional designation or badge on the EcoHome Directory for firms who meet specific high road criteria related to worker training and benefits. Any contractor is eligible to receive the badge if they demonstrate that they meet the criteria proposed in Table 3. These criteria are based on input from local labor stakeholders and aligned with best practices identified in the High Road Labor Standards for

¹⁴ [EcoHome Rebate](#) offers residential SJCE customers with rebates for heat pumps, panel upgrades, and wiring.

¹⁵ [EcoHome Network](#)

Residential Decarbonization report by Rising Sun Center for Opportunity.¹⁶ Staff will indicate for consumers of the EcoHome Directory webpage that there are other benefits that contractors may offer to their workers, including but not limited to retirement contributions, more comprehensive healthcare coverage, and paid time off and if these are priorities for residents, encourage them to inquire with their contractor. The High Road Contractor badge staff is proposing is the first of its kind in the Bay Area and potentially the state. Because of this, staff expect to iterate the criteria in the future as needed to distinguish high road contractors.

Table 3. Proposed Criteria for the Voluntary EcoHome High Road Contractor Badge and Verification Methods

Qualifications – Contractor must meet all	Verification
Contractor makes health care expenditures for each decarbonization worker on payroll in an amount per hour worked equivalent to at least the 85% of the hourly pro rata cost of a Covered California Silver Level plan for up to two 40-year-old adults and two dependents 0 to 14 years of age for the Santa Clara County Covered California rating area.	On an annual basis, contractor submits to SJCE staff: A) Proof of health care plan level of coverage and benefits policy detailing its extension to all decarbonization workers, or B) Payroll from one pay period showing separate hourly wage line item for health care coverage
Contractor pays residential prevailing wage for decarbonization workers.	On an annual basis, contractor submits to SJCE staff: Payroll from one pay period or wage sheet showing hourly wages for all decarbonization workers on staff and job title and description for each worker working on EcoHome Rebate projects. SJCE reserves the right to randomly request a payroll at any time.
Contractor is affiliated with a plumbing, electrical, or HVAC apprenticeship program listed in the State's Department of Industrial Relations Apprenticeship Database and workers hold OSHA-10 certification.	Contractor submits letter from apprenticeship program confirming contractor affiliation and shows OSHA-10 certification cards for workers on EcoHome projects to SJCE staff annually. SJCE reserves the right to randomly request proof of OSHA-10 certification at any time.

¹⁶ [Bay Area High Road Training Partnership-Recommended Residential Building Decarbonization Labor Standards](#)

3. To improve familiarity with heat pumps, SJCE will offer a special incentive starting FY 2025-2026 through EcoHome Rebate to incentivize local contractors to self-install a heat pump at their San José home or business.
4. Additionally, to participate in the EcoHome programs, contractors cannot have had a labor code violation filed against them in the past three years. Stakeholders applauded this effort, and discussions reinforced the need to continue to verify and re-verify this information on a semi-annual basis. Staff intend to establish and enforce additional contractor requirements for the contractor directory:
 - Contractor cannot have more than one violation with the Occupational Safety and Health Administration in the last three years.
 - Contractor cannot have had a wage theft violation with the State Department of Industrial Relations in the last three years.

Future Workforce Development

The programs and initiatives proposed represent SJCE's first effort to support local electrification workforce development. Other programs being considered for the future include funding stipends for contractors to send their staff to electrification training, development of a certification program for contractors, and on-campus energy internships.

Staff is grateful to the stakeholders for taking the time to provide their workforce and market insights to Energy Department staff and answer questions. Staff looks forward to ongoing conversations with stakeholders to inform future electrification program ideas and design and evolve SJCE's workforce efforts as more community development funds are received from developers in the coming years. Staff is planning to develop a contractor newsletter to keep the local workforce up to date with program opportunities and will continue to seek feedback on new electrification and workforce program ideas.

EVALUATION AND FOLLOW-UP

Staff will report on the programs progress during the Energy Department's annual SJCE Programs Roadmap Update in spring 2026. Subject to the results of these programs, staff may return to the City Council in the future to seek approval to expand or continue the programs.

COST SUMMARY/IMPLICATIONS

The total cost of the recommended San José Clean Energy electrification workforce development programs is expected to be approximately \$500,000 through FY 2026-2027. Funding for the programs was allocated in the San José Clean Energy Fund as

part of the 2025-2026 Adopted Operating Budget process. The Adopted Budget was approved on June 10, 2025, and adopted on June 17, 2025 by City Council.

COORDINATION

This memorandum has been coordinated with the City Attorney's Office, the City Manager's Budget Office, the City Manager's Office of Economic Development and Cultural Affairs and the City Manager's Office of Racial and Social Equity

PUBLIC OUTREACH

This memorandum will be posted on the City's Council Agenda website for the September 9, 2025 City Council meeting.

COMMISSION RECOMMENDATION AND INPUT

No commission recommendation or input is associated with this action.

CEQA

Not a Project, File No. PP17-004, Government Funding Mechanism or Fiscal Activity.

PUBLIC SUBSIDY REPORTING

This item does not include a public subsidy as defined in section 53083 or 53083.1 of the California Government Code or the City's Open Government Resolution.

/s/
LORI MITCHELL
Director, Energy Department

For questions, please contact Kate Ziemba, Senior Environmental Program Manager, Energy Department at kate.ziemba@sanjoseca.gov.

ATTACHMENT:

Attachment – List of Workforce Stakeholders

Attachment: List of Workforce Stakeholders

Staff spoke to representatives from the following organizations:

- ABC NorCal
- Barnett Plumbing
- Building Decarbonization Coalition
- Building Electrification Institute
- Center for Employment Training
- Construction Trades Worker Initiative
- De Anza College
- Del Grande Dealership Group
- Evergreen Valley College
- Foothill College
- Ford Pro Charging
- GLD Green Energy
- Good Green Work
- Goodwill
- International Brotherhood of Electrical Workers Local 332
- Irbis HVAC
- Jazz Home Services
- Joint Venture Silicon Valley
- Machinists Institute
- PG&E
- Rising Sun
- San Jose City College
- San Jose Office of Equality Assurance
- Santa Clara County Building Trades Council
- Sheet Metal Workers' Local Union 104
- Silicon Valley Auto Dealers Association
- Silicon Valley Career Technical Education/MetroED
- Silicon Valley Clean Energy
- United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the United States and Canada Local 393
- work2future
- Working Partnerships