



COUNCIL AGENDA: 4/9/2024

ITEM: 6.1

FILE NO: 24-76358

Memorandum

TO: HONORABLE MAYOR AND
CITY COUNCIL

FROM: Toni J. Taber, CMC
City Clerk

SUBJECT: SEE BELOW

DATE: April 9, 2024

SUBJECT: San José Clean Energy Programs Roadmap Status Report

Recommendation

As recommended by the Transportation and Environment Committee on March 4, 2024:

(a) Accept the status report on the San José Clean Energy Programs Roadmap.

(b) Adopt a resolution:

(1) Approving the proposed programs presented in the San José Clean Energy Programs Roadmap; and

(2) Authorizing the City Manager or her designee to negotiate and execute contract(s) with consultant(s) to implement the heat pump and battery storage incentive programs for up to five years and up to \$1.5 million from the San José Clean Energy fund.

CEQA: Statutorily Exempt, ER24-021, CEQA Guidelines Section 15601(b)(3), Review for Exemption; and Categorically Exempt, File No. ER24-021, CEQA Guidelines Section 15303, New Construction or Conversion of Small Structures. (Energy)

[Transportation and Environment Committee referral – 3/4/2024 – Item (d)2]



Memorandum

TO: TRANSPORTATION AND
ENVIRONMENT COMMITTEE

FROM: Lori Mitchell

**SUBJECT: SAN JOSE CLEAN ENERGY
PROGRAMS ROADMAP UPDATE**

DATE: 2/12/24

Approved

Date 2/26/24

RECOMMENDATION

Accept this update on San José Clean Energy's Programs Roadmap and recommend this item for full Council consideration at the April 9, 2024, City Council meeting.

SUMMARY AND OUTCOME

SJCE's customer programs help San José move closer towards its Carbon Neutral by 2030 goal and improve energy affordability. The Department recommends allocating additional funding to customer programs while continuing to build SJCE's reserves prudently. Staff recommends allocating a maximum of \$6.5 million of rate payer funds across the remainder of Fiscal Year (FY) 2023-2024 and FY 2024-2025 and leveraging approximately \$5.5 million in additional external funding sources for customer programs. Estimated spending levels in the current year of \$4.2 million would be deployed from existing appropriations, and estimated spending of \$7.8 million would be subject to the 2024-2025 Proposed Budget development process. SJCE will increase its offerings for residential and commercial customers from 12 to 19 programs (Figures 1 and 2). The programs will incentivize transportation and building electrification, energy efficiency, and the adoption of distributed energy resources; improve resiliency; and lower electricity bills for vulnerable customers. Collectively, implementing the programs through FY 2024-2025 is anticipated to result in over \$18.5 million lifetime customer savings and 44,000 metric tons of CO₂ reductions, and 56% of program incentive funds will be distributed to priority communities.¹

¹ Staff's recommended definition of priority communities includes households <80% area median income, disadvantaged communities as defined by CalEnviroScreen, and Justice40 communities, with different screening tools utilized for each program depending on the clean energy technology and issue the program is trying to solve.

BACKGROUND

One of the key advantages of California Community Choice Aggregators is the ability to reinvest in the community through programs and rate discounts while providing electric service with a greater awareness of community needs than the large investor-owned utilities. Having established \$196 million in operating reserves, SJCE has made progress toward its goal of building reserves equal to 180 days of operating expenses to help withstand sudden market or regulatory changes.² As reserve levels are nearing the 180-day mark, staff recommends modestly reinvesting more funding into customer programs while continuing to build reserves pursuant to the SJCE Financial Reserves Policy.³ SJCE's Programs Roadmap, which the City Council accepted on March 9, 2021, offers a vision of the types of customer programs SJCE will evaluate and choose over the next several years (Attachment A). SJCE programs fall under six areas:

1. **Vehicle Electrification:** Programs focused on accelerating the conversion of all vehicle types into an electrified version.
2. **Building Electrification:** Programs supporting converting homes and buildings from gas and electricity-powered to solely electricity-powered.
3. **Distributed Energy Resources:** Programs that include resources on the customer side of the utility meter, such as solar, battery storage, and demand response.
4. **Energy Efficiency:** Programs that reduce energy usage and costs through equipment upgrades or building envelope improvements.
5. **Program-Specific Rates:** Programs designed to offer special rates to select customer groups to incentivize energy-use behavior or support those customer groups.
6. **Resiliency:** Programs to provide backup power or to maintain power during an outage or other electric service disruption, often relying on distributed energy resources on the customer side of the utility meter.

There is alignment between these program areas and the four strategies identified by the City's Framework for Carbon Neutrality and adopted by the City Council in June 2022: a) Move to zero emission vehicles, b) Reduce the miles we travel in our vehicles by at least 20%, c) Switch our appliances from fossil fuels to electric, and d) Power our community with 100% carbon neutral electricity.⁴

Overall, the Energy Department aims to design SJCE programs to increase equity and access to the benefits of renewable energy and electrification. The Programs Roadmap outlines five guiding principles for program selection that the Transportation and Environment Committee approved on June 3, 2019:

1. Maximize greenhouse gas reduction opportunities
2. Align with Climate Smart San José, the city's climate action plan
3. Promote equity and affordability and support disadvantaged communities
4. Produce customer and community benefits

² Based on 2024 projected operating expenses, SJCE has 142 days of operating expenses in reserves as of the end of 2023. [San Jose Clean Energy Second Quarter FY 2023-2024 Financial Statements](#)

³ [SJCE Financial Reserves Policy \(pg. 71\)](#)

⁴ [San José Framework for Carbon Neutrality](#) by 2030

5. Maintain or improve the financial status of SJCE

Current Programs Status

SJCE currently offers 12 customer programs and pilots as approved by the City Council (Figure 1). The programs have a combined total lifetime cost of up to \$38.5 million, approximately 80% of which is funded by external sources. Descriptions and updates on program performance are found in Appendix A. Impacts from a selection of the programs are detailed in Table 1.

Figure 1. Current SJCE programs and educational initiatives

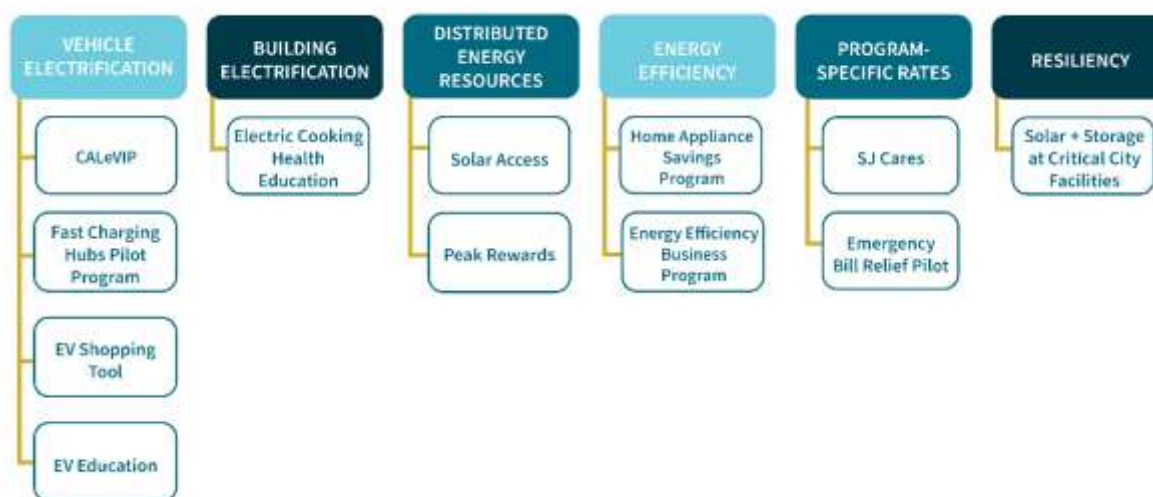


Table 1. Impacts of a selection of SJCE's current programs through the end of 2023

	Electricity savings	Greenhouse gas reductions	Customer savings	Installations/ customers served
California Electric Vehicle Infrastructure Project (CALeVIP)	-	875 metric tons CO ₂	\$2,191,000	26 direct current fast chargers, 140 Level 2 chargers
Solar Access	-	360 metric tons CO ₂	\$395,500	Approximately 840 participants
Home Appliance Savings Program	238,000 kilowatt-hours	87 metric tons CO ₂	\$199,500	65 appliances installed, 140 smart power strips, and 167 smart thermostats

Energy Efficient Business Program	17,634,000 kilowatt-hours	990 metric tons CO ₂	\$6,339,000	574 businesses served
Peak Rewards	8,000 kilowatt-hours	3 metric tons CO ₂	\$10,000	9 participants, 13 enrolled
SJ Cares	-	-	\$19,900,000	Approximately 70,000 participants
Total	17,880,000 kilowatt-hours	2,315 metric tons CO₂	\$29,036,500	-

ANALYSIS

Programs Prioritization, Scoring, and Community Input

In Fall 2023, staff developed a framework to evaluate current and future energy programs. Staff first researched to develop a list of metrics other program implementers use. These metrics were considered and compared against the SJCE program guiding principles. Staff ultimately selected five metrics, each of which was given a weighting and listed here from highest to lowest:

1. Greenhouse gas emissions reductions,
2. Investment in priority communities,
3. Customer savings,
4. Peak demand reductions, and
5. Fiscal impact for SJCE.

To develop a score for each program, staff calculated each metric value divided by the total program budget, normalized each metric value, multiplied the normalized values by their weighting factors, and summed together to yield one score. Because of the high weight given to greenhouse gas emissions reductions, programs with higher reductions tended to score the highest. Certain aspects of programs that were challenging to quantify, including contribution to personal and community resiliency, ensuring all customer groups are served, and availability of external funding, were considered after the scores were developed. The recommended programs below are programs that scored highest in each of the program priority areas and met the other non-quantitative goals.

Staff also sought community input. In early 2024, staff hired a consultant to gather input from community members on their energy program priorities. Energy Department staff conducted an online survey in English, Spanish, and Vietnamese. Survey respondents indicated that the cost of their electricity bill, followed by power outages and climate change, are their top energy priorities. Homeowners identified cost as the main barrier preventing them from making energy upgrades, such as installing solar and heat pumps at their homes. Most respondents who are renters indicated they had not talked to their landlord about energy upgrades they are interested

in and would not buy an EV if they couldn't charge at home. Staff will further unpack these results in listening sessions in the same languages in early March 2024.

Recommended New Near-Term Programs

Staff recommends pursuing the programs⁵ depicted in Figure 2 and Table 2 below for the remainder of FY 2023-2024 and FY 2024-2025. The maximum total cost borne by SJCE for these programs is \$6.5 million (see Appendix B for a breakdown by program). SJCE would leverage approximately \$5.5 million in additional, existing external funding sources for these programs and continue to pursue external funding opportunities, including funding made available by the Bipartisan Infrastructure Law and Inflation Reduction Act. This results in a maximum total program investment of \$12 million through FY 2024-2025. At least 56% of program incentive funding will be reserved for priority communities, surpassing SJCE's goal of 50%.⁶ The anticipated impacts of a subset of the new proposed programs are detailed in Table 3 below.

Figure 2. Recommended new near-term programs

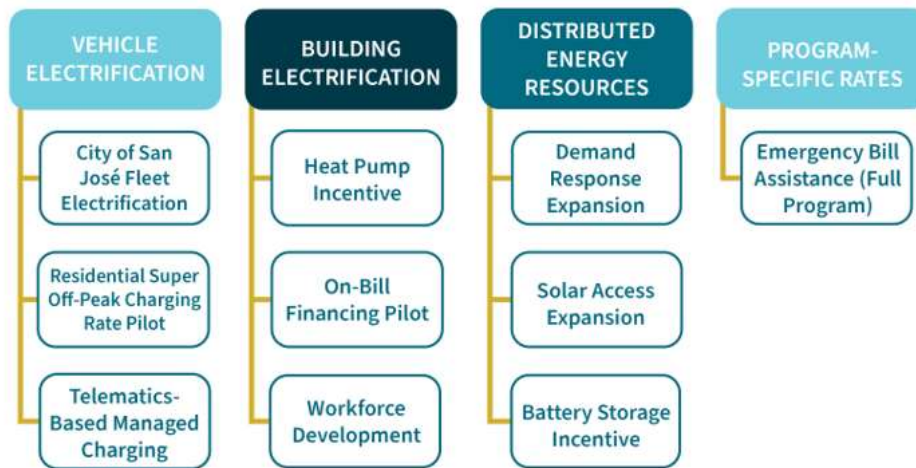


Table 2. Summary of recommended new near-term programs

Area	Program Description
Vehicle electrification	City of San José fleet electrification master plan: Work with a consultant to produce a master plan guiding zero-emission vehicle procurement and installing accompanying chargers at City properties for fleet and public use in partnership with the Departments of Public Works and Transportation.

⁵ Three are expansions of existing programs: demand response expansion (build off Peak Rewards), Solar Access, and Emergency Bill Relief.

⁶ SJCE's goal for reserving half of program incentive funding for priority communities will be included in the Energy Department's Racial Equity Action Plan.

	<p>Residential super off-peak charging rate pilot: Create a new electrification rate plan with lower residential electricity rates from 9 a.m. to 2 p.m. to incentivize EV charging during the middle of the day.</p> <p>Telematics-based managed charging: Shift EV charging for 500 residential EVs from evening peak and overnight to daytime, when electricity is cleaner and cheaper.</p>
Building electrification	<p>Heat pump incentive: Offer residential customers incentives to install heat pump water heaters and heat pump HVAC systems, with additional incentive adders for low-income customers.</p> <p>On-bill financing pilot: Offer zero-interest loans to residential customers who install heat pump water heaters and/or heat pump HVAC systems. Loans will be repaid through a charge on the customers' monthly electricity bill.</p> <p>Workforce development: Collaborate with the International Brotherhood of Electrical Workers (IBEW), other labor organizations, and industry consultants to develop programs to improve workforce development. May include scholarships for pre-apprenticeship or apprenticeship programs or sponsoring training events.</p>
Distributed energy resources	<p>Demand response expansion: Expand SJCE's demand response efforts to include options for both residential and commercial customers, as well as to provide additional options for participation with smart thermostats, electric vehicle smart chargers, and batteries.</p> <p>Solar Access expansion: Leverage a surplus in energy from the West Tambo Solar Project to serve an additional 150 residents under the Solar Access program, providing a 20% bill discount and 100% renewable energy.</p> <p>Battery storage incentive: Develop an incentive program for residential or commercial customers to install battery storage and allow SJCE to tap into their battery for daily load shifting and grid emergencies.</p>
Program-specific rates	<p>Emergency Bill Relief (full program): Provide funds for overdue bill payments to households at immediate or potential future risk of disconnection.</p>

Table 3. Expected annual impacts of a selection of SJCE's recommended programs

	Electricity savings	Greenhouse gas reductions	Customer savings	Expected installations/ customers served

Residential Super-Off Peak Charging Rate Pilot	-	30 metric tons CO ₂	TBD	1,000 customers
Heat Pump Incentive & On-Bill Financing Pilot	-	2,900 metric tons CO ₂	\$535,000	500 heat pumps installed
Demand Response Expansion	100,000 kilowatt-hours	40 metric tons CO ₂	\$110,000	4,000 customers
Telematics-based Managed Charging	-	40 metric tons CO ₂	\$85,000	500 customers
Solar Access Expansion	-	30 metric tons CO ₂	\$50,000	150 customers
Battery Storage Incentive	-	200 metric tons CO ₂	\$500,000	200 customers
Emergency Bill Relief	-	-	\$1,000,000	1,000 customers
Total	100,000 kilowatt-hours	3,240 metric tons CO₂	\$2,280,000	7,350 customers

Vehicle Electrification

In August 2022, the California Air Resources Board established the Advanced Clean Cars rule that will rapidly scale down the availability of new cars that run on gas, and by 2035, only zero-emission cars and light trucks will be for sale. EV adoption to date has been concentrated among higher-income households that can charge at home. While the high purchase prices have been a barrier to EV adoption for many, federal and state programs and market forces are making EVs more affordable and accessible for low-income consumers. However, low-income households and renters face barriers to installing charging at their homes and may have limited access to public charging infrastructure. Control of EV charging retail rates will be essential for the City to ensure that low-income residents have affordable charging options. Fast-charging retail rates – set by third-party owners of chargers – can be significantly higher than off-peak home charging rates. While both options cost less than gas, residents who are unable to charge at home may face higher fueling costs without intervention.

In FY 2023-2024 and FY 2024-2025, the Energy Department and other City of San José departments working on transportation electrification are focused on two priorities:

1. Developing a master plan to electrify the City of San José fleet and install accompanying charging infrastructure, and
2. Ensuring residents have equitable access to public charging infrastructure and affordable charging rates.⁷

SJCE is additionally focused on shifting more EV charging to the middle of the day to reduce the strain on the grid, lower costs, and help ensure abundant clean solar resources are fully utilized.

⁷ More on the drivers behind these goals and the City's workplan to achieve them can be found in the [Memo to Transportation and Environment Committee \(Departments of Energy, Public Works, and Transportation\), November 13, 2023](#)

A 2022 Stanford University study found that most EV drivers should shift charging from peak periods and overnight to daytime charging at work, home, or public charging stations to avoid expensive overinvestments in energy and distribution resources.⁸

- **City of San José Fleet Electrification Master Plan:** Staff from the Energy, Public Works, and Transportation Departments are working with a consultant to develop a master plan to guide electrification of the City of San José fleet and new accompanying charging infrastructure. The master plan scope includes 1) providing a vehicle procurement and charger installation schedule; 2) identifying costs for EV procurement and charging infrastructure; 3) assessing the electrical capacity of City buildings and grid capacity on the circuit to identify the best approaches to install charging infrastructure in the most needed areas for fleet, employee, and public vehicles; and 4) evaluating potential integration with SJCE's Direct Current Fast Charging Hubs Pilot Program. Staff is targeting to receive a final Master Plan in spring/summer 2024 to position the City for grant applications, such as the federal Charging and Fueling Infrastructure Community Program, to fund charging infrastructure for the City fleet and public use, particularly in low-income communities with little to no public charging infrastructure.
- **Residential Super Off-Peak Charging Rate Pilot:** Residential customers with an EV, battery storage, heat pump water heater, or heat pump HVAC can enroll in E-ELEC, a new time-of-use rate plan incentivizing electrification. Staff recommends launching a pilot in mid-2024 that adds a new "E-ELEC-SJ" rate plan with a new super off-peak period from 9 a.m. to 2 p.m. with the lowest rates of the day to incentivize EV charging (and other electrification uses) when the grid is typically flush with solar energy. For the pilot, SJCE will not raise rates in the other time-of-use periods in E-ELEC to compensate for the lower rates in the super off-peak period. Staff propose to automatically enroll current customers in E-ELEC without solar into E-ELEC-SJ. E-ELEC-SJ will be open to residential customers with an EV, battery storage, heat pump water heater, or heat pump HVAC. The proposal would not automatically enroll legacy solar customers because they could potentially lose money on the energy their panels export to the grid.⁹ Staff will conduct an outreach and marketing campaign to the approximately 900 customers currently enrolled in E-ELEC without solar and to EV drivers without solar to build awareness of E-ELEC-SJ. Staff will study rate plan uptake and resulting load shifting and revenue impacts.
- **Telematics-based managed charging system:** Telematics-based managed charging systems use software to communicate with electric vehicles' onboard technology and communications systems to control when they charge. Several CCAs have successfully used telematics to shift some of their residential customers' EV charging from the evening peak (4 p.m. to 9 p.m.) and overnight to low-carbon daytime periods.

⁸ Powell, S., Cezar, G. V., Min, L. et al. [Charging infrastructure access and operation to reduce the grid impacts of deep electric vehicle adoption](#). Nat Energy (2022).

⁹ Legacy solar customers refers to customers who submitted an interconnection application before April 14, 2023 and are part of Net Energy Metering 1.0 or 2.0.

Participants are compensated for daytime charging “events” and have saved \$200+ annually on their energy bills by shifting charging to lower-cost time-of-use periods.¹⁰ CCAs’ telematics programs have also improved grid resiliency by shifting charging during Flex Alerts and other grid emergencies.¹¹ Energy Department staff aim to provide managed charging for 500 EVs in San José starting in 2024. Staff will develop cost-benefit analyses comparing the loading shifting and customer savings impacts of the telematics program versus the residential super off-peak rate pilot.

Building Electrification

In San José, buildings are responsible for 31 percent of greenhouse gas emissions, primarily due to natural gas usage. Residential appliances that typically burn natural gas and cause most of these emissions are furnaces, water heaters, gas stovetops, and clothes dryers. Each of these appliances can be replaced by proven, accessible, and efficient electric appliances, such as heat pumps for space heating and cooling, heat pump water heaters, electric dryers, and electric stoves, including induction (Appendix C). Gas water heaters and HVAC systems are responsible for over 90% of natural gas usage in residential homes, so replacing these systems will have the largest impact on home emissions reductions. Switching to electric appliances also improves indoor air quality since natural gas appliances can release carbon monoxide, formaldehyde, and other harmful pollutants into the air.

In 2023, the Bay Area Air Quality Management District, which covers nine Bay Area counties, voted to ban the sale of space and water heaters that emit nitrogen oxides in 2029 and 2027, respectively. Currently, the only zero-nitrogen oxide space and water heating appliances are electric. Energy Department staff are currently working with a consultant to design a suite of building electrification programs to prepare the community for the implementation of these regulations and make progress toward San José’s 2030 carbon neutrality goal, including providing solutions to help customers afford building electrification upgrades and ensuring the workforce is ready to support these installations. The American Council for an Energy Efficiency Economy has selected the Energy Department to receive free technical assistance over the next year to increase renter participation in electrification and energy efficiency programs, engage landlords and tenants, and develop renter protection policies for the programs. Each program detailed below will also include marketing and education efforts to educate customers and the workforce about the benefits of building electrification.

¹⁰ Silicon Valley Clean Energy & ev.energy. June 2021. Whitepaper: “[An events-based approach to low-carbon charging](#).”

¹¹ The California Independent System Operator, which operates the electric grid for most of the state, can call Flex Alerts when it forecasts the potential for demand for electricity to outstrip supply. Flex Alerts are calls to consumers to voluntarily reduce their electricity usage (typically starting at 4 p.m.) and shift it to off-peak hours (normally after 9 p.m.). If Flex Alerts do not lower electricity demand sufficiently, the California Independent System Operator can issue three increasing levels of Energy Emergency Alerts. MCE Clean Energy shifted 96% of its program participants’ EV charging during the 10-day heatwave in September 2022 – about 5 megawatt-hours (ev.energy Press Release: October 12, 2022. [Bay Area EV Drivers Helped Prevent Blackouts During 2022 Heat Waves with MCE Load-Shifting Program](#)).

- **Heat Pump Incentive:** SJCE customers (or contractors on behalf of customers) will be able to get incentives for installing heat pump water heaters and heat pump HVAC systems in homes. Additional incentive adders will be available for customers in priority communities. The average project cost for installing a heat pump water heater is \$6,500. Available regional, state, and federal incentive and tax credit programs will cover \$2,230 to \$5,975 in heat pump water heater project costs, depending on the design and customer qualification for incentives. The average cost for heat pump HVAC projects is \$16,700 to \$23,305, depending on whether the system is ducted. Available regional, state, and federal incentive and tax credit programs will cover \$6,150 to \$12,650 of project costs. More information on project costs and incentives can be found in Appendix D. The incentive program aims to cover the average cost gap for low-income customers and lower the cost gap for higher-income customers. The program will be designed in consideration of forthcoming incentives from the Inflation Reduction Act and will be available to single-family and multifamily homes. The first year of program implementation will focus on equipment sizes that serve a single household, but staff intend for future program iterations to also include central systems more typical of multifamily. Staff also hope to add an incentive for installing weatherization measures (such as air sealing and upgrades to insulation), which increase the energy efficiency of homes and can lead to a lower load requirement for heat pump equipment. As part of the program, staff hope to work with contractors to establish a fixed baseline installation cost for the region to support ease of installation and transparency. Staff's goal is to have 500 heat pumps installed in FY 2024-2025.
- **On-bill Financing Pilot:** An incentive program for building electrification technologies can help to reduce the upfront cost of installation but will likely not cover the entire project cost. To support customers making emissions-reducing upgrades, SJCE will provide zero-interest loans to cover the after-incentives cost of installing a heat pump water heater and/or heat pump HVAC system, up to \$5,000. The loans will be repaid over a period of five years, and customers will be charged the monthly payment through their electricity bill. This program will provide access to capital for lower-income customers who have traditionally been unable to afford clean energy upgrades.
- **Workforce Development:** Energy Department staff will collaborate with IBEW and other unions, labor groups, contractor groups, and the City's Office of Economic Development and Cultural Affairs to support the building electrification workforce in San José. The Department has an industry consultant under contract to research the current state of the electrification workforce (general contractors, electricians, plumbers, etc.) in San José, existing workforce training programs, and evaluate the speed at which buildings can be electrified with the current workforce. The study will determine the workforce size needed to meet the Bay Area Air Quality Management District 2027 and 2029 regulations and the City's carbon neutral by 2030 goal. The consultant will also identify career pathways that should be developed to help ensure that the workforce represents San José's diverse communities, the building electrification jobs are high

quality, and that the workforce that supports the installation and maintenance of gas appliances can transition to supporting building electrification or other scopes of work. Once this analysis is completed in mid-2024, staff will develop workforce development programs that utilize the community development funds SJCE secures through its clean energy power purchase agreements with developers for utility-scale clean energy resources. Potential programs may include scholarships for enrollment in apprenticeship or pre-apprenticeship programs, sponsoring appliance-specific training, or incentives awarded for successful installations of electrification technologies.

Distributed Energy Resources

Distributed energy resources are resources on the customer side of the utility meter (or “behind the meter”), such as rooftop solar, home battery storage, and demand response. This contrasts with utility-scale solar, wind, batteries, and other energy sources located in “front of the meter.” California’s investments in solar power have resulted in an abundance of electricity during daylight hours. This abundance very quickly turns into a shortfall as the sun begins to set and is exacerbated on hot summer nights when homes run their air conditioners in unison. To maintain grid stability, utilities are investing in battery storage. But peaking power plants – highly polluting natural gas power plants specifically designed for quick start-up – are also still used.

Increasing supply is not the only way to meet electricity demand during these critical times of the day; paying customers to reduce their electricity usage is a cost-effective way to meet demand while reducing greenhouse gas emissions. Demand response programs call on residents and businesses to reduce their energy use during energy-saving events, which can occur throughout the year when market prices for electricity are high or during grid emergencies when overall demand is projected to be greater than what is available.

- **Demand Response Expansion:** Demand response programs are an effective way to reduce volatility in power costs during the most expensive times of the year and to increase grid reliability. In addition, they help reduce greenhouse gas emissions by shifting electricity use to times of the day when the grid mix is cleaner. For the Summer of 2023, SJCE marketed the Peak Rewards demand response pilot to large commercial customers. For the remainder of the fiscal year and into FY 24-25, SJCE seeks to use lessons learned from this pilot to launch a full demand response program open to all commercial and residential customers enrolled in SJCE. This program will not only expand in size but will also be more robust and support automated participation through technologies like smart thermostats, smart power strips, EV chargers, and home batteries. SJCE will hire a program implementer to help meet its goal of achieving 5 MW of reductions by the end of FY 2024-2025.
- **Solar Access expansion:** SJCE’s Solar Access program currently serves approximately 840 low-income customers in disadvantaged communities, providing a 20% bill discount and powering their residences with 100% renewable electricity from solar from a 2-

megawatt (MW) facility in Merced County.¹² Staff recommends funding the same discount for approximately 150 additional customers and serving them with the excess solar energy produced by the Merced County Facility.¹³

- **Battery storage incentive:** Staff propose developing an incentive program for customer-sited battery storage with the goal of improving grid reliability and reducing price volatility, as well as to provide additional resiliency to homes or businesses. The incentive program would be designed to lower the costs of battery equipment and installation, particularly for solar customers, to reduce the net demand on the grid during peak hours. Participants could receive a rebate for installation in exchange for mandatory participation in SJCE's demand response and/or daily load shifting program, which would allow SJCE to leverage a portion of the battery as a resource during peak hours of the day.

Program-specific Rates

Electricity is a critical utility service and a basic human need. Low-income households bear a disproportionate burden of energy bills; these households not only spend a higher portion of their income each month on energy but often live in less energy-efficient homes and lack access to energy-saving technologies. As customers fall behind on bills, they run the risk of disconnection. Disconnections have a disparate impact on low-income communities and communities of color and can be detrimental to health for customers reliant on electricity for medical devices and life-supporting systems. SJCE is tracking customers with missed payments and determining the best way to intervene in PG&E's disconnection process to provide these customers with resources and avert disconnection.

- **Emergency Bill Relief:** Following the completion of the Council-approved pilot, staff recommends expanding the Emergency Bill Relief program to serve the approximately 1,000 San José households annually that receive rent assistance through the County's Homelessness Prevention Program. Sacred Heart and its 19 partner organizations screen applicants to ensure those most in need receive assistance. Understanding that not paying utilities can lead to significant disruptions such as disconnection of electricity service, staff propose to provide a large one-time credit to offset any arrearages and a smaller bill credit for three months. The exact credit amounts will be defined after the completion of the pilot in summer 2024.

Grant and Funding Opportunities

¹² [Map of disadvantaged communities as designated by the California Environmental Protection Agency and California Public Utilities Commission.](#)

¹³ The California Public Utilities Commission (CPUC) reimburses SJCE for Solar Access expenses, including the bill discounts for the existing 840 customers and the cost of producing energy for 1.7 MW out of the total 2.0 MW at the Merced Solar Facility. Staff recommends funding the same discount for approximately 150 additional customers and serving them with the remaining 0.3 MW of solar.

In partnership with the City Manager’s Office Intergovernmental Relations team and other departments, Energy staff is tracking and planning to apply to several federal and state grant opportunities to supplement SJCE’s programs funding.

Table 4. Federal and state grant opportunities, organized by application due date

Grant Name/Agency	Opportunity	Application Amount	Timeline
American Council for an Energy Efficiency Economy (ACEEE) Energy Equity for Renters	Free technical assistance to increase participation in energy efficiency and electrification programs among households that rent; support in program and policy design	N/A	Awarded; will receive support through early 2025
Greenhouse Gas Reduction Fund (Solar for All), US EPA	Funding to expand Solar Access or for new low-income home solar and storage programs	TBD; up to \$375M as a coalition	Applied as part of two coalition applications in Sept. 2023; awards expected March 2024
Climate Pollution Reduction Implementation Grant, US EPA	Funding for residential building electrification in priority communities; regional applications favored	TBD; up to \$500M as a coalition	Applications due April 1, 2024; joining Bay Area coalition
Locally Invested Transportation Equity Pilot Program, CPUC	Funding for an innovative EV charger installation program serving multifamily residents in disadvantaged communities	Up to \$4M	Applications due March 14, 2024; considering joining coalition
Charging Infrastructure for Government Fleets, California Energy Commission	Funding for Level 2 and/or fast charging EV charging infrastructure to support a light-duty fleets under a single government entity. Minimum of 100 charging ports.	The lessor of \$6M or 70% of project costs	Applications due April 5, 2024
Distributed Electricity Backup Assets Program, California Energy Commission	Up to 80% of project costs for residential and customer-sited battery storage that must dispatch energy during grid emergencies; upfront payment plus payments over 5 years for performance during grid events	TBD	Applications expected by mid-2024; considering joining coalition
Charging and Fueling Infrastructure	Funding for Level 2 and/or fast charging EV infrastructure at various City properties to meet	\$10-20M	Next round of funding expected to

(CFI) Community Program, US DOT	fleet and public charging needs (20% match requirement)		open April-June 2024
Environmental and Climate Justice Community Change, US EPA	Funding for building electrification workforce development for priority communities; must be led by community groups	\$10-20M	Applications accepted on a rolling basis through November 2024
Energy Efficiency Elect to Administer, CPUC	Funding for energy efficiency and electrification measures	TBD	Eligible to apply for funding for 2025-2027
Inflation Reduction Act Investment Tax Credit	10-20% tax credit adder for investments in utility scale clean energy resources sited in low-income communities or if the resource will provide power to low-income communities	TBD	Annual allocations through 2032

Future Programs: FY 2025-2026 and Beyond

Staff recommends a greater focus on vehicle electrification in the next fiscal years, particularly on installing EV charging stations in neighborhoods lacking charging infrastructure and on removing barriers for low-income households to purchase an EV. SJCE will continue to identify the latter through its EV education program and community engagement. Staff will also continue to explore opportunities to make solar and storage more affordable for low-income households and attainable for people with low credit scores, including power purchase agreements, interest rate buydowns, on-bill financing, and incentives to developers to inform program recommendations for future fiscal years. Potential future programs for FY 2025-2026 include:

Vehicle Electrification

1. **Low-income EV Purchase Incentive and/or Interest Rate Buydown Pilot** for qualifying customers to purchase a new or used EV. Staff would explore partnering with dealerships to offer the incentive at point-of-sale instead of an after-purchase rebate and explore partnering with financial institutions or dealerships to reduce interest rates to enable customers with low credit scores to finance their vehicles more affordably.
2. **Low-income EV Charge Card Pilot** for qualifying customers to subsidize costs to charge at third-party operated level 2 and fast chargers. Staff would explore partnering with third-party charger operators and financial institutions to offer a seamless method to lower retail charging rates at chargers around the city.
3. **Workplace Charger Program** to incentivize the installation of Level 2 chargers at businesses in San José that predominantly employ multi-family and/or low-income residents currently lacking access to EV charging.
4. **Low-income E-bike Rebate** for qualifying customers to purchase an electric bike.

Building Electrification

5. **Energy Advisor Concierge Service** to guide homeowners through selecting a contractor, understanding project costs, applying for rebates and incentives, and any installation issues.
6. **Water Heater Loaner Pilot** to install a temporary gas-powered water heater for homeowners who need electrical upgrades before replacing their failed gas water heater with a heat pump water heater.

Distributed Energy Resources

7. **Automated Device Shop** that includes free smart thermostats, smart plugs, and discounts on other internet-connected devices for low-income residential customers to enable participation in SJCE's Demand Response program.

EVALUATION AND FOLLOW-UP

Staff provides regular updates to the Transportation and Environment Committee on SJCE program performance through the semiannual Climate Smart updates and annual Programs Roadmap update. Staff will provide more details on SJCE's planned building electrification workforce development programs resulting from its consultant study and engagement with labor and contractors in the Building Electrification Special Session tentatively scheduled for fall 2024.

COST SUMMARY/IMPLICATIONS

As described above, staff recommends allocating a maximum of \$6.5 million of rate payer funds across the remainder of FY 2023-2024 and FY 2024-2025 and leveraging approximately \$5.5 million in additional external funding sources for customer programs. Estimated spending levels in the current year of \$4.2 million would be deployed from existing appropriations, and estimated spending of \$7.8 million would be subject to the 2024-2025 Proposed Budget development process. All expenditures would be paid from the San José Clean Energy Fund.

COORDINATION

This memorandum has been coordinated with the City Attorney's Office, the City Manager's Budget Office, the Environmental Services Department, and the Department of Transportation.

PUBLIC OUTREACH

This memorandum will be posted on the City's Council Agenda website for the March 4, 2024 Transportation and Environment Committee meeting.

COMMISSION RECOMMENDATION AND INPUT

No commission recommendation or input is associated with this action.

CEQA

Statutorily Exempt, ER24-021, CEQA Guidelines Section 15601(b)(3), Review for Exemption;
and
Categorically Exempt, File No. ER24-021, CEQA Guidelines Section 15303, New Construction
or Conversion of Small Structures.

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

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

APPENDIX

Appendix A: Current Programs Status
Appendix B: Programs Budget Breakdown through Fiscal Year 2024-2025
Appendix C: Overview of Building Electrification Technologies
Appendix D: Summary of Residential Building Electrification Incentives and Average Upgrade
Costs

ATTACHMENT

Attachment A: SJCE Programs Roadmap

Appendix A: Current Programs Status

Vehicle Electrification

- California Electric Vehicle Infrastructure Project (CALeVIP):** CALeVIP is a \$14 million rebate program for Level 2 and Direct Current Fast Charging (DCFC) infrastructure co-funded by SJCE and the California Energy Commission and administered by the Center for Sustainable Energy. CALeVIP launched in December 2020 and closed to new applications in June 2023. As of January 2024, 140 Level 2 and 26 Direct Current Fast Chargers funded by the program are operational. About 40% of the funds have been reserved or issued to projects in low-income and disadvantaged communities. The program is expected to conclude in Q4 2025, at which point any unspent funds committed by the City would be returned to the City. Unspent funds committed by the California Energy Commission will be re-allocated to other state programs. Staff is exploring offering technical assistance to recent applicants to increase the number of applications that result in completed projects.

Table 5. Location of operational EV chargers in San José funded by CALeVIP

Installation Street	ZIP	Main Site Use	Equipment	Number of Connectors
1278 S. 10th St	95112	College/University	6 DCFC, 20 L2	12 DCFC, 20 L2
1595 Branham Ln	95118	Commercial (Grocery store)	2 DCFC	4 DCFC
1688 Hostetter Rd	95131	Commercial (Retail shopping center)	6 DCFC, 20 L2	12 DCFC, 20 L2
1005 Saratoga Ave	95129	Commercial (Gas station)	1 DCFC	2 DCFC
84 W Santa Clara St	95113	Commercial	4 L2	4 L2
4000 Ellmar Oaks Dr	95136	Multi-unit dwelling	20 L2	20 L2
838 Cinnabar St	95126	Multi-unit dwelling	20 L2	20 L2
2045 Lundy Ave	95131	Workplace	4 L2	8 L2
10 W Trimble Rd	95131	Commercial (Hotel)	6 DCFC	12 DCFC
415 E Taylor St	95112	Multi-unit dwelling	5 L2	10 L2
1790 S 10th St	95112	Commercial (Gas station)	1 DCFC	2 DCFC
750 N King Rd	95133	Multi-unit dwelling	20 L2	20 L2
760 N 7th St	95112	Multi-unit dwelling	5 L2	10 L2
1202 Oakland Rd	95112	Commercial (Gas station)	2 DCFC	4 DCFC
5981 Optical Ct	95138	Workplace	20 L2	20 L2

875 Blossom Hill Rd	95123	Commercial (Gas station)	2 DCFC	4 DCFC
55 S Market St	95113	Workplace	2 L2	4 L2

- Direct Current Fast Charging Hubs Pilot Program:** In November 2022, the City Council approved SJCE’s direct current fast charging hubs pilot, which will result in one to three hubs being installed in low-income or disadvantaged communities in San José to increase access to affordable and reliable EV charging. Each hub will contain parking spaces and chargers to accommodate at least 10 EVs and run for 10 years. SJCE will control variable retail pricing to encourage middle-of-the-day charging. Since then, staff bid out the program, negotiated with bidders, conducted interviews with other market participants, and determined that the program should be rebid to receive more offers. Additionally, staff believe there could be cost and scaling benefits if the program were to align with the City’s fleet charging needs. The consultant producing the City Fleet Electrification Master Plan will analyze whether there are synergies; if so, staff will return to the City Council for consideration of an amended program proposal.
- EV Shopping Tool:** In January 2024, the Finance Department completed their procurement for a vendor to develop an online multilingual website for comparing lifetime costs and emissions for EVs versus gas-powered cars and finding incentives and nearby chargers. The tool will be part of the SJCE website and launch in spring 2024.
- EV Education:** SJCE is focused on increasing EV vehicle adoption in San José, especially among residents with lower incomes and those who face the highest barriers to adoption. From March through June 2023, staff conducted outreach and engaged residents in East San José through neighborhood groups, schools, and community organizations. As part of these efforts, SJCE supported a “community dinner” wherein dozens of residents enjoyed a meal together before learning about how e-mobility solutions can help them take air quality into their own hands. Attendees also received information about rebates and incentives for purchasing or leasing an EV. In July, SJCE published a blog, “I Just Bought an EV and Here’s What I Learned.” In addition, SJCE is financially supporting three non-profit partners to help promote the benefits of vehicle electrification. Through one partner, SJCE sponsored four “EV 101/102” webinars where residents could learn all about EV basics. In August, SJCE also sponsored and promoted Silicon Valley Clean Cities Coalition’ annual Ride-and-Drive event for a third time. SJCE helped cover costs for a Clean Air Day community dinner in October. In December, SJCE was accepted into the U.S. Department of Energy’s “Clean Energy to Communities” peer-learning cohort. SJCE will participate in the six-month cohort alongside the Silicon Valley Clean Cities Coalition to assess community transportation needs and design effective engagement strategies. SJCE will continue similar educational and community engagement efforts in CY 2024 and 2025.

- **Electric Cooking Health Education:** In 2023, SJCE launched a fun, informational campaign to normalize the use of induction and other electric cooking by highlighting the health and cost-saving benefits. The campaign is meant as a conversation-starter on the importance of electrification for the health and viability of our communities. Staff partnered with a community-based organization to host a Vietnamese induction cooking demo and designed a “Flameless Flavor” hot sauce to give away at outreach events and spark conversation. In 2024, staff will also publish engaging blog and social media video content about the benefits of electric and induction cooking.

Distributed Energy Resources

- **Peak Rewards:** In May 2023, SJCE launched Peak Rewards, a demand response program for businesses. SJCE enrolled nine businesses and called six energy-saving ‘Peak Events’ events in 2023. Peak Events are triggered by temperature, projected electricity market prices, and/or state predictions for grid emergencies. The best performing Peak Event resulted in 1 MW of peak demand reduction, which is the same as the usage of 500 homes. SJCE plans to apply lessons learned during summer 2023 as it designs its demand response program expansion in 2024.
- **Solar Access:** The Disadvantaged Community Green Tariff program, now named Solar Access for SJCE customers, is a CPUC-funded program that provides a 20% bill discount and 100% solar energy to more than 840 low-income customers living in San José disadvantaged communities. Customers receive the Solar Access discount in addition to their California Alternative Rate for Energy (CARE) or Family Electric Rate Assistance (FERA) monthly discounts, for up to 55% off their electricity bill. SJCE launched Solar Access in late 2021.¹⁴ The CPUC allotted SJCE a program capacity of 1.7 megawatts to serve program participants. SJCE procures this energy from an interim resource and expects its permanent resource to complete construction in 2024. Staff continue to maintain full enrollment each month through a combination of customer applications and auto-enrollments.

Energy Efficiency

In September 2022, SJCE launched two energy efficiency programs with a combined budget of approximately \$5.1 million from the CPUC. Both programs are implemented by Franklin Energy Services and will end in late 2024. They are estimated to result in 2,800 megawatt-hours of annual savings over the lifetimes of the energy-saving equipment – equal to the annual usage of about 560 homes. Staff are currently exploring applying for another three years of energy efficiency program funding from the CPUC.

- **San José Home Appliance Savings Program:** This program serves two residential customer groups: single-family homes located in state-defined disadvantaged

¹⁴ [Solar Access program webpage](#) (also available in [Spanish](#) and [Vietnamese](#))

communities and moderate-income single-family homes citywide.¹⁵ The program offers free smart thermostats and 50-70% discounts on new energy-efficient refrigerators, washers, electric dryers, and induction cooktops, with free delivery, installation, haul away of the old appliance, and a five-year warranty. To purchase an appliance, customers must pass the eligibility screen on the San José Clean Energy website to receive a redemption code to be used in person at Airport Home Appliance's San José store. As of the end of 2023, customers have ordered 140 smart plugs and 167 smart thermostats and purchased 65 appliances. The City Council allocated \$500,000 from American Rescue Plan funds to expand the program.

- **San José Energy Efficient Business Program:** This program offers 80-90% off HVAC, refrigeration, and water heating components and systems and installation.¹⁶ While all San José Clean Energy commercial customers are eligible for the program, Franklin Energy and San José Clean Energy staff are targeting marketing to schools and small and medium businesses, including medical and dental offices, restaurants, convenience stores, and small offices. The program takes a concierge approach to customer service, with Franklin Energy program staff helping customers through every step of the process, including offering a free energy audit to identify opportunities, finding a contractor that complies with the CPUC specifications, helping the customer or their contractor apply for the rebates, and providing language assistance in Spanish or Vietnamese. In 2022 and 2023, the program served 574 businesses, many of which are restaurants and grocery stores but also include fitness centers and temples.

Program-Specific Rates

- **SJ Cares:** SJCE's SJ Cares program provides a 10 percent monthly discount on its generation rates to approximately 70,000 customers, amounting to \$5 million annually in collective savings. Currently, residential and commercial customers who are enrolled in state bill assistance programs CARE and FERA are eligible to receive the SJ Cares discount. To qualify for CARE and FERA, customers have very low incomes, making no more than 40 percent of area median income, or \$75,000 for a family of four. In February 2024, the City Council approved an expansion of SJ Cares to nearly 18,000 affordable housing units and to approximately 1,000 participants in Santa Clara County's Homelessness Prevention Program.
- **Emergency Bill Relief Pilot:** In February 2024, the City Council approved an Emergency Bill Relief pilot for 100 residential customers screened by Sacred Heart and 19 partner organizations serving the County of Santa Clara's Homelessness Prevention Program. SJCE will ensure that PG&E will not disconnect their electric service by providing a credit of up to \$1,600 directly to the applicant's utility account. For most

¹⁵ [San José Home Appliance Savings Program webpage](#) (also available in [Spanish](#) and [Vietnamese](#)). Moderate income is defined by the CPUC as between 200% and 400% of the federal poverty guidelines, or between \$55,000 and \$111,000 for a family of four.

¹⁶ [San José Energy Efficient Business Program webpage](#) (also available in [Spanish](#) and [Vietnamese](#))

applicants, this level of support is expected to eliminate all overdue balances owed to SJCE and PG&E and temporarily avert disconnection. The program will also provide a smaller bill credit for three months following the initial credit. Staff collect data on the number of monthly applicants and the average need per applicant to inform the program design for the full Emergency Bill Relief program.

Resiliency

- **Solar + storage at critical City facilities:** SJCE is assisting and funding a program manager in the Public Works Department to implement solar and storage at 30 or more critical City facilities such as community centers and fire stations through a power purchase agreement. Adding solar and storage to the sites will allow the facilities to provide critical functions in service of the community. The community centers are located throughout the City and serve as cooling, warming, and resource centers during extreme weather events. SJCE is also funding a consultant to assess sites for inclusion in the power purchase agreement. Staff is currently advising on technologies and will later assist with conducting outreach to developers, the Request for Proposals development and scoring, and power purchase agreement negotiation.

Appendix B: Programs Budget Breakdown through Fiscal Year 2024-2025

Table 6. Current and near-term programs budget breakdown through fiscal year 2024-2025

Program	Estimated Cost
CALeVIP	\$15,000
Fast Charging Hubs Pilot Program*	\$0
EV Shopping Tool	\$170,000
EV Education	\$50,000
Electric Cooking Health Education	\$30,000
Solar Access	\$1,200,000
Energy Efficiency (Home Appliance Savings Program and Energy Efficient Business Program)	\$3,000,000
Emergency Bill Relief Pilot	\$150,000
Solar + storage at critical City facilities	\$1,000,000
City of San José fleet electrification master plan	\$130,000
Residential super off-peak charging rate pilot	\$200,000
Telematics-based managed charging	\$155,000
Heat pump incentive	\$1,415,000
On-bill financing pilot**	\$1,250,000

Workforce development	\$500,000
Demand response expansion	\$750,000
Solar Access expansion	\$35,000
Battery storage incentive	\$500,000
Emergency Bill Relief (full program)	\$1,000,000
Various consultant studies (building electrification, workforce development, workplace charging, energy efficiency advice letter)	\$450,000

*Spending expected in subsequent fiscal years after tolling agreement is executed

**Paid back over time

Appendix C: Overview of Building Electrification Technologies

Proven, accessible, and efficient electric appliances can replace natural gas uses within a home. These appliances are outlined in Table 7 below.

Table 7. Descriptions of electric appliances

Gas-powered Appliance	Electric Option	How it Works
Water heater	Heat pump water heater (HPWH)	<ul style="list-style-type: none"> • Moves heat rather than makes heat. Pulls heat from the surrounding air and transfers it at a higher temperature into the tank to heat your water. • Three times more energy efficient than gas water heaters because heat pumps move heat while gas water heaters create heat via combustion. • Typically 240V, but 120V technology is becoming increasingly available.
Furnace	Heat pump HVAC system	<ul style="list-style-type: none"> • Pulls heat from outside for heating indoors and pulls out heat from indoors for cooling. • Provides heating in the winter and cooling in the summer, while a gas furnace only provides heating. • Two types: central/ducted (like central AC) and ductless mini splits
Gas cooktop/stove	Electric or induction cooktop/stove	<ul style="list-style-type: none"> • Uses magnetism to generate heat. Magnetic coils below the cooktop's surface generate a magnetic field that sends pulses directly to the cookware. • 40-50 percent more energy efficient than gas cooktops.

Gas heated clothes dryer	Electric or heat pump clothes dryer	<ul style="list-style-type: none"> Heat pump clothes dryers send the warm, humid air generated through drying through an evaporator to remove the moisture and then reuse it to dry clothes, using less electricity. They do not require vents.
--------------------------	-------------------------------------	--

Electrification will require capacity and spare breaker spaces in the home’s electrical panel. Electricity flows from the grid through PG&E distribution infrastructure to a home’s electrical panel. Panels are made up of a series of circuit breakers that control the electrical current that flows to outlets. Circuit breakers protect your home from current spikes or overloads.

Approximately 32 percent of single-family homes in San José were built after 1978 and are more likely to have a 200-Amp panel. The remaining 68 percent of homes built before 1978 are more likely to have a 100-Amp panel or lower and may need new electrical panels for safety reasons, especially those older than the 1960s.¹⁷ The tools outlined in Table 8 below can be utilized to cost effectively electrify without requiring an upgrade to the home’s electrical service capacity, which can be costly and time-intensive if the distribution utility needs to upgrade the transformer or other distribution infrastructure.

Table 8. Tools that enable whole home electrification without an electrical panel upgrade
Source: Peninsula Clean Energy Design Guidelines for Home Electrification¹⁸

Tool	What It Does
Circuit-sharing device	<ul style="list-style-type: none"> Allows two appliances to share the same circuit: electric clothes dryer and electric vehicle (EV) charger, HPWH and EV charger, stove and EV charger, stove and HPWH, or two EV chargers.
Circuit-pausing device	<ul style="list-style-type: none"> Measures the total electrical draw of the home and pauses an appliance (typically EV charger) when the home’s total electrical draw gets close to the panel capacity.¹⁹
Smart panel	<ul style="list-style-type: none"> Uses a computer to monitor the home’s entire load, control electrical current, and turn breakers on and off as needed.
120V HPWH	<ul style="list-style-type: none"> Plugs into a standard 120V outlet, avoiding electrical infrastructure upgrades that may be required for higher voltage equipment
Level 1 or low amperage Level 2 EV charger	<ul style="list-style-type: none"> Oversizing EV chargers takes up valuable amp space on the electrical panel. Most daily usage can be met by overnight charging with a Level 1 or low amperage Level 2 EV charger.

¹⁷ Building Electrification Institute, San Jose Building Stock and Housing Analysis, August 2020:
<https://www.sanjoseca.gov/home/showpublisheddocument/90629/638017001081730000>

¹⁸ <https://www.peninsulacleanenergy.com/wp-content/uploads/2023/02/Design-guidelines-for-home-electrification-v021023.pdf>

¹⁹ These events are rare. Peninsula Clean Energy analyzed more than 100,000 single-family homes in its service territory and found that 99 percent of both gas-using and all-electric homes never draw more than 100 amps of electric current all year, and more than 80 percent of homes never draw more than 40 amps.

	<ul style="list-style-type: none"> • Level 1 chargers utilize a 120V outlet and provide 3-6 miles of charge per hour. • During an overnight charge, a 16A Level 2 charger will provide 96 miles of range while a 40A charger will provide 240 miles of range.
--	---

Appendix D: Summary of Residential Building Electrification Incentives and Average Upgrade Costs

Several federal, state, and regional building electrification programs are available or will soon become available to accelerate residential adoption of heat pump HVACs and heat pump water heaters by decreasing costs and covering electrical panel upgrades. Maximum incentive amounts are listed in Table 9 below. For some programs, the actual incentive amount is subject to applicant income and project costs. For example, through the federal High-Efficiency Electric Home Rebate Program (HEEHR), a forthcoming Inflation Reduction Act program, households making 150 percent of the area median income (about \$270,000 for a family of four) or lower can get rebates for heat pumps and other appliances as well as energy efficiency projects. Households making between 80 percent and 150 percent of the area median income can get rebates for 50 percent of project costs, while households making under 80 percent of the area median income can get rebates for 100 percent of project costs, up to the maximum rebate amount.

Table 9. Current and Forthcoming Federal, State, and Regional Incentives for Residential Building Electrification Upgrades

Program	HPWH	HVAC	Cooktop	Clothes Dryer	Electric Panel	Type
Energy Efficient Home Improvement Tax Credit (25C)	Up to \$2,000	Up to \$2,000		-	Up to \$600	Tax credit
High-Efficiency Electric Home Rebate Program (HEEHR)*	\$875-\$1,750	\$4,000-\$8,000	\$420-\$840	\$420-\$840	\$2,000-\$4,000	Point-of-sale rebate
Home Energy Performance-Based Whole-House Rebates Program (HOMES)*	Up to \$8,000					Rebate
BayREN Home+ Rebates	\$250-\$400	\$250-\$400	\$250	\$250	-	Rebate
California Golden State Rebate Program	\$500-\$700	-	-	-	-	Coupon
California Energy-Smart Homes Program**	\$5,550-\$5,950				\$1,000	Rebate

Self-Generation Incentive Program (SGIP)	\$4,185	-	-	-	\$4,000	Contractor Rebate
TECH Incentives	-	\$1,000	-	-	-	Contractor Rebate

*Forthcoming

**Requires whole-home electrification

Environmental Services staff contracted with AECOM to identify the average project costs to install residential heat pump water heaters and HVACs (Table 10). The cost estimates are based on an analysis of publicly available TECH Clean California data²⁰ and cost estimates prepared for the City of San José by the Building Electrification Institute.²¹ Many of the incentives can be stacked to reduce electrification upgrade costs to cost the same as or less than their natural gas counterparts (Tables 11-13).²²

Table 10. Average Project Costs for Residential Electrification Upgrades

	25th Percentile	Median	75th percentile
Heat Pump Water Heater <55 gallons	\$5,440	\$6,500	\$8,100
Heat Pump Water Heater ≥55 gallons	\$6,050	\$6,900	\$8,650
Heat Pump HVAC central/ducted	\$16,860	\$22,305	\$28,640
Heat Pump HVAC mini-split	\$10,420	\$16,700	\$23,880

Table 11. Average Project Costs for Gas-powered Appliance Replacement

Technology	Average cost
Water heater	\$1,670
Furnace and air conditioning	\$17,000-23,000

Table 12. Heat Pump Net Effective Cost for Households with Incomes Under 150 percent of Area Median Income

Technology	Gross Cost	Incentive	Net Effective Cost
Heat Pump Water Heater	\$6,500	\$5,975	\$525
Heat Pump HVAC	\$22,305	\$12,650	\$9,655

Table 13. Heat Pump Net Effective Cost for Households with Incomes Over 150 percent of Area Median Income

²⁰ TECH Clean California public data. <https://techcleanca.com/public-data/>

²¹ San José Customer Economics Analysis for Residential Building Electrification. Appendix E1 of the Electrify San José Framework. February 2022.

<https://www.sanjoseca.gov/home/showpublisheddocument/90625/638017000335100000>

²² Tables 6-7 refer to owner-occupied single-family homes built before 2016.

Technology	Gross Cost	Incentive	Net Effective Cost
Heat Pump Water Heater	\$6,500	\$2,230	\$4,270
Heat Pump HVAC (central/ducted)	\$22,305	\$6,150	\$16,155