**Healthy Homes, Healthy Air**

*A Framework for Existing Building Electrification*

*Centered on Community Priorities*

# PREPARED BY:

City of San Jose

Department of Environmental Services

[www.sanjoseca.gov](http://www.sanjoseca.gov)



**IN COLLABORATION WITH:**





**SPECIAL THANKS TO:**





**Executive Summary**

From hotter summers and heat waves to wildfires and drought, San José residents are already experiencing the impacts of climate change, and historically marginalized communities of San José are often impacted first and worst. To combat climate change, our city must both adapt to this new reality and reduce greenhouse gas (GHG) emissions to help mitigate the impacts. This Healthy Homes, Healthy Air plan (“Plan”) lays out a framework for **how to reduce GHG emissions from** **existing buildings** in San José through building electrification, **while bringing to the forefront the concerns and priorities of historically marginalized communities**. In order to equitably address climate change, the City should seek to minimize the burdens and maximize the benefits of the transition to all-electric buildings for marginalized communities. This includes committing to more affordable and healthier housing, better indoor and outdoor air quality, high quality jobs, and increased reliability of energy for critical facilities and services.

This Plan builds on San José’s Climate Smart San José plan, which sets the foundation for reducing GHG emissions across all sectors and has existing goals around building electrification. In November of 2021, the City passed a bold resolution to achieve carbon neutrality by 2030, accelerating its current Climate Smart plan in order to match the urgency of the most recent climate science. This ambitious goal, passed during the development of this Plan, will require additional strategic planning to ensure community outcomes are achieved on this accelerated timeline. San José will need to work with unprecedented political expediency, undertake strategic and inclusive coalition-building work, dedicate substantial funding and program support, and accelerate new policies and protections to enable a transition that addresses both social inequities and climate change.

The Plan documents major priorities and concerns of key stakeholders and historically marginalized communities around the electrification of San José’s existing buildings, providing a framework to equitably move buildings toward carbon neutrality. This Plan also includes a set of policy and program recommendations rooted in the community’s priorities to equitably decarbonize buildings in San José. San José joins other leading U.S. cities that have already begun work to eliminate fossil fuels from existing buildings. San José’s own local efforts are necessary to create a healthier, safer, and more prosperous city for all residents.

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| **Purpose of this Plan***Why did the City create this Plan? What does the City hope to accomplish?** Identify short-term actions and long-term strategies for the City to pursue to achieve equitable building electrification
* Identify the concerns and goals of communities around building electrification in San José, with a specific emphasis on hearing from historically excluded voices, as well as a focus on residential buildings, given the community’s concerns over affordability, health and safety needs
* Demonstrate the City’s commitment to improved and expanded community engagement with historically marginalized groups during the development and implementation of new policies and programs

**Intended Outcomes***What will the City do with this Plan?** Establish a community-guided framework for how to implement the actions identified in this Plan, and how to establish transparency and accountability throughout implementation.
* Provide guidance for how to co-develop and implement building electrification policies and solutions with the San José community.
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| **Historically Marginalized Communities**There are many terms meant to describe communities who have been routinely and intentionally excluded from important decision making, who have been forced to bear the burdens of harmful policies and systems for generations, who suffer disproportionately negative outcomes related to health, wealth, mobility, and opportunity, and to whom the government in particular has not been accountable.In the United States, marginalization stems from years of state sanctioned policies, practices, procedures and attitudes that advantage one social group over another. Historically marginalized communities include people of color, Black people, Indigenous people, immigrants, refugees, people with low incomes, people experiencing poverty, people experiencing homelessness or insufficient housing, English language learners, people with disabilities, people disproportionately affected by climate change impacts, and other communities that are systematically denied full access to rights, opportunities, resources, and power.There are many complexities, layers, and intersections of these communities. Services and programs for each of the groups listed should be specific to those individuals’ needs. However, for the purposes of this Plan, the term **historically marginalized communities** is used to encompass these groups. The task of tailoring services and programs to each of these groups will be part of the implementation of this Plan. |

**Why Building Electrification?**

There are over 230,000 existing buildings in San José. These buildings typically use only two energy sources, electricity and natural gas. San José’s primary electricity provider, San Jose Clean Energy (SJCE), is rapidly increasing the proportion of renewable energy sourced for San José’s electricity supply, ensuring that electricity use gets cleaner and results in fewer GHG emissions. Natural gas, however, is a fossil fuel burned directly within buildings that currently contributes 19% of community-wide GHG emissions, and will not get cleaner over time. In San José, natural gas is primarily used in buildings to generate heat, provide hot water, dry clothes, and fuel gas stoves and ovens. In addition to producing GHG emissions, burning natural gas within buildings is linked to negative health outcomes, including asthma and respiratory illness, as well as dangerous fires and explosions such as the 2010 gas pipeline explosion in San Bruno, California.

To achieve carbon neutrality and improve indoor health and safety, we must replace fossil fuel systems in buildings, including natural gas-powered water heaters, furnaces, clothes dryers, and stoves, with highly efficient electric alternatives–a process referred to as **building electrification.** The most promising technologies for building electrification, such as heat pumps and induction cooking (described in more detail in Figure 1), already exist in the marketplace to achieve these goals.

While the upfront costs of these appliances can be higher than the gas alternatives in the U.S., they can result in operational cost savings and are becoming increasingly common and more affordable because of their efficiency and potential to eliminate building emissions. All-electric appliances can also improve air quality inside the home and provide more comfortable heating and cooling by allowing for greater temperature control. To ensure that no one is left behind in the transition to safer, cleaner buildings, the costs of purchasing and installing this equipment must be funded for low-income communities in San José. Moderate-income communities will also likely need assistance in reaching full building electrification goals in the short-term.

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| **How were San José’s communities involved in the development of this Plan?**The City recognizes that building electrification could bring both potential benefits and risks to San José communities. Therefore, the City embarked on a “community co-creation” process to ensure the needs and priorities of San José’s communities–particularly those that have been historically marginalized–are included in this Plan.**Community co-creation** is a process of deep, iterative collaboration between government staff and community leaders rooted in and accountable to historically marginalized communities.The purpose of community co-creation is to design city policies and programs that simultaneously achieve our climate targets and advance equity. People who have lived experience of existing inequities bring critical expertise that is essential to crafting holistic, effective solutions that achieve our dual climate and equity goals. For this Plan, the City partnered with two community-based organizations (CBOs) that directly serve, engage with, and represent large historically marginalized communities in San Jose:**ICAN**, the International Children’s Assistance Network, an organization that works closely with Vietnamese families in San José to help foster the next generation to become responsible and caring leaders.**Veggielution**, an organization based in East San José dedicated to connecting people from several Latino/a/x communities to each other and the land through farming and food.ICAN, Veggielution, technical partners, Upright Consulting Services and the Building Electrification Institute (BEI), and staff from several City departments constituted the co-creation team. The team worked together for over six months to highlight key inequities and opportunities and identify intersections between community priorities and building electrification. The team identified four focus areas to orient building electrification solutions:**Housing and Energy Costs:** Affordability and the housing crisis is one of the biggest challenges facing the City. There is a critical need to ensure building electrification efforts do not contribute further to displacement or increased costs for low- and moderate-income families.**Air Quality and Health:** Removing gas appliances from the home improves indoor air quality. Historically marginalized communities are disproportionately impacted by poor air quality and rates of asthma, and electrification efforts should ensure these communities receive air quality and health benefits.**High Quality Job Opportunities:** As building electrification generates jobs and transforms the building-related workforce, the City should seek to ensure high quality job opportunities and prioritize historically marginalized communities for those economic opportunities.**Clean and Reliable Energy:** Given the increased frequency of disasters caused by climate change, it is important that communities have access to clean backup power, and that building electrification strategically contributes to a resilient energy system.These four focus areas anchor ongoing conversations with the broader San José community and the actions the City has committed to pursuing in this Plan. |

It is important to understand the complex inequities that many historically marginalized communities face in San José and the history of policies rooted in systemic racism that created them. These realities have informed the foundation of this Plan, in service of its goal to address climate change more effectively by addressing racial and social equity. **Some of the critical inequities highlighted by community groups during the development of this Plan include:**

* Many families in San José are struggling to make ends meet as housing prices skyrocket while wages have stagnated over the last decade. These families cannot afford **any** increased costs, upfront or ongoing, that could result from building electrification.
* Historically marginalized communities are already facing a wide range of stressors, and it is critical that building electrification solutions are designed to alleviate these stressors and to direct benefits to these communities.
* Information and existing resources about building electrification are not fully reaching San José’s historically marginalized communities, often because they are not translated into commonly spoken languages, do not feature culturally-appropriate messaging, or are not designed to serve the needs of low-income families. Targeted and deep engagement is needed to bring awareness and access to historically marginalized communities.
* Through the transition to building electrification, the City must address a lack of capacity that certain communities have to engage with the City and develop more accessible ways to work with the community throughout decision-making processes.

**Key Recommendations**

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| ***IDENTIFY A COMPREHENSIVE SET OF POLICY REQUIREMENTS TO DRIVE BUILDING ELECTRIFICATION*** |

**In order to meet San José's ambitious climate goals, new policy requirements will be necessary to ensure building owners transition away from fossil fuels.** The City will co-develop these requirements with the community to ensure policy design is addressing the risks and opportunities for historically marginalized communities and is supporting community-identified outcomes within this Plan. **There are a number of examples of building electrification policy requirements for San José to evaluate, including:**

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| **Type of Policy Requirement** | **Description** |
| **Building Performance Standards (BPS)** | A BPS can establish targets for buildings to electrify or reduce greenhouse gas emissions, or to improve other metrics, by specific dates. To do this, buildings must benchmark their performance over time. Successful BPS policies include complementary support programs and assistance for covered buildings, local workforce, and underserved populations. |
| **Appliance Emissions Standards** | Appliance standards establish rules limiting the level of greenhouse gas emissions that any certain appliance available within a local market can emit. For example, a zero-NOx appliance standard would require all available appliances, such as water heaters, to be non-polluting. |
| **Minimum Efficiency Standards for Rentals (MESR)** | An MESR policy for existing residential rental properties requires property owners to meet a minimum efficiency standard for their building or unit before they can receive and/or renew their rental licenses. This would be an opportunity to incentivize electrification.  |
| **Requirements at the Time of Major Renovation** | This policy would provide prescriptive requirements for allowable building systems at the time of major renovation of a building. This would be an opportunity to require electrification and could be applied to any type of building, including single family homes. These requirements can also be phased in over time and incorporate a greenhouse gas mitigation fee initially for buildings that continue to use natural gas equipment at time of replacement.  |
| **Requirements at the Time of System Replacement** | This policy would regulate which systems are allowable to install at the time of system replacement and would be enforced through permitting. Typically, building owners and homeowners choose to install like-for-like equipment; this policy would require them to install equipment powered by electricity instead of gas. A legal analysis may be needed to ensure the City has authority to enact this policy. |

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| **Community-Driven Actions**The following actions were identified with community input and are meant to guide the City to ensure positive outcomes for historically marginalized communities. **Solutions built for communities who face the most barriers to engagement, but stand to benefit most, such as historically marginalized communities, will ultimately benefit *all* residents in San José.** |

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| ***INVEST IN SUPPORTIVE PROGRAMS AND FUNDING TO ENABLE AN EQUITABLE BUILDING ELECTRIFICATION TRANSITION*** |

**Streamline electrification retrofits and increase access to existing funding sources by launching a “Retrofit Accelerator” program.** A Retrofit Accelerator program can coordinate technical assistance, resources, grants, outreach and incentives for all San José buildings to plan their path to electrification. This City should design a program that increases access to existing incentives for historically marginalized communities through improved outreach, coordination, and alignment with other programs. The program should also identify new funding streams for these communities, and assist building decision-makers in stacking funding sources to facilitate more holistic retrofits that also address health, safety and resilience.

**Lower the cost of electrification over time.** While the City does not have direct control over installation costs, the City can support regional market transformation to support cost reductions for electrification. This could include improving contractor training and continuing to streamline permit processes to ensure quality installations, as well as investigating rates to be beneficial for electrification. One of the largest potential opportunities for bringing down electrification costs at scale is to collaborate with PG&E, SJCE, and other utility partners to strategically target entire streets, blocks, or neighborhoods for electrification to potentially bundle costs and reallocate further investment in the gas system toward electrification.

**Identify new funding sources and direct them to underserved communities.** While costs of electric equipment may decrease over time, it will still be critical to identify sustainable funding sources and accessible financing solutions for all buildings to electrify. The City needs to identify or generate dedicated funding streams that target specific resource-constrained sectors such as subsidized affordable housing, rent controlled buildings, small businesses, and low-income homeowners, closely coordinating these resources with efforts to ensure affordability for tenants.

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| **The total cost of electrifying all residential buildings in San José by 2030 is an estimated $2.7 to $4.7 billion** (see Figure XX below). This cost can be shared between federal, state, regional, and local funding sources, as well as building owners and homeowners themselves, but the City will need to provide some portion of the cost to support the transition for its most vulnerable residents.A pie graph shows projected building electrification costs for San José. Amounts for each electrification strategy are as follows: $2,057,000,000 for heating, ventilation, and air conditioning. $909,000,000 for new electric panels. $353,000,000 for water heating replacements. $252,000,000 for induction stove replacements, and $170,000,000 for heat pump dryer replacements. Cost estimates are based on the lowest approximation and do not account for incentives.Figure 1*: Citywide Residential Building Electrification Costs, “San Jose Customer Economics Analysis.” Building Electrification Institute, 2022. See Appendix B for further information.* |

**Ensure electrification efforts promote affordability and tenant protections.** San José faces an ongoing affordability crisis that is leading to the displacement of many of San José’s long-term residents. It will be critical for the City to consider how to design the Retrofit Accelerator to offer additional resources to affordable housing, cover all costs to low-income tenants, and ensure all new funding sources prevent or limit the ability for building owners to pass building electrification costs on to low-income residents. Moreover, broader policy efforts may be necessary to strengthen tenant protections across the city so that electrification efforts are not used as cause for rent hikes or evictions. It will be critical for the City to coordinate internally on broader policy efforts to ensure alignment between its housing and sustainability work and to work closely with housing advocates, low-income communities, tenant groups, and others on solutions.

**Create a high-road building electrification workforce.** The City should work toward a goal that all jobs created through the transition to building electrification are high-road, defined as jobs with family-sustaining, living wages, comprehensive benefits, and opportunity for career advancement. This could include the creation of labor standards tied to public funding, regional partnerships to promote high-road job pathways, and further research around the impacts to gas workers and strategies. Additionally, minority and women-owned contracting firms need greater access to existing and new building electrification programs. The City can offer trainings to contractors designed for English language learners and work with partners to help connect workers from historically marginalized communities to new, high quality jobs. Given the complicated nature of these multi-sectoral solutions, the City will convene a working group with labor partners, workforce advocates, and contractors to further investigate these potential solutions.

**Contribute to a resilient grid and a managed transition away from gas infrastructure.** The electric grid and natural gas infrastructure extend far beyond the city limits, and the regulations that govern this energy system operation are determined at the state level. It is imperative that the City coordinate and partner with its utility partner, PG&E, as well as advocates already working at the state level, to ensure local electrification promotes grid reliability and flexibility and that there is a managed transition away from the gas network. One key solution will be to invest in “Community Resilience Centers” to offer safe spaces in historically marginalized communities during power outages and other disasters. Other opportunities for improving system-wide reliability include increasing access to grid-interactive equipment, scaling up demand-response programs, and providing backup power solutions to communities to use during blackouts.

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| ***CREATE MORE EQUITABLE AND ACCESSIBLE ENGAGEMENT ACROSS THE CITY*** |

**Invest in community-led engagement and relationship building.** Historically marginalized communities have been excluded from policy decision-making and face many barriers to meaningful engagement. Changing this relationship requires a paradigm shift from traditional outreach methods to consistent, compensated, and thoughtful engagement initiated by the City. The City should determine how to support these CBOs that work closely with historically marginalized communities to serve as liaisons and policy partners. CBOs should be engaged at varying levels and at multiple points in policy and program implementation, and throughout this process the City should establish transparency within its decision-making.

**Coordinate community engagement across City departments.** As the City expands its community engagement efforts, it should work to ensure that engagement is not siloed between individual departments. CBOs already receive disjointed project-by-project requests from the City for community feedback, and are looking for opportunities to streamline feedback and ensure it is shared across departments. It is the responsibility of City staff to work across departments and teams to leverage the learnings and relationships of their colleagues, reduce the burden on community collaborators, and address the inherently complex issues of climate change and equity.

**Measure success using community-identified outcomes and metrics.** The City can use the community priority outcomes identified in this Plan to guide its metrics of success. This includes tracking and prioritizing health and safety outcomes, affordability and housing stability, economic opportunities for low-income communities and communities of color, and improved energy reliability. Simply achieving electrification across all buildings will not be considered a success if these issues are not improved along the way.

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| ***BUILD A COALITION FOR EQUITABLE BUILDING ELECTRIFICATION*** |

**The City’s climate goals will only be achievable if there is a robust and trusted coalition supporting the actions identified in this Plan and holding the City accountable to the outcomes identified.** The coalition must include representatives of impacted communities to identify what solutions will work for all San Jose residents and workers. A recommended first step is to launch an Equitable Building Electrification Task Force. While this is not the only step required to build a long-term and durable coalition, the Task Force will help the City identify the suite of policy requirements, help design supportive programs such as the Retrofit Accelerator, and hold the City accountable to the community outcomes identified in this Plan.

These Key Recommendations were identified through a collaborative process rooted in community-identified vision statements and priority outcomes. Together, the actions create a framework within this Plan for the City to design and prioritize building electrification solutions that address both climate and equity goals.