ELECTRIFY SAN JOSE

A Framework for Existing Building Electrification Centered on Community Priorities

May 2022

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Centered on Community Priorities

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PREPARED BY:

City of San José
Department of Environmental Services

www.sanjoseca.gov

IN COLLABORATION WITH:

SPECIAL THANKS TO:

EXECUTIVE SUMMARY

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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 impacted first and worst. San José must both adapt to this new reality and reduce greenhouse gas (GHG) emissions to help mitigate the impacts of climate change. The Electrify San José framework ("Framework") lays out **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 of San José ("City") will seek to minimize the burdens and maximize the benefits of the transition to all-electric buildings for historically marginalized communities, while considering the needs of all building owners. This includes committing to the pursuit of 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 Framework builds on Climate Smart San José (2018), San José's climate action plan, which sets the foundation for reducing GHG emissions community-wide and has existing goals around building electrification. In November 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.[*],[1] This aspirational goal, passed during the development of this Framework, will require additional strategic planning and community engagement 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, identify substantial funding and program support, and accelerate new policies to enable a transition that addresses both social inequities and climate change.

The Framework documents major priorities and concerns of key stakeholders, historically marginalized communities, and the broader community concerning the electrification of San José's existing buildings, providing a framework to equitably move buildings toward carbon neutrality. This Framework also includes a set of recommendations rooted in the community's priorities to equitably decarbonize buildings in San José. The City aligns with State efforts and joins other leading U.S. metropolitan areas 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.

* The City defines carbon neutrality as meeting within a given year net-zero GHG emissions from at least: fuel use in buildings, transport, and industry; grid-supplied energy; and the treatment of waste generated within the city boundary.

Purpose of this Framework

Why did the City create this Framework? What does the City hope to accomplish?

Identify short- and long-term actions to achieve equitable building electrification

Identify the concerns and goals of communities concerning building electrification in San José with a focus on residential buildings and on hearing from historically excluded voices

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 Framework?

Establish a community-guided framework to implement the recommended actions and to establish transparency and accountability throughout implementation.

Provide guidance to co-develop and implement building electrification policies and solutions with the San José community.

Requirements

In November 2021, the San José City Council (the City Council) passed a resolution aiming for a goal of carbon neutrality in San José by 2030. **The Framework itself is not a requirement** for residents to switch existing natural gas-powered appliances for electric alternatives. The City, with community input, will need to consider how to approach building electrification moving forward as it continues to develop plans for accelerating progress toward the carbon neutrality goal.

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.[2]

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 Framework, 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 Framework.

Why Building Electrification?

There are more than 230,000 existing buildings in San José. These buildings typically use two energy sources, electricity and natural gas. San José's primary electricity provider, San José 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 composed mainly of methane that is burned directly within buildings and is currently responsible for 19 percent of community-wide GHG emissions. In San José, natural gas is primarily used in buildings to generate heat, provide hot water, dry clothes, and heat gas stoves and ovens. Natural gas (also referred to in this Framework as "gas") was once considered a cleaner alternative to more polluting energy sources such as coal, but even with advances in the efficiency of gas appliances, it remains a large and increasing source of GHG emissions in San José (see Chapter 1, Figure 4). Although gas appliances and distribution networks can be made more efficient, because it is a fossil fuel, natural gas will never be a zero-emissions source of energy. 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.[3,4]

To achieve carbon neutrality and improve indoor health and safety, fossil fuel systems in buildings, including gas-powered water heaters, furnaces, clothes dryers, and stoves, must be replaced 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 Chapter 1), already exist in the marketplace to achieve these goals.

As electricity becomes cleaner through programs like San José Clean Energy, buildings must move away from burning "natural" gas, a fossil fuel, to using clean, all-electric alternatives to eliminate GHG emissions from buildings and improve health and safety for San José residents.[†],[5]

The upfront costs of these appliances can be higher than the gas-powered alternatives in the U.S. However, due to their efficiency and potential to eliminate building emissions, new all-electric appliances can also result in operational cost savings, and are becoming increasingly common and affordable. These appliances can also improve indoor air quality 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, low-income communities in San José will require funding support for purchasing and installing these appliances. Moderate-income communities will also likely need financial assistance to reach full building electrification goals in the short-term.

† Although oil and gas industry proponents use the term "natural" for gas derived from hydraulic fracturing (fracking), it is not accurate to call it natural. The process of deriving fracked gas creates methane, which is a greenhouse gas that contributes 86 times as much to global warming as carbon dioxide over a twenty year period (United Nations Economic Commission for Europe). Further, fracking is not a natural process as it requires human-made pressurized water systems to free the gas (United States Geological Survey).

How were San José's communities involved in the development of this Framework?

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 that the needs and priorities of San José's communities–particularly those that have been historically marginalized–are included in this Framework.

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 experienced inequities bring critical expertise essential to crafting holistic, effective solutions that achieve our dual climate and equity goals.

For this Framework, the City partnered with two community-based organizations (CBOs) that directly serve, engage with, and represent large, historically marginalized communities in San José:

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, 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 higher rates of asthma. Electrification efforts will help ensure that all communities receive air quality and health benefits.

High Quality Job Opportunities: As building electrification generates jobs and transforms the building-related workforce, the City will seek to ensure high quality job opportunities and that historically marginalized communities have access to 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 Framework.

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 Framework, 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 Framework 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, including but not limited to: the fight for racial justice; housing and job insecurity; the health and economic impacts of the COVID-19 pandemic; and lack of healthy food options and green spaces. It is critical that building electrification solutions are designed to alleviate these stressors and provide 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 should consider the 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

Foundational Action #1:

ENGAGE THE COMMUNITY IN THE EVALUATION OF POLICY OPTIONS SUPPORTING BUILDING ELECTRIFICATION

The City may consider policy options to accelerate the electrification of San José's buildings to meet the carbon neutral by 2030 goal. Any policy considerations would allow for public input and involve a broad public engagement process. To meet San José's ambitious climate goals, new policies may be necessary to ensure that building owners transition away from fossil fuels. The City will co-develop any policy options with the community to ensure that any policies brought forward are designed to address the risks and opportunities for historically marginalized communities, consider the needs of all building owners, and support community-identified outcomes within this Framework.

There are a number of examples of building electrification policies for San José to evaluate, including:

Table 1: Examples of Building Electrification Policies

Type of Policy Requirement	Description
Building Performance Standards (BPS)	A BPS can establish targets for buildings to electrify, reduce GHG emissions, or to improve other metrics, by specific dates. To do this, buildings could be required to benchmark their performance over time. Successful BPS policies include complementary support programs and assistance for covered buildings, local workforce, and historically marginalized populations.[6]
Minimum Efficiency Standards for Rentals (MESR)	An MESR policy for existing residential rental properties could require property owners to meet a minimum efficiency standard for their building or unit - thereby incentivizing building electrification - before they can receive and/or renew their rental licenses.[7]
Requirements at the Time of Major Renovation	This policy could provide prescriptive requirements for allowable electric building systems at the time of major renovation of a building.
Requirements at the Time of System Replacement	This policy would regulate which systems are allowable to install at the time of system replacement—such as requiring the installation of appliances powered by electricity instead of gas - and would be enforced through permitting.

Consideration of any of these or other policy options would require additional feasibility, technical, and impact analysis (including legal analysis of the City's authority) and community input.

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 must be built for communities who face the most barriers to participation in the policymaking process, but who stand to benefit most from equitable building electrification. These solutions will ultimately benefit all residents in San José by making sure that no communities are left behind.**

Foundational Action #2:

INVEST IN SUPPORTIVE PROGRAMS AND RESOURCES 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 streamline their path to electrification. The City will need to 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 building electrification over time. While the City does not have direct control over installation costs, it can support regional market transformation toward electrification cost reductions. This could include improving contractor training and continuing to streamline permit processes to ensure quality installations, as well as investigating beneficial electricity rates for electrified buildings. A significant opportunity to bring down electrification costs at scale is to collaborate with Pacific Gas and Electric (PG&E), SJCE, and other utility partners to strategically target entire streets, blocks, or neighborhoods for electrification, potentially bundling costs and reallocating planned investment in the gas system toward electrification.

Identify new funding sources for building electrification and direct them to historically marginalized communities. While costs of electric appliances may decrease over time, it will still be critical to identify or generate dedicated funding sources and accessible financing solutions that target specific resource-constrained sectors, such as deed-restricted affordable housing, rent-stabilized buildings, small businesses, and low-income or fixed income homeowners, closely coordinating these resources with efforts to ensure affordability for tenants.

The total cost of electrifying all residential buildings in San José is an estimated $2.7 to $4.7 billion (see Figure 1). **This investment would eliminate more than one million metric tons of GHG emissions**, representing 19 percent of San José's community-wide emissions.‡ [8,9] This cost can be shared between federal, state, regional, and local funding sources including incentives, as well as building owners and homeowners themselves, but the City will need to identify funding to support the transition **for building owners of all types**, especially for San José's low-income residents.

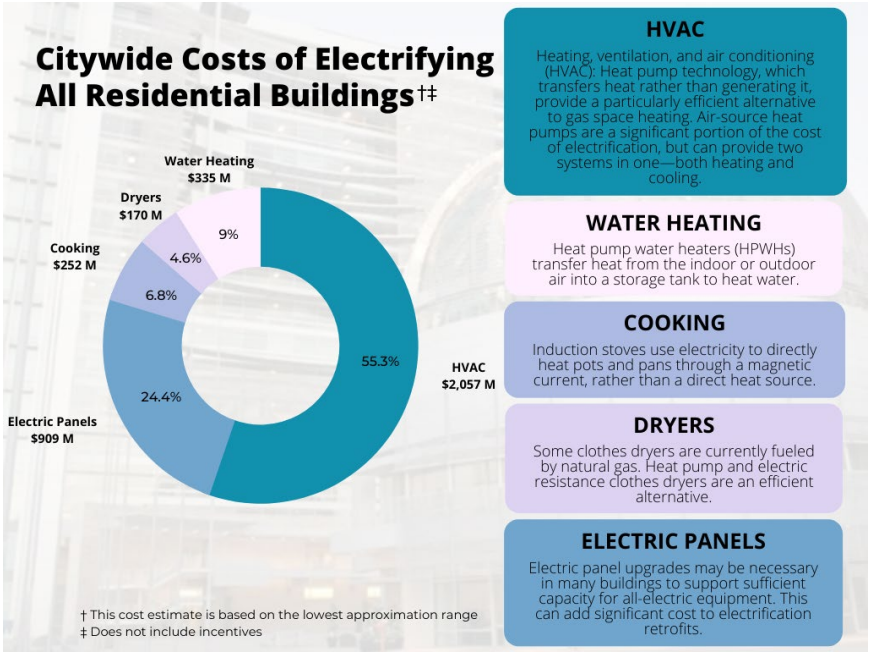

Figure 1: Citywide Residential Building Electrification Costs.[10] See Chapter 5 for further methodology.

Ensure building electrification efforts promote affordability and protect tenants. San José faces an ongoing affordability crisis that is leading to the displacement of many of its long-term residents.[11] It will be critical for the City to consider how to design the Retrofit Accelerator (described above) to offer additional resources to affordable housing, cover upfront costs to low-income tenants, and ensure that 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 quality building electrification workforce. The City can provide support toward a goal that jobs created through the transition to building electrification are "high road," defined as jobs with living wages, comprehensive benefits, and opportunity for career advancement (see full definition in Chapter 3, Figure 21). This support could include the creation of labor standards tied to public funding,

regional partnerships to promote high quality job pathways, and further research around the impacts to workers in the gas industry. Additionally, minority- and women-owned contracting firms need greater access to existing and new building electrification programs. The City can offer training to contractors designed for English-language learners and work with existing 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 can 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 energy system operation are determined at the state level. It is imperative that the City coordinate and partner with PG&E, SJCE, and State agencies to ensure that local electrification promotes grid reliability and flexibility and that there is a managed transition away from the gas network. An opportunity for improving system-wide reliability includes increasing access to grid-interactive appliances to install alongside heat pumps, scaling up demand-response programs to help manage energy demand, and providing clean backup power solutions to communities to use during blackouts. The City can also support the implementation of "Community Resilience Hubs", with a priority in historically marginalized communities, to offer safe spaces during power outages and other disasters.[12]

Foundational Action #3:

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, thoughtful, and even compensated engagement initiated by the City. The City can determine how to support CBOs that work closely with historically marginalized communities to serve as liaisons and policy partners. CBOs can be engaged at varying levels and at multiple points in policy and program implementation. Throughout this process, the City will establish transparency within its decision-making.

Coordinate community engagement across City departments. As the City expands its community engagement efforts, it will 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. City staff can 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 will use the community priority outcomes identified in this Framework to guide its metrics of success. This includes prioritizing health and safety outcomes, affordability and housing stability, economic opportunities for historically marginalized communities, and improved energy reliability. Simply achieving electrification in all buildings will not be considered a success if these issues are not improved along the way.

Foundational Action #4:

BUILD A COALITION FOR EQUITABLE BUILDING ELECTRIFICATION

Pursue resources needed to launch an Equitable Building Electrification Task Force that would develop guiding recommendations for the suite of policies and programs necessary to achieve full building electrification. Community wide climate goals will be achievable only if stakeholders and members of the community support the City's actions and can hold the City accountable to achieving equitable outcomes. The Task Force would provide guidance on the set of policies and programs to support the electrification of San José's building stock; public and private investments that are needed for the transition; and advocacy that is required at the state and utility levels. Additionally, the Task Force could help hold the City accountable to the priority outcomes identified by the community as new policies and programs are rolled out. The Task Force should include representatives of historically marginalized communities to ensure that solutions work for all San José residents and workers. The Task Force would be an important first step to ensure accountability and equity in the electrification of San José's building stock.

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

Achieving the 2030 Carbon Neutrality Goal

The City passed a resolution to achieve carbon neutrality by 2030 during the development of this Framework. The recommendations above have not been fully analyzed for feasibility to meet this timeline and are not specifically designed to achieve carbon neutrality on a 2030 timeline. Additional planning and stakeholder engagement will be required after the Framework is released to identify the right mix of policies and strategies to meet this accelerated timeframe.

What can you do...

While many electrification solutions require systematic changes, individuals can feel empowered to take action in the following ways to be a part of the solution.

For All Residents (including renters)

Easy Actions	Description
Ventilate your kitchen	If using a gas stove, always turn on the ventilation hood or open windows while cooking to reduce harmful air pollution. Learn more about the health impacts of using gas in the home.
See if you're eligible for San José Clean Energy (SJCE) discounts	Reach out to SJCE to see if you're eligible for income-qualified monthly discounts on your electricity bills.
Sign up for a Green House Call	Rising Sun offers no cost Green House Calls which include LED light bulbs, smart power strips, high efficiency kitchen and bathroom faucet aerators, high efficiency showerheads.
Try out induction cooking	Check out an induction cooktop for free through the City's Induction Cooktop Checkout Program or purchase one. Try it out for yourself and test out your recipes and dishes on this new, healthier way of cooking.
Learn about the Climate Smart Challenge	Join the City's Climate Smart Challenge and learn how to save energy, money and reduce your carbon footprint by taking action.
Take a deeper dive	**Description**
Upgrade your power source	Make a bigger impact by upgrading to San José Clean Energy's TotalGreen option to get 100% of your electricity from renewable energy sources like solar and wind for just $4 more per month for the average home.
Adapt your energy schedule	Take advantage of time of use rates to lower your electricity bill. Time of use rates offer lower rates during "off-peak hours" and higher rates during "peak" hours.
Monitor your home's air quality	Get an air quality monitor to learn how healthy the air is in your home.
Learn about benefits and incentives to switching to electric	Check out the Switch Is On to learn more about the benefits of switching to electric and about incentives available near you: https://www.switchison.org/
Weatherize your home	One of the most cost effective energy saving measures is to add insulation and seal air leaks in your home, called "weatherization". You can save from 5-15% of your home heating and cooling bills by simply plugging holes.
Build a career in electrification	Learn more about careers in building electrification. Reach out to the work2future.org for information on programs available to enter the workforce. If you are a contractor that can install a heat pump or heat pump water heater, you may be able to earn incentives for installation through TECH Clean California.

...As a homeowner

Easy Actions	Description
Pursue air quality improvements	If you're not in a position yet to replace your gas appliances and stove, ask a contractor about adding air filters to the systems. Inquire about proper ventilation regulations for the technologies installed.
Turn down your water heater temperature	Water heating is typically the second largest energy expense in homes. Turn down your water heater temperature by a few degrees to save money and make your home more energy efficient.
Take a deeper dive	**Description**
Learn about benefits and incentives to switching to electric appliances	Check out BayREN, PG&E, and SJCE's rebates and incentives, and ask the Home Energy Advisor about how you can access these rebate programs to install electric appliances
Learn about benefits and incentives of improving efficiency of your appliances	Energy efficient appliances will lower electricity bills and make electrification easier in the future. Look out for discounts for high efficiency appliances from SJCE's upcoming residential energy efficiency program.
Replace gas appliances with electric ones	Talk to a contractor and make a plan to replace your gas furnace, water heater, stove, and other appliances with electric options. Check out https://www.switchison.org/ for a list of contractors that can install electric appliances.