

A ULI VIRTUAL ADVISORY SERVICES PANEL EXECUTIVE SUMMARY REPORT

SAN JOSÉ CALIFORNIA

Building Electrification and
Renewable Energy

February 8–11, 2022



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About the Urban Land Institute

THE URBAN LAND INSTITUTE is a global, member-driven organization comprising more than 45,000 real estate and urban development professionals dedicated to advancing the Institute's mission of shaping the future of the built environment for transformative impact in communities worldwide.

ULI's interdisciplinary membership represents all aspects of the industry, including developers, property owners, investors, architects, urban planners, public officials, real estate brokers, appraisers, attorneys, engineers, financiers, and academics. Established in 1936, the Institute has a presence in the Americas, Europe, and Asia Pacific regions, with members in 80 countries.

The extraordinary impact that ULI makes on land use decision-making is based on its members sharing expertise on a variety of factors affecting the built environment, including urbanization, demographic and population changes, new economic drivers, technology advancements, and environmental concerns.

Peer-to-peer learning is achieved through the knowledge shared by members at thousands of convenings each year that reinforce ULI's position as a global authority on land use and real estate. In 2021 alone, more than 2,700 events were held in cities around the world.

Drawing on the work of its members, the Institute recognizes and shares best practices in urban design and development for the benefit of communities around the globe.

More information is available at uli.org. Follow ULI on Twitter, Facebook, LinkedIn, and Instagram.

About ULI Advisory Services

The goal of the **ULI ADVISORY SERVICES** program is to bring the finest expertise in the real estate field to bear on complex land use planning and development projects, programs, and policies. Since 1947, this program has assembled well over 700 ULI-member teams to help sponsors find creative, practical solutions for issues such as downtown redevelopment, land management strategies, evaluation of development potential, growth management, community revitalization, brownfield redevelopment, military base reuse, provision of low-cost and affordable housing, and asset management strategies, among other matters. A wide variety of public, private, and nonprofit organizations have contracted for ULI's advisory services.

Each panel team is composed of highly qualified professionals who volunteer their time to ULI. They are chosen for their knowledge of the panel topic and are screened to ensure their objectivity. ULI's interdisciplinary panel teams provide a

holistic look at development problems. A respected ULI member who has previous panel experience chairs each panel.

The agenda for a two-and-a-half-day virtual Advisory Services panel (vASP) is tailored to meet a sponsor's needs. ULI members are briefed by the sponsor, engage with stakeholders through in-depth interviews, deliberate on their recommendations, and make a final presentation of those recommendations. A written executive summary report is prepared as a final deliverable.

Because the sponsoring entities are responsible for significant preparation before the panel's visit, including sending extensive briefing materials to each member and arranging for the panel to meet with key local community members and stakeholders in the project under consideration, participants in ULI's vASP assignments can make accurate assessments of a sponsor's issues and to provide recommendations in a compressed amount of time.

A major strength of the program is ULI's unique ability to draw on the knowledge and expertise of its members, including land developers and owners, public officials, academics, representatives of financial institutions, and others. In fulfillment of the mission of the Urban Land Institute, this vASP executive summary report is intended to provide objective advice that will promote the responsible use of land to enhance the environment.

Acknowledgments



On behalf of the Urban Land Institute, the panel would like to thank the city of San José for its partnership and dedication to this Advisory Services panel project.

The panel would especially like to recognize Yael Kisel and Julie Benabente of the city of San José Environmental Services Department and Climate Smart San José.

The panel would also like to thank the more than 40 community representatives and leaders who shared their perspectives, insights, and experiences during the panel.

The Urban Land Institute is grateful for the support of The Kresge Foundation and the ULI Greenprint Net Zero Imperative.

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Background

The city of San José is embodying its role as the capital of Silicon Valley by visibly demonstrating its climate leadership and positioning itself as a beacon for other cities globally. In 2018, the city passed Climate Smart San José, a comprehensive plan meant to ensure the city is not only contributing to global efforts to reduce greenhouse gas emissions but that it can economically thrive as a champion of the clean energy economy.

The city has built a strong foundation for the success of Climate Smart San José by having at the plan's core the concept that everyone who lives in San José can benefit from the transformation envisioned by this ambitious plan. It has put this concept into action by

- Assessing potential new programs and policies through the lenses of health, equity, and affordability;
- Prioritizing job creation and upward mobility and establishing partnerships with community organizations and unions to help accelerate the growth of an upskilled workforce; and
- Engaging in widespread outreach with community members and partners.



Through a series of substantive actions, the city has shown that it is serious about turning the Climate Smart Plan into a reality. Key initiatives, from the establishment of San José Clean Energy in 2019 and the adoption of the Natural Gas Ban Ordinance in 2020 to the 2021 commitment to being a carbon-neutral city by 2030, demonstrate the city's leadership and the path it is charting for other cities to follow.

San José is in the heart of one of the leading innovation centers of the United States and the world, with a regional culture that values diversity and environmental protection. Its climate goals build upon those of the state of California, making it easier to tap into funding resources to achieve its goals and to tap into a cleaner electricity grid to serve its people.

Timeline of Critical Climate Action for the Built Environment in San José

2017

- San José Clean Energy established

2018

- San José Clean Energy begins providing electricity to city buildings
- Climate Smart San José launched
- Building Performance Ordinance adopted

2019

- San José Clean Energy begins providing electricity to city residents
- Building Reach Code Ordinance adopted
- Natural Gas Ban Ordinance (new detached accessory dwelling units, single-family homes, and low-rise multifamily) adopted

2020

- Natural Gas Ban Ordinance (all new construction with few exceptions) adopted

2021

- Commitment to carbon neutrality by 2030 announced

2022

- Draft Building Electrification Framework released for public comment

At the same time, San José and the Bay Area are facing an inter-related set of crises that have been decades in the making. It is not enough that the city reduce its carbon emissions and move to a clean energy economy; it must also adapt to extreme weather conditions resulting from a changing climate. In addition to more frequently experiencing hazardous air quality produced by wildfires in Northern California, in 2019, tens of thousands of people in San José lost power from Public Safety Power Shutoffs (PSPS) meant to prevent electricity lines downed by high winds from starting more wildfires. These PSPS events cause disruption and affect health and safety and can be prevented by creating more resilient infrastructure systems. Although the responsibility for these outages lies primarily with the major utility provider, Pacific Gas & Electric (PG&E), the city of San José desires to ensure that its residents have access to reliable power.

The last two decades in the Bay Area have been defined not only by the growth and impact of its technology sector and its high concentration of wealth, but also by the scale and depth of its housing crisis. Housing in the region is in very short supply and very expensive to build, to buy, and to rent. Over 29 percent of San José homeowners and 53 percent of its renters are

considered housing burdened (spending over 30 percent of their income on housing). The lack of affordable housing has also fueled a homelessness epidemic with more than 7,000 unhoused people living in San José alone (as counted before COVID increased the number of unhoused people throughout the state). This reinforces the urgency for the city to consider the impacts of its climate plans and actions on the housing market, on the industry and supply chain that constructs and operates housing, and on all of its residents. Any initiative that makes housing more expensive could have unwanted ripple effects.

The richness of San José's cultural fabric comes from the diversity of its people and is part of what makes the city so vibrant. For its climate and economic solutions to succeed, the city recognizes that it must design its solutions with both its diverse community and equity in mind. With large Spanish-speaking (28 percent) and Vietnamese (10 percent) populations, language and cultural considerations have been critical to outreach and will need to stay in focus to maximize the workforce development and economic opportunities envisioned for the city.

The Panel's Assignment and Key Recommendations

Every ULI Advisory Services panel is structured around a set of questions from the project sponsor, which in this case is the city of San José. It is the panel's job to bring potential solutions to this set of complex real estate and urban development questions. This panel of experts was selected for their expertise in equitable decarbonization solutions and their deep understanding of real estate and business fundamentals.

Questions Posed

The city asked the panel to respond to the following five questions. Solutions to these questions are woven throughout each section of this report.

The panel looked at this fundamental question: What can the city of San José do to help unlock the environmental and health benefits of building electrification and renewable/carbon-free distributed energy resources (DERs) in market-rate and affordable multifamily housing developments, increase the financial viability of such projects, and improve social equity outcomes?



Specific questions that the panel looked at included the following:

Incentivizing electrification and DERs

1. What can the city do to incentivize existing multifamily properties to include renewable/carbon-free DERs, electrification, and features that serve to balance the duck curve and the grid's demand/capacity challenges?

Financing and costs

2. How can the city position itself to help unlock funding to accelerate the rate of retrofits for energy efficiency, electrification, and renewable energy generation and storage in existing multifamily housing? Are there new business models or partnerships the city should consider?

3. Given the range of multifamily typologies in San José, how can energy efficiency strategies, electrification, and renewable/carbon-free DERs best be combined to financially benefit multifamily developers, owners, and tenants?

Equity

4. How can the city ensure that the transition to all-electric buildings and renewable power generation does not negatively impact low-income residents, especially those in buildings still powered by gas (as there will be fewer gas ratepayers shouldering the costs of gas infrastructure)?
5. How can the city address environmental justice, equity, and fair housing goals in its work to promote electrification and renewable DERs? What are the best practices in this area?

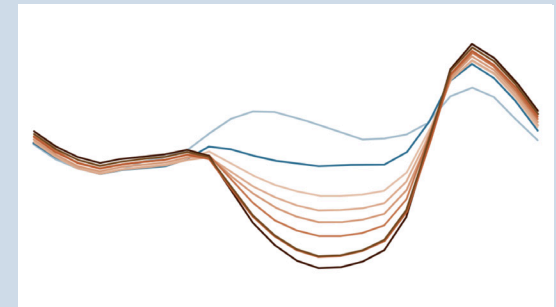
Key Recommendations

After deep engagement with the briefing materials prepared for the Advisory Services panel, stakeholder interviews, analysis, and deliberation, the panel identified the following five key recommendations, supported by a wide range of further recommendations detailed in the subsequent sections of this report.

What Is the Duck Curve?

Penetration of rooftop and utility-scale solar in California is so high that during the day there is comparatively little electricity demand on the grid compared to other times of day. In the late afternoon and evening when the sun goes down, the demand for electricity on the grid increases sharply. When this demand is plotted on a graph over a 24-hour period, it is said to have a shape like a “duck’s back,” earning it the nickname of the “duck curve.”

This oversupply can result in the California grid operator “curtailing” generation—reducing the production of energy from solar. Because of this mismatch between demand and supply, most electricity retailers in California have now implemented time-of-use rates for electricity, where the customer costs are higher between 4 and 9 p.m., when less renewable energy is



The duck curve illustrates the steep energy demands during different times of day in California.

typically available on the grid, as a way to reduce the spike in demand. In addition to changes to electricity markets, utilities are increasingly pairing utility-scale renewable resources with short- and long-duration energy storage to effectively flatten the duck curve. Demand response and smart electric vehicle charging systems can also be used to manage the duck curve.

Lean into Leadership and Innovation

The city should continue the global leadership it has already demonstrated through the development of its Climate Smart plan and reach code. Leveraging both its established partnerships with community organizations and skilled trades as well as its rich trove of

data will enable San José to continue prioritizing health, equity, and affordability as it moves forward. Drawing on its enviable role as the capital of Silicon Valley, the city should cultivate opportunities for further collaboration with the innovative companies in its backyard.

Seize the Opportunity to Create Jobs and Equitable Prosperity

Transforming San José into an all-electric city will take deep collaboration with PG&E. By partnering with PG&E, labor organizations, community groups, and educational institutions, the city can use this as a once-in-a-generation opportunity to create thousands of jobs and develop a skilled workforce that is prepared for the growth of the clean energy economy.

Increase Access to Existing Resources through a Zero Carbon Hub

Residents and businesses need a one-stop location to find everything they need to know about Climate Smart San José implementation: how it benefits them, what actions they need to take, and where to get technical assistance and financial resources. The creation of a zero carbon hub would be more than just a website, it could serve as a kind of proxy organization with human resources dedicated to driving awareness, education, and support around the Climate Smart programs and goals.

Provide a Smooth Path for Electrification and Renewables

To best support building owners of all sizes, the city should explore how it can streamline its planning approval and permitting

processes to make the transition to all-electric buildings and on-site clean energy as inexpensive and easy as possible. Flexibility with minor variances, expedited permitting, staff dedicated to shepherding all-electric projects, and the use of technology (à la the Solar App) could all make a big impact. Noncash incentives under the city's control, such as density bonuses and the ability to subsidize solar off site rather than on site when space constraints exist, can go a long way in supporting project feasibility.

Strengthen Stakeholder Buy-in through Continued Engagement and Widespread Communication

The city's robust stakeholder outreach through community-based organizations for the development of the existing building electrification plan, Electrify San José: A Framework for Existing Building Electrification, is a great model for continuing to cultivate trust and grow awareness of the why and how of electrification and distributed energy resources. A strong communication plan that uses multiple channels, methods, and languages to reach all communities within the city will also be essential to the success of the implementation of Climate Smart San José.

What the Panel Heard

"Gas is a huge liability and safety risk."

"Right now, to do right thing, you have to do more work. The city should do whatever it can to make the permitting process easier."

"Our limitation is the financing."

"San José is going to have to do some marketing campaigns to convince people that it's great to cook with an induction stove."

"What's compelling is the air quality issues and safety issues."

"If we pursue these efforts with a nonequity perspective, benefits will accrue to wealthier people."

"It's difficult to get money before construction starts."

"We need to see proof that technology will work."

"City Hall tends to operate in silos."

"Midstream incentives are really helpful because they bring down our construction costs while allowing us to do more electrification."

The Opportunity: A Vision for a More Vibrant, Sustainable, and Equitable San José

The realization of San José's ambitious climate plans would create an incredible community with a high quality of life for its people and be a true beacon of the 21st century. To inspire residents and businesses to help build this future, the city needs to create and communicate a clear picture of what this future version of San José looks like and how it will be experienced by the people who live and work here. By imagining the specifics of this vision of the future, San José can create the momentum and motivation needed to make it a reality.

Based on what the panel learned, the following is a description of a desirable possible future for San José.

The Future Vision

It is 2030 and San José has achieved carbon neutrality through a just and equitable transition from fossil fuel use.

- **Everyone in San José is aware of and realizing the benefits** of going to a fossil

fuel-free future. Residents and businesses have been made aware of the benefits through various channels and partnerships. They know why this transformation is happening and how this benefits them personally.

- Indoor and outdoor air quality are improved in all neighborhoods in San José, resulting in improved health outcomes.
- Occupants get reduced energy costs through living in all-electric buildings and from on-site solar and batteries.



- Households and neighborhoods are more resilient during extreme weather events and emergency power shutoffs because of the widespread uptake of DERs.
- **Prosperity is shared across the community and includes people from traditionally underserved communities engaged in and benefitting from the clean energy economy.**
 - Thousands of jobs have been created upgrading electrical panels, distribution lines, and transformers; installing heat pumps, hot water heat pumps, and stoves; and installing solar and batteries.
 - These jobs were created through numerous partnerships with skilled trade organizations, training providers, and the city and PG&E, maximizing this once-in-a-generation opportunity.
 - There is more equality, and there are more opportunities for wealth generation across the city.
 - New revenue sources are realized through the integration of solar power and battery storage in the built environment.
- **The city of San José has been successful at creating, identifying, and securing robust funding sources at the federal, state, and local levels to achieve its goals.**
 - Anyone in the community—individual or business—knows where they can get all the information they need on why

and how to go all electric, how to get solar batteries and chargers, including funding options and access to technical assistance.

- With private capital and philanthropy, the city is innovating the public/private partnership model and resourcing large-scale initiatives.
- Coordination of processes in city departments is smooth and streamlined, with adequate staff capacity.
- Because of the city of San José’s reputation for innovation and action and being a great place to work, the city government is a destination for talent and is an employer of choice.
- **Partnerships have been the key to success in San José achieving its goals as a community.**
 - As the capital of Silicon Valley, the city has partnered with innovators in the private sector to solve some of the technology barriers, proving them out so they can be replicated by cities across the country and around the world.
 - Beginning with plan creation through implementation, trust has been built with key stakeholders, including community organizations, business and building owners, skilled trade organizations, utilities, and residents across San José.

Key Statistics: Carbon Profile and Housing Stock

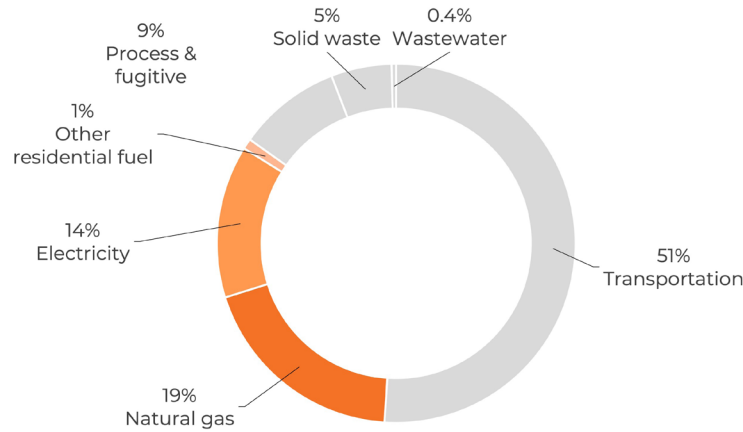
City staff provided the panel with a robust set of information in preparation for this work. Several key statistics had a large impact on how the panel thought about the scope and, in many ways, define San José’s unique challenges.

According to the city, buildings are responsible for approximately one-third of San José’s greenhouse gas emissions, with 19 percent attributed to fossil gas used on site.

Carbon Emissions from the Built Environment

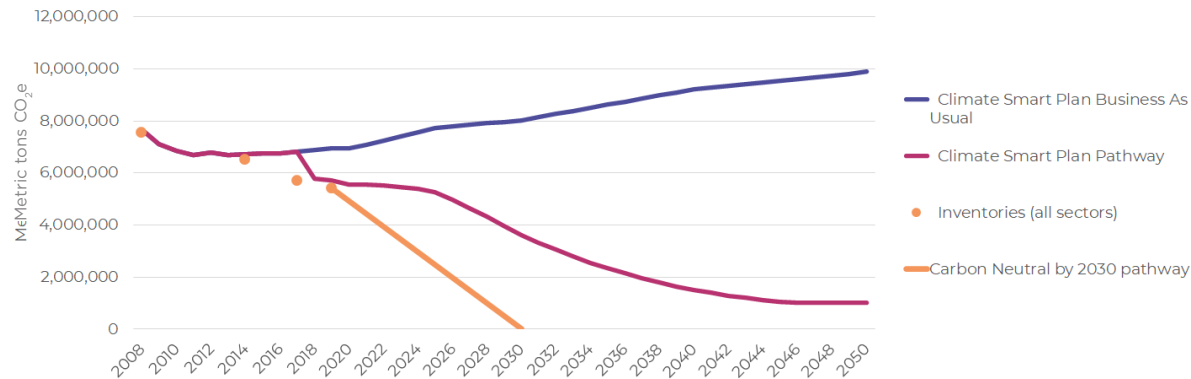
Subsequent to releasing Climate Smart San José, the city adopted a goal of carbon neutrality by 2030, which means that in the context of buildings, it must use 100 percent clean energy to power buildings and eliminate natural gas from buildings by 2030. Because of the aggressive timeline needed to meet this goal, the panel considered this a top priority of Climate Smart implementation.

2019 San José Community-wide Greenhouse Gas Emissions Sources



Source: City of San José.

City of San José Decarbonization Timelines



Source: City of San José.

Housing in San José

A key factor in the panel’s deliberations was the age of San José’s residential building stock. Building age plays an important role in determining the physical and technical work that will need to be done to decarbonize its buildings, as well as the prioritization and sequencing of strategies.

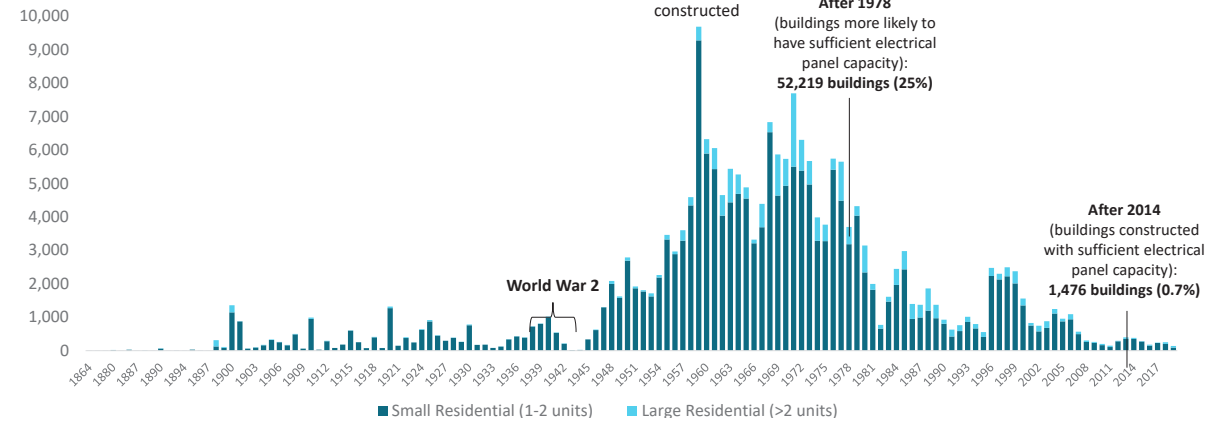
Most of San José’s residential buildings were built between 1950 and 1979, with the peak year for residential construction being 1959. The panel assumed that nearly all buildings built before 1980 will need some kind electrical upgrades and many will need energy efficiency upgrades as well. Without the right electrical panel and associated power coming into the building, buildings cannot support full electrification of appliances, such as heat pumps, and other electric needs, such as electric vehicle (EV) chargers.

According to materials provided to the panelists, 53 percent of renters in San José and 29 percent of homeowners in San José are housing cost burdened, which means that they spend more than 30 percent of their income on housing. This factor, combined with the price of housing in San José, was fundamental to the panel’s thinking.

Age of San José Housing

Residential Buildings, Year Built

Total Residential Buildings: 209,011



Source: City of San José.

Data showing the age of most of the city's housing stock indicates a significant need for residential electrical and energy efficiency upgrades.

Median sales prices from December 2021 show that single-family detached homes have a median sales price of \$1,475,000 (\$917/square foot), and condominiums and townhouses have a median sales price of \$796,000 (\$667/square foot). In early 2022, the average price to rent a two-bedroom apartment in San José was nearly \$3,000.

San José is regularly in the list of top-10 most expensive places to live in the United States. Although the solutions to this circumstance were not within the scope of the panel's assignment, the goals of minimizing energy costs for residents and minimizing costs to owners to electrify and retrofit for energy efficiency were top of mind during the panel's deliberations.

Policy and Program Priorities

Climate Smart San José is a comprehensive and powerful foundation for enabling San José to meet the challenges of the 21st century and to position itself as a global leader in forging the clean energy economy. The following section outlines the recommended policy and program priorities for the city.

Solutions Snapshot:

- Clarify Climate Smart implementation priorities for multifamily buildings
- Address issues of equity in a consistent and locally applied manner
- Create a zero carbon hub
- Leverage data to guide strategy and prioritization
- Streamline and simplify processes



Planning and Strategy

Although not the dominant housing typology in San José, multifamily housing plays a critical role in providing housing across a variety of income levels and makes up

future housing solutions for San José in the future, as it looks to densify. To successfully build on this plan, the city must identify its top priorities for multifamily buildings in the context of Climate Smart, as well as communicate a clear vision for what the needed transformation will look like.

Implementation and Prioritization

Strategic prioritization is key to Climate Smart implementation; some actions and goals within Climate Smart are more urgent than others, and some, by necessity, build on others. The city needs to quickly determine its near-term priorities and identify

phasing for longer-term actions and communicate them.

If the city determines and clearly communicates the milestones (see SMUD example below), stakeholders can see and understand how various actions contribute to the bigger picture and build momentum toward reaching goals. The identified priorities should

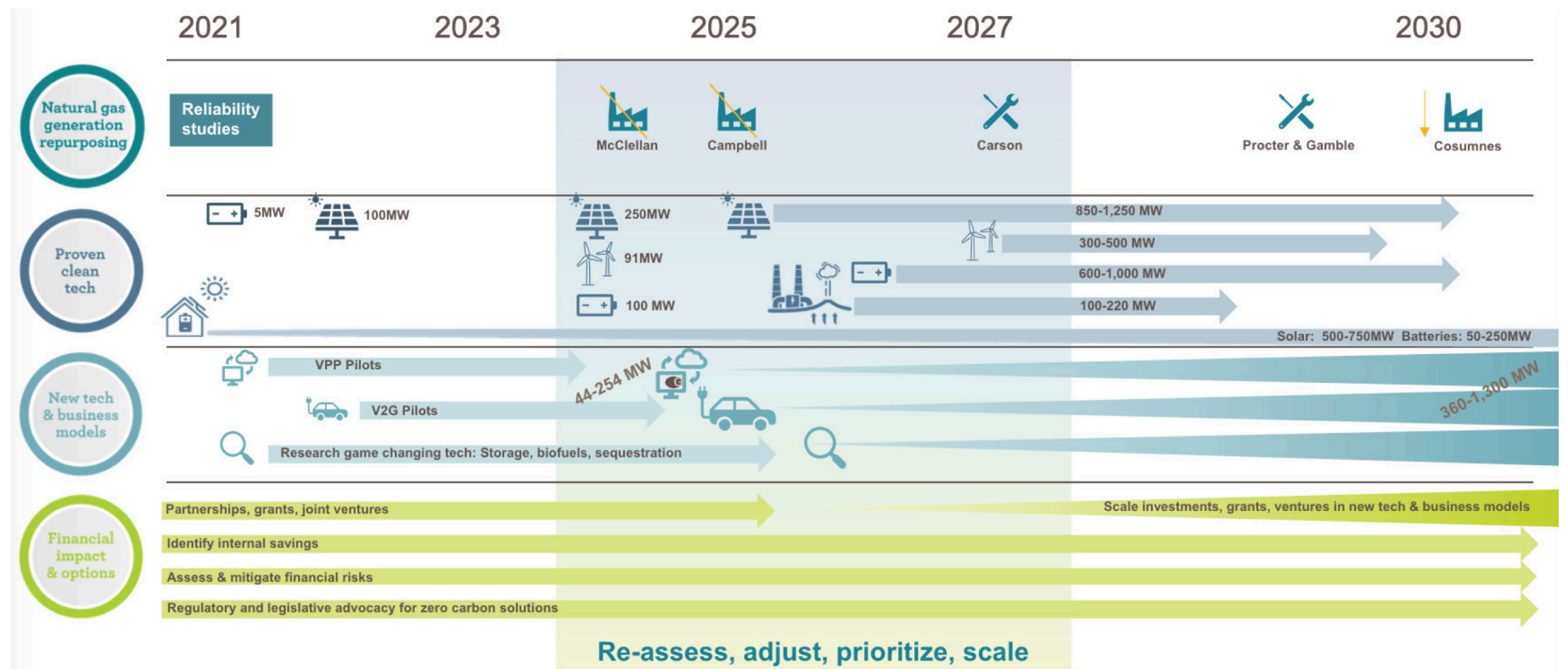
show clear lines to stakeholder buy-in and involvement in the process (see the “Outreach and Communications” section of this report for more details on stakeholder engagement).

Targeted Implementation

Larger objectives within the plan may need to be implemented incrementally,

with a specific focus on subgeographies, neighborhoods, or populations in the initial phase. For example, in the case of building electrification, a serious equity risk exists that buildings with lower-income tenants or lower asset value will be among the last to convert to full electrification, saddling these tenants with high gas prices because fewer

Sacramento Municipal Utility District Zero Carbon Action Plan and Timelines



Source: Sacramento Municipal Utility District.

SMUD’s Zero Carbon Action Plan and Timelines summary is a helpful example of how to visually illustrate to stakeholders how all actions, no matter how small, contribute to the larger goal.

households will be sharing the cost to maintain the remaining gas infrastructure.

Targeting lower-income neighborhoods for accelerated conversion to all-electric infrastructure will give them early access to the benefits of all-electric homes, such as healthy indoor air, and will avoid the impact of significantly higher gas prices. If these communities are not actively targeted and prioritized, they will not likely be transitioned to all-electric in a timely manner; as increasing numbers of wealthier people recognize the benefits, they will remove themselves from the gas system first.

Electricity Distribution System Capacity Study

Moving to a world where everything is electric will require increased capacity in the electricity distribution system. The city could provide information and advocate for PG&E to complete and implement a capacity study to better understand how transformer capacity and other constraints can be unlocked to support new and retrofit construction in the city. Making this capacity study publicly available would assist real estate developers with project planning as well as existing buildings that seek an all-electric retrofit.

Data and Metrics

To reach the goal of carbon neutrality by 2030, the city will need to leverage and expand its trove of data to craft a strategy and implementation planning pathway and to define clear, measurable targets for milestones along the path.

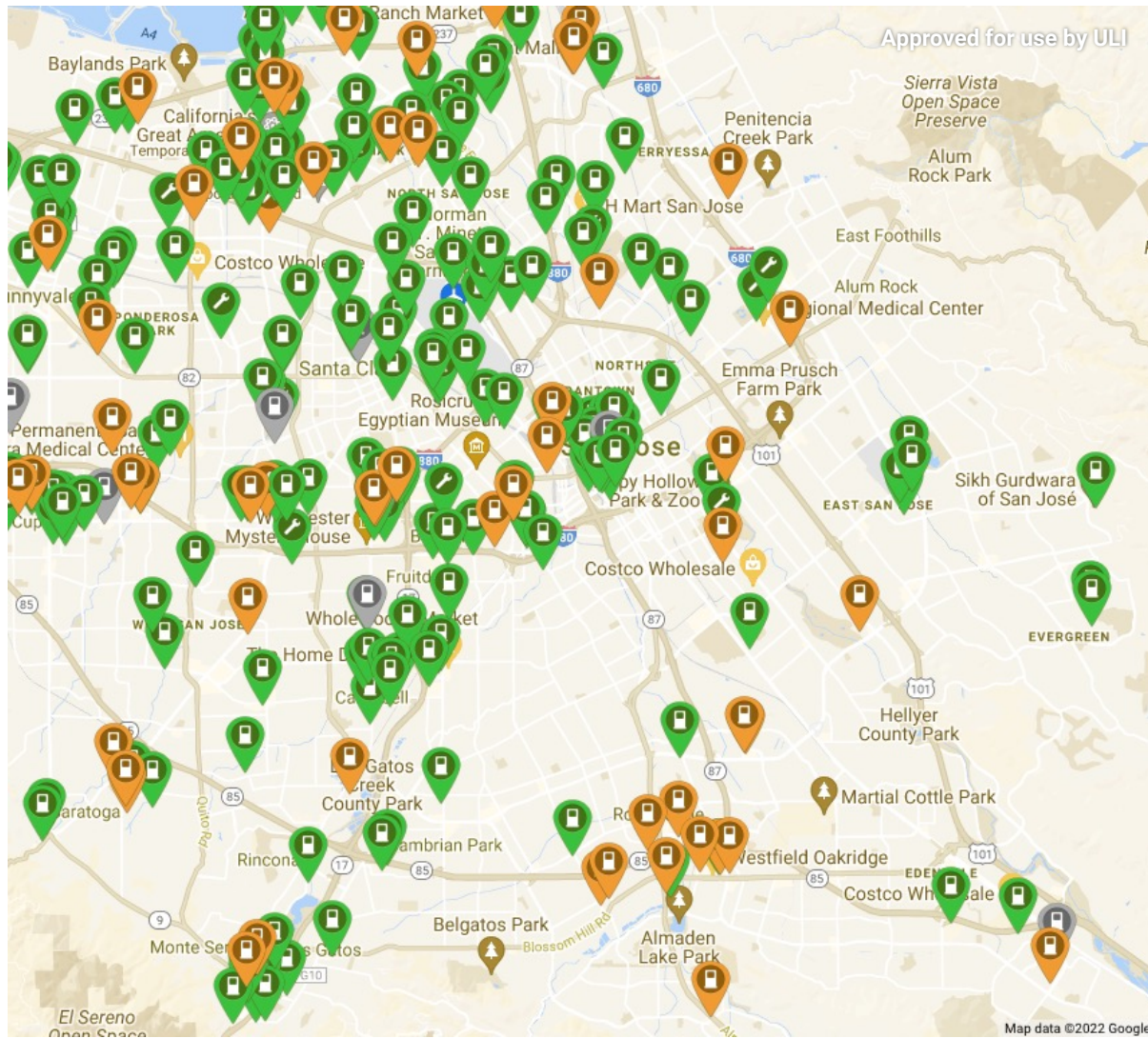
The city has existing data that identifies multifamily building locations and owners for targeted communications and direct engagement. The Building Electrification Framework can build on this data by using segmented community data to influence its community outreach and plan implementation and to ensure an equity lens is being implemented. Examples where data can be leveraged include the following:

- GIS mapping via CalEnviroScreen to address multifamily housing and equity targets and priorities. The California Office of Environmental Health Hazard Assessment offers CalEnviroScreen 4.0 as a screening tool to identify communities that may have increased health risks from being exposed to multiple types of environmental pollutants.
- Publicly available EV charging maps to identify existing service gaps. Mobile apps such as PlugShare offer free, up-to-date maps with EV charging location information.

Climate Smart San José identifies target metrics for milestones by decade, which are critical to any plan. Once its near-term priorities are identified, the city can also call out the associated metrics of success and display them on an updated version of its Climate Smart Dashboard to track and celebrate near-term wins.

To support its planning and ensure clarity of communication, the city should define what it means when it uses the terms “equity,” “low-income,” and “disadvantaged” communities. Today, different groups in San José assign different meanings to these terms, and defining them will ensure that the city and its departments, as well as its community and business stakeholders, are all referring to the same thing and help keep everyone on the same page.

Just as Climate Smart San José was developed with community consultation, the creation of equity metrics and definitions should also be created in collaboration with the San José community and not be established in isolation.



Source: PlugShare, <https://www.plugshare.com>.

Publicly available electric vehicle charging stations in San José are not as readily available in the east and south as they are in other parts of the city.

Process Improvements and Technical Assistance

As part of its research, the panel interviewed dozens of stakeholders identified by city staff. From these conversations, specific themes emerged repeatedly. The following were most prominent among them:

- A desire to more easily find and access relevant technical, financial, and legal information related to electrification and DERs.
- The need for the city to improve many of the processes related to permitting.
- A lack of “trust” in relations with the city and especially with PG&E.

This section lays out strategies and solutions to the first two points and the next chapter addresses the third.

Zero Carbon Hub

The panel heard from stakeholders that they were not sure which decarbonization programs were suitable for them; others said that they were unaware of what the city offered, where to go for technical assistance, or how to navigate the myriad

of financial options available to them. **One of the panel's strongest recommendations is the creation of a Zero Carbon Hub, a central information location where all stakeholders can understand everything they need to know about the implementation of Climate Smart San José.**

The Zero Carbon Hub would bring forward the many departments affecting the process in the customer journey to electrify. The San José Clean Energy (SJCE) website touches on a part of the journey that can include contractors, permits, and utility panel upgrades. The city has a clear and resource-rich section of website on electrifying residential buildings, and the Building Electrification Framework draft includes a Retrofit Accelerator. The Zero Carbon Hub should build on these offerings and include resources such as the following:

- Technical information on strategies ranging from holistic integrated design to individual equipment upgrade support;
- Case studies and other cost analyses for the technical side of electrification and DERs;
- Financing opportunities from the city, the state, utilities, and the federal government; and
- The benefits to everyone from Climate Smart implementation.

Crucially, the hub needs to be more than just a website: it needs to serve as a one-stop proxy organization to drive awareness of, provide education about, and support the Climate Smart programs and goals. It must be adequately staffed by the city or run by a third-party organization. Examples of similar initiatives include **New York City's NYC Accelerator** and the **Building Innovation Hub in Washington, D.C.**

The goal of the Zero Carbon Hub is to smooth the electrification and DER technical challenges by serving as a centralized information resource and by providing staff support to facilitate progress. The Zero Carbon Hub should be useful to everyone touched by electrification and DERs: developers, architects, engineers, general contractors, residents, community groups, and building owners of all sizes. It will be critical for the city to apply an equity lens to all of the Hub's support efforts. This will ensure it is not just supporting the affluent and resourced communities but also reaching the underserved groups who stand to benefit most.

Building Performance Ordinance

In 2018, the city of San José adopted a Building Performance Ordinance that requires commercial and multifamily buildings 20,000 square feet or larger to track their energy and water use and share it with

the city. The next step for the city is to put some teeth in this initiative by making this reporting a Building Performance Standard by 2025. Mandatory disclosure of building performance is an important step to decarbonizing existing buildings and something that leading climate cities, like New York City, are already implementing.

Furthermore, the Building Performance Standard, which includes "beyond benchmarking requirements," is set to begin in 2023 with compliance options for electrification retrofits that should be updated to include DER installations. Part of the work in market transformation is creating a common language and setting common goals. Including these requirements can help building owners and the entire industry see what is coming next and how they should be thinking about the future.

Streamline Compliance and Permitting Processes

The city can accelerate the adoption of all-electric buildings through improved compliance and permitting processes, which essentially serve as noncash incentives. The panel heard from stakeholders that bottlenecks exist in the permitting process and that older buildings sometimes face additional charges and fees because of additional review required.

By streamlining the permitting and compliance process, the city can make sure it is doing everything it can to make electrification as easy and low cost as possible.

Streamline electric upgrades. As a starting point, the city should consider an expedited process for any all-electric permits. The panel heard from stakeholders and staff that some departments are very understaffed, including Planning, Building, and Code Enforcement. While this situation could be part of the post-pandemic economic recovery, the city needs to prioritize fully staffing its departments if it wants to reach its climate goals in time.

Historic buildings are subject to extra design review, resulting in both additional time to receive permits and additional costs. Small historic buildings are primarily owned by families and independent building owners, meaning that these time and cost implications could inadvertently negatively affect the people that the city most want to help. The city should evaluate whether all-electric projects should be exempt from extra costs, particularly smaller buildings.

Streamlining the process for permitting panel upgrades will become increasingly important as more of the city's older building stock electrifies. Sixty-five percent of multifamily buildings in San José were built before 1978, which means they will almost

certainly need panel upgrades to support electric appliances and EV charging. The city and San José Clean Energy would be well served by collaborating with PG&E on how these upgrades can be streamlined—and funded.

Transformer upgrades at the electricity distribution level will also be increasingly necessary, which can add several months or more to a project's schedule. The city needs to collaborate with PG&E on how this process can be streamlined and accelerated.

The panel heard that the city's process for adding solar to buildings is working well and not subject to perceived delays, which is great. This should also be true for buildings wanting to include battery storage. Although the city already has online permits for solar, San José should consider using more advanced technology to make the online process even smoother and more user-friendly.

Flexibility in implementation. Existing buildings doing electrification retrofits can face physical space and other constraints that new buildings do not have. Permitting guidance should allow city staff and building owners more flexibility to implement new strategies and variances for things like height requirements, roof screens, and setbacks. All-electric is a new model for retrofits and to best accelerate their uptake on

Using Technology to Streamline Permitting: SolarAPP+

SolarAPP+ is an online web portal that allows cities to standardize and automate the permitting of residential solar photovoltaic (PV) systems by businesses and individuals. Short for Solar Automated Permit Processing, Solar APP+ was developed by the National Renewable Energy Laboratory (NREL) in partnership with numerous public and private organizations. SolarAPP+ is currently being used by several jurisdictions around California, including Stockton, Pleasant Hill, San Ramon, and Benecia.

NREL is currently working on similar software that would support the automation of permitting for heat pumps.

the time scale envisioned, the city will need to identify points where it can be flexible or potentially set up pilots or trial periods to test new approval methods.

With new state rules coming online in 2023 that will require most new construction to include solar and batteries, the city could allow for new modes of meeting these requirements in ways that would also help meet the city's carbon and equity goals. For

instance, buildings with limited roof space could meet the requirement for solar panels by subsidizing solar off site. If sited in low-income multifamily or in-community solar benefitting an entire neighborhood, it would give more people of all income levels access to this renewable power.

Other noncash incentives. The city has the authority to identify processes and regulations that can be used to further incentivize and support building owners and developers to help meet its decarbonization goals. For instance, the city could:

- Offer density bonuses, where appropriate, for full electrification building retrofits. This includes increased floor/area ratio (FAR) and increased height allowances.
- Build or subsidize public electric charging stations on or adjacent to private property.

Staff capacity and customer experience.

As noted previously, the city will only be able to reach its ambitious goals if it provides dedicated staff capacity to do so. Because electrification and DERs are new and rapidly evolving, additional training and capacity-building will be needed so staff can provide meaningful feedback to projects. The urgency of meeting the climate goals means allowing for flexibility in rules and design strategies and supporting staff capacity in order to advance this work.

One strategy that other Bay Area cities are using successfully is to assign a single city staff person to shepherd each project through all the city departments for approvals. These “project captains” can quarterback the entitlement process and coordinate directly with various departments. This can support a collaborative relationship between the city and the projects and reduce time and effort on both sides.

Customer education and technical support.

Some building owners are being held back from embarking on the electrification process by a lack of understanding and sometimes a fear of triggering a cascade of unintended consequences because they do not completely understand the process. The recommended Zero Carbon Hub could have staff resources available to walk people through the planning or permitting process.

The technical assistance offered should include support for a holistic integrated design approach, which can bring retrofit costs down by leveraging inter-related design strategies. For example, changing windows or insulation will affect HVAC equipment sizing; new lighting and time-of-use software to manage energy use can help bring electricity loads down, directly impacting the size of panels and transformers. By providing support for this process, the city can help projects decarbonize more easily and with reduced costs.

Building Owners’ Commonly Asked Questions before Deciding to Electrify

- Will electrification upgrades trigger other code upgrades and, if so, what are they?
- I heard that if I need to upgrade my panel, the city may require I put in an even larger panel—is that true?
- Does it matter if the electrical panel is interior or exterior when it comes to inspections and triggering other upgrades?
- If other upgrades are needed, are incentives available to help implement them?

Workforce Training

The transformation to a clean energy economy presents a remarkable opportunity for job growth, including skilled jobs for members of historically marginalized communities. In addition, reliance on renewable energy sources is going to necessitate the transition of and retraining for some

laborers in the fossil fuel sector. The skilled labor required to upgrade electrical distribution systems, electrify and weatherize buildings, install distributed energy systems, and modernize infrastructure cannot be outsourced and could mean a rich source of job creation for San Joseans if the city effectively seizes the opportunity.

For this transition to be successful and this economic opportunity for San José to be fully realized, the city will need to work with community, institutional, and labor partners to grow and amplify training opportunities, institute programs that accelerate the city's decarbonization goals, and eliminate risk and fears through communication and collaboration.

A common theme of the stakeholder interviews was the perception that PG&E was a roadblock to projects and progress and that there is little trust of PG&E. While some of this is out of the city's control, in order to electrify the city, it is imperative to have PG&E a willing and excited participant. One way to build a collaborative relationship with PG&E is to focus on common ground, which is a desire to have a trained workforce to do the work that will enable full electrification. These kinds of employment initiatives could also help both the city and PG&E build trust with the community.



Solar panels are just one of the long list of electrification tools and resources that also provide an opportunity for workforce growth and opportunity in the clean energy sector.

Alignment of Workforce Pathways

Education and training are fundamental, and the city is well positioned to leverage and strengthen existing educational platforms. If the city actively partners with educational institutions and labor groups, it can ensure that the core competencies and skill sets needed to address electrification and DER work are being provided at the high school, junior college, trade school, and union levels and that they are aligned with the city's goals.

For example, a partnership with skilled trades and PG&E that trains and funds

workers to upgrade underground electrical lines in streets and electric panels in homes and multifamily buildings would make it significantly easier and more financially feasible for those buildings to install electric appliances when it is time to switch them out. Older buildings are more likely to need panel upgrades to support conversion to full electrification and support EV charging. Given the age of San José's building stock, a program like this could carry the city over one of its biggest hurdles toward decarbonization and provide a steady stream of skilled jobs.

Supporting existing trade apprenticeship programs and upskilling the existing labor force to meet the needs of the clean energy economy will also reap long-term benefits for the city. One model the city could look to is the Zero Net Energy Training Center built by the International Brotherhood of Electrical Workers (IBEW) Local Union 595 and the National Electrical Contractors Association (NECA) in San Leandro, California. Opened in 2013, this center is both a net zero energy building (performing as designed for six years post commissioning) and a training center for IBEW members and apprentices.

The same approach can be used with existing workforce development organizations.

For example:

- To rapidly accelerate the adoption of rooftop solar, the city and SJCE could create a program where every time a building gets a roof replaced, they offer subsidized rooftop PV installations (subject to income thresholds) performed by partner organizations.
- As pointed out in Climate Smart San José, partnering with organizations such as Grid Alternatives can not only expand solar access to lower-income customers but also provide valuable platforms to train local roof contractors to install solar.



IBEW Local 595 Zero Net Energy Training Center.

Working with embedded community benefit organizations (CBOs) and providing workforce training in multiple languages will continue to advance the city's efforts toward authentic equity outcomes.

Driving Demand

One of the biggest roles the city can play is in driving demand for skilled labor. Through policy levers and by offering cash and non-cash incentives, the city can encourage and enable building owners and developers to

commit to decarbonization measures and hire contractors. This in turn gives employers the confidence to commit to hiring and workers the confidence in the work stream to commit to getting trained.

Publishing relevant data through the Zero Carbon Hub (and other platforms) can also drive real job demand. The panel heard that stakeholders lack understanding of the job creation opportunity and the impact it can have on quality of life. Identifying and marketing the real workforce opportunities

with data and in a multicultural manner can assure employers and workers that these jobs are real. Meeting job and salary expectations is particularly critical to attracting young people and new entrants. To do this, data on jobs available, training needed, and salary ranges should be transparent.

Innovation

San José is in an enviable position. The city's leadership, businesses, and community are comfortable with pioneering new initiatives and pathways, and there is a broad appreciation for the natural environment and the need to take action to reduce carbon emissions. This puts the city government in a prime position to advance its climate, resilience, job creation, and social equity goals.

Communicate a Clear Vision of the Future and Its Benefits

Being a leader means having a clear vision of the future and a willingness to lean into discomfort and creativity to get there. The city is keenly focused on electrification right now, which is vital, but the entire package of building decarbonization goals needs to be considered holistically to achieve the best outcomes. Electrification goes hand-in-hand with the integration of DERs, including energy storage, in the built environment.

Communicating to owners their potential to monetize their building performance and DERs will further motivate them to make the appropriate investments.

Leverage Existing Attributes, Resources, and Capabilities

Silicon Valley is home to one of the world's largest innovation ecosystems, including a vast number of public and private companies, educational institutions, and philanthropic organization. San José should leverage the resources in its backyard to create pilots, test new ideas and technologies, and co-invest in research and development. As one of the wealthiest regions in the world, the city can look to new partnerships with organizations with aligned goals and values. Many are already looking at revolutionary ideas in energy storage technologies and management, grid-integrated building design, wireless car charging, and more. The city can be a testbed for these technologies and be at the forefront of realizing their benefits.

Maximize Physical Space to Go Solar

The Climate Smart plan calls out the opportunity for San José to be the World's First One Gigawatt Solar City. With more than 200,000 roofs suitable for solar electricity production, according to Google's Project Sunroof (cited on page 83 of the *Climate Smart San José* report), the city has the potential to produce over three gigawatts of power. Other physical spaces also can be

maximized to both produce and store power at a variety of scales: airports, campuses, parking lots, and underused mall spaces among them. With its high number of sunny days and relatively low density, creatively using the built environment could enable the city to meet much of its electricity needs within its boundaries in the coming years.

Foster Local Solar, Storage, and Microgrids

Proactively incentivizing the development of locally sited solar and energy storage and microgrids would serve San José in many ways. As a new organization, San José Clean Energy is focused on procuring electricity at the utility scale. However, current bottlenecks in high-voltage transmission lines across the grid in California are making procurement of utility-scale power in other parts of the state more challenging. Locally sited solar power installations avoid the larger transmission networks and use the local distributed electricity systems, allowing power to go directly to customers.

To meet its electricity during peak evening hours when the grid is most under strain, the state needs dramatically more battery storage, both at the utility and distributed scales. Reducing this peak load avoids having to turn on "peaker plants," readily available utility-scale plants usually powered by natural gas or kerosene. These plants have

significant negative impacts on local air quality and are frequently located in or near low-income communities, which are often subject to a broad range of environmental impacts with negative health consequences.

Having distributed power and battery storage are also valuable tools in strengthening local resilience, particularly in a region prone to large earthquakes and increasing numbers of extreme weather events caused by climate change and PSPS events. Some of these energy generation and storage resources can be designed as “islands” that work independently when the grid is down and provide power to the surrounding community.

A microgrid is a small-scale energy network connected directly to energy users. Microgrids can both be connected to the larger electricity grid and operate independently, enabling them to easily provide backup power during grid strain or outages. They are ideal for campuses, business parks, and malls, or other real estate where there is a single property owner.

The city could consider creating an entity that provides operations and maintenance services to privately developed microgrids as a means to encourage building owners and developers to build this infrastructure, which benefits the city more broadly. This type of entity could also be set up to take over ownership and maintenance of

microgrid systems installed by real estate developers. This would be an incentive for developers (or included as part of community benefit agreements) as they would only have the initial capital and not the operational costs of microgrids; at the same time, this city would get the benefit of control over microgrids to support its resilience, without the upfront costs.

San José Clean Energy should proactively explore ways to accelerate the implementation of local solar, battery, and microgrid systems at the neighborhood and community scales as a way to meet its climate, resilience, and social equity goals.

Explore Operating a Virtual Power Plant

The California Public Utilities Commission is expected to issue rules later this year on how virtual power plants made up of aggregated battery resources distributed throughout the built environment can participate in wholesale power markets. This will unlock opportunities for building owners of all sizes and residents to participate in the financial benefits of batteries. San José Clean Energy should explore running its own virtual power plant, as some utilities in other states and other Community Choice Aggregators in the Bay Area are doing, as a first mover to capture these benefits before the private sector steps in and signs up its customers for these virtual power plants.

Other virtual power plants in operation, rather than aggregate battery power, aggregate reduced demand on the grid by rewarding utility customers for reducing their electricity loads (e.g., turning off appliances and air conditioners). While these types of virtual power plants are beneficial, they rely on (typically uncontrollable) human behavior rather than automated management of a battery resource.

Micro Power Purchase Agreements

Starting in 2023, California is requiring virtually all new construction to include solar panels and batteries. One of the potential unintended consequences of this rule is that the extra capital required for these DERs could either prevent projects from moving forward or result in passing on additional costs to tenants, potentially exacerbating the already high cost of housing. For some building projects, current incentives and net metering rates may not cover the investment in DERs, with further payback uncertainty created because the state can change the net metering rules for rooftop solar at regular intervals (a subject of much debate in California at the time of this writing).

One potential solution is a new model for power purchase agreements (PPAs) where an energy utility or retailer contracts to buy stored power from a building or district-scale project over a fixed period (much like they would from a power plant but at a

Virtual Power Plant Case Study: Soleil Lofts

Located in the suburbs of Salt Lake City, Soleil Lofts is a 600-unit, all-electric apartment complex with a PV array, EV charging stations, and batteries inside each unit. What makes this project unique is that it is both an apartment complex and a virtual power plant providing nearly six megawatts of power.

The building developer, Wasatch, collaborated with the regional utility, Rocky Mountain Power (RMP) to achieve mutually beneficial goals. Wasatch owns the development, including the solar and batteries, but RMP controls the batteries. Tenants agree when moving in that RMP may use the power stored in the batteries at any time from March through October to help balance the electricity grid and potentially during the other months for grid emergencies.

Federal, state, and utility subsidies covered nearly half the \$34 million in solar and battery costs and were essential to funding this component of the project.

Both RMP and Wasatch consider the project a success and are using it as a model going forward. Rocky Mountain Power is now offering incentives to existing residential solar customers to purchase batteries in order to bring at least 50,000 more batteries online as virtual grid resources, with plans to expand this program to the six other states where it operates. Wasatch has begun purchasing apartment buildings in California with plans to retrofit units to include batteries that can be aggregated to provide grid services, increasing its revenue and improving its capitalization rate.

financially viable. This means that every small step that can improve their feasibility can make a difference.

This micro PPA model is like a virtual power plant because it provides stored energy to the grid when it is needed most, but it is significantly more beneficial to buildings because rather than trade on wholesale electricity markets with fluctuating prices, this model has a contracted price that can be used on its financial pro forma.

EVs, E-bikes, and Mobility Technology

Access to EV charging is not distributed equally throughout San José (see figure on page 15). To achieve its equity goals, the city must ensure more equitable access to EV charging and factor this into its decision-making regarding the strategic use of funding to increase charger availability.

Electric vehicles are essentially mobile battery storage and as they become more prevalent, they will play a role in how electricity is managed. Owners of EVs with bi-directional batteries will be able to tap their batteries to provide power to buildings, other cars, or the grid. This means that these EV owners have a potentially revenue-generating asset, making it even more important that equitable access to EVs and EV charging is integrated into city strategies sooner rather than later.

different scale), creating revenue streams for buildings that could minimize the impact of this new law on much-needed housing.

For instance, if San José Clean Energy guaranteed the purchase of power at a fixed rate over a set period from a new multifamily housing development, this contracted revenue would improve the project's

capitalization rate, or its cost of capital, and therefore its feasibility. This model would be particularly beneficial to low- and middle-income multifamily developments in the Bay Area. These projects already face a challenging development environment and because construction costs are so high and escalate so quickly, by the time a project is approved, many projects are no longer

Finance and Incentives

To meet San José's ambitious carbon-reduction and electrification goals, multifamily properties need an array of financing options. This section focuses primarily on financing and incentives for existing buildings, which are arguably the hardest to decarbonize. This section does include new funding options and revenue streams for DERs opening up as a result of changing market conditions and rules.

Solutions Snapshot:

- **Prioritize funding opportunities for electrification and energy efficiency.**
- **Explore financing models that leverage the city's and SJCE's unique roles.**
- **Make the wide variety of available public and private funding options easier to find.**

Financing Options for Existing Building Retrofits

Funding opportunities need to be available during the life cycle of a property from construction through renovation (both moderate



and substantial retrofits). Every time the building is capitalized and every time the building is renovated, there should be progress toward electrification of appliances and improved energy efficiency. This section outlines options identified in Climate Smart San José that are best suited to this effort as well as additional recommendations.

Some housing typologies in San José may require specialty financing programs customized for their unique needs (e.g., multitenant single-family dwellings, fourplexes, manufactured housing communities). These recommendations specifically address conventional and affordable multifamily properties of five units or more.

Mortgage Finance

Multifamily owners may be able to pay for energy and water efficiency improvements, electrification, and renewable energy through their mortgage (converting to permanent debt, refinance, or supplemental). Property owners typically receive a lower all-in interest rate and can underwrite a portion of project energy and water savings to maximize potential loan amount (subject to loan to value/debt-service to coverage ratio constraints).

Multifamily owners have the ability to underwrite a portion of energy tenant savings if they can provide actual trailing 12 months of utility bills. This helps owners overcome the “split incentive,” where tenants paying their own utility bills reap the cost savings of the decarbonization and efficiency strategies paid for by the building owner.

Midstream Options

San José Clean Energy can play an important role in financing energy efficiency retrofits by:

- Providing on-bill financing where the payments could be equal to or less than the projected energy and water savings. This provides a midstream opportunity for projects of all scales to make energy efficiency improvements. These improvements could also be tied to the property to lengthen the payback period.

- Offering rebates for multifamily properties for appliances and/or equipment upgrades. Rebates need to be direct (point of sale) for smaller building projects. State programs typically provide rebates only after a project is permitted; however, smaller contractors are not able to wait for rebates to meet payroll and other obligations.

The city of San José itself can use its bonding authority to establish a Green Bank to provide credit enhancements and provide soft debt to fund electrification and renewable energy retrofits in the form of financing energy audits with an electrification study component. The city should also consider offering grants/soft debt to finance pre-development engineering cost for affordable housing developers (estimated at \$60,000 to \$200,000 per project) because this work is otherwise difficult to finance.

In the private sector, newer one-stop-shop models offer a complete set of services to decarbonize a building or portfolio. These comprehensive packages usually integrate project scoping, technical assistance, incentives, installation, and commissioning. Examples of firms with these types of offerings include Bright Power and Elevate Energy.

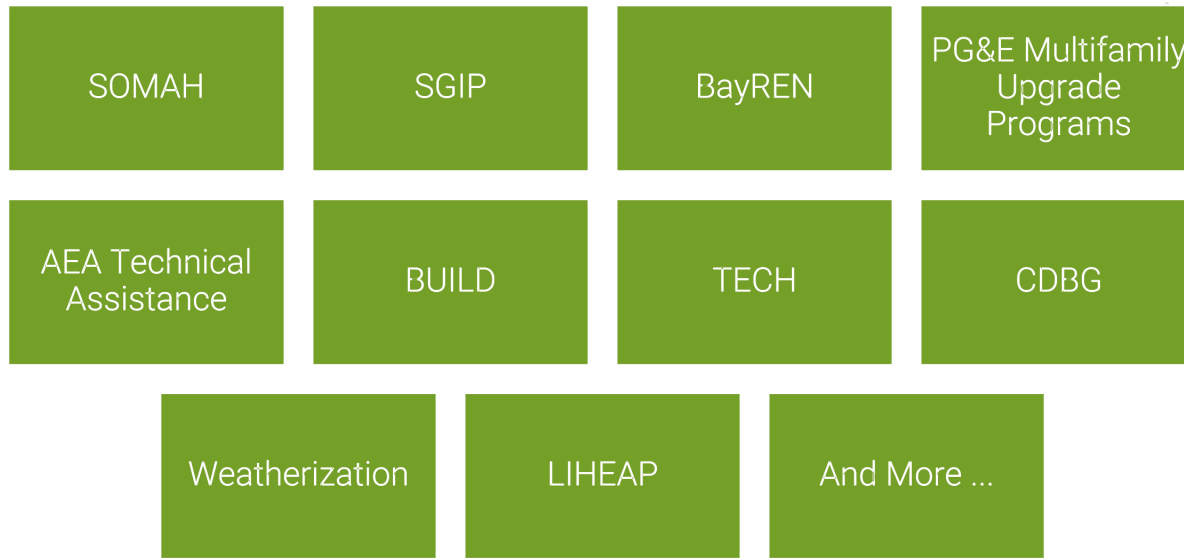
Even if the city of San José or San José Clean Energy is not directly participating in these offerings directly, these models can still be included in the Zero Carbon Hub.

Incentives

The panel consistently heard from stakeholders about the desire for more clarity concerning the “alphabet soup” of funding opportunities and incentives available for electrification and decarbonization. Many in the development community are unclear what options are available and which are suited to their building type. The Zero Carbon Hub previously described would serve as a valuable connection point for these offerings for community members to consult.

As of this writing, the following incentive and financing programs are available to building owners in San José:

- BUILD (Building Initiative for Low-Emissions Development);
- BayREN (Bay Area Regional Energy Network) rebates and financing;
- SOMAH (Solar on Multifamily Affordable Housing);
- SGIP (Self-Generation Incentive Program);
- CDBG (community development block grant programs);
- Weatherization Assistance Program; and
- LIHEAP (Low Income Home Energy Assistance Program).



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The panel recommended these incentives and funding options to the city of San José for the city's building decarbonization strategy.

Stakeholders also referenced a misalignment of incentives for electrification and DERs for new construction and existing multifamily properties. To better understand what is available and for whom, as well as what is needed, the city (potentially through

the Zero Carbon Hub staff or operator) should convene local financing partners and multifamily owners (borrowers) to catalog and map existing funding resources and identify gaps.

Outreach and Communications

Through its work on Climate Smart San José and the Building Electrification Framework, the city of San José has a strong foundation of outreach and engagement to build on. The ongoing work of relationship building, communicating, listening, and collaborating will be essential as the city builds a decarbonized future. This section highlights what has worked and how it can be expanded and strengthened going forward.

Solutions Snapshot:

- **Communicate often and intentionally to increase awareness and enthusiasm.**
- **Meet community members where they are.**
- **Create pathways to cultivate trust.**
- **Shine a light on what the future can look like.**

Start with Why

The cornerstone of any plan is to be clear and focused on its purpose. Although the city has clearly articulated why Climate Smart San José is needed, the panel heard



from community members that they are not clear on the “why” and “how” that relates to their health and quality of life.

The city needs to more vividly portray its vision of the San José of the future and show how the implementation of the Climate Smart plan will create a city powered by clean energy, with affordable

housing and transportation options, connected to nature, with better air quality, and teeming with equitable and abundant job opportunities. Climate Smart San José is a great plan, but the reality is that most people in San José will not read it, and those who do may be challenged to interpret what its implementation means for them. There is also a dedicated dashboard area on the

city's website with progress on its climate goals; this is important and well done, but it is not enough. To implement the plan, the city will need to take its vision to its people, meeting them where they are, to inspire them and to help them connect the dots between their actions, the city's actions, and the future they want to see.

Communicate Often and through Multiple Channels to All Stakeholders

The city should not be afraid to overcommunicate about its climate plans, its actions, and its successes on a regular basis. People love good news, and most people want to feel like they are a part of making the world a better place. This communication should happen through multiple channels to reach the city's vastly different stakeholders.

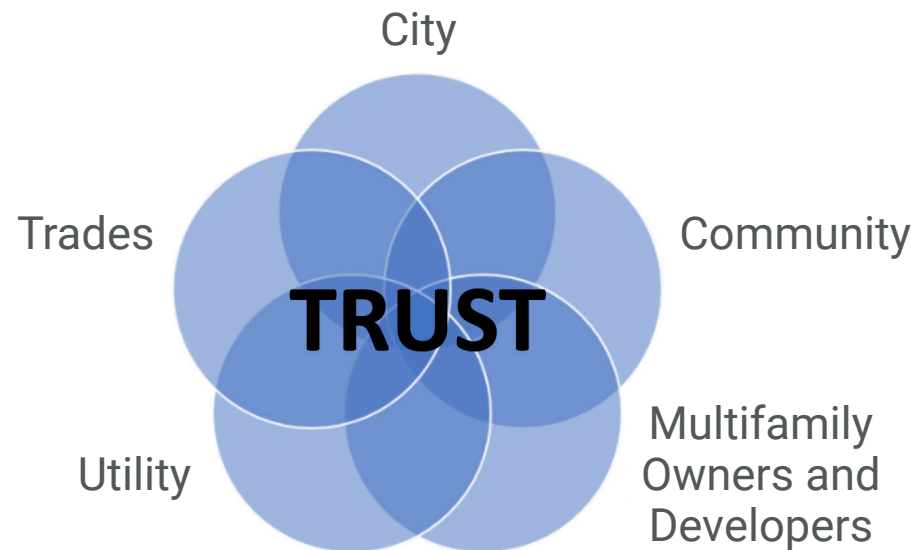
The city can build on its great track record of reaching out to its existing stakeholders, such as CBOs, unions, and the San José Chamber of Commerce—to name a few. However, some key stakeholders in the commercial real estate community feel they have been left out of communication loops and should be targeted; for example, the California Apartment Association is an important and influential organization and

should be brought into the loop. The city's Building Performance Ordinance e-mail list would be a great channel for communication efforts with this sector as well. The real estate audience is particularly receptive to examples from peers and similar business so highlighting the successes of early adopters of electrification and DERs will be useful.

San José could look at the state of California's example for multichannel communication about COVID vaccines, including everything from flyers, billboards, and television ads to door-to-door outreach. Clear and simple messaging on the benefits of being a part of

the city's climate action in multiple formats is ideal.

It will be essential to keep partnering with community organizations on communication outreach plans because strategies should be customized based on cultural priorities and communication styles. For instance, the panel heard that to reach some specific cultures, the city will have to create deliberate marketing efforts about the use of induction stoves. Strategies like demonstrations of induction cooking for specific cuisines at cultural centers and events would allow people to see, smell,



Deeper collaboration from the city is needed to better understand community perspectives and overcome perceived barriers.

and taste what fossil fuel-free cooking is really like and could have a huge impact.

The panel heard that there is an issue with trust. Certain populations in San José do not have a trust-based relationship with city government. Collaborating with community-based organizations helps build trust and enables the city to better understand community perspectives and overcome perceived barriers.

Another way to support more equitable uptake of climate actions and plan outcomes is to make sure all the plans that tier from Climate Smart have a clear focus on the multifamily sector. Although the city has more single-family than multifamily buildings, targeting multifamily will help ensure that plans reach people of all income levels and lifestyles.

Create a Green Ribbon Commission

The panel strongly recommends creating a representative Green Building Committee or Commission that brings multiple voices to the table. This group could be convened monthly to help develop Climate Smart implementation plans and policies and get local stakeholders, particularly the business community, bought-in to the process.

Participants in this working group would span the stakeholders the city wants to reach. As a primer that includes representatives from city staff, community residents and activists, CBOs, multifamily owners and developers, PG&E and San José Clean Energy, and mechanical, electrical, and plumbing contractor trades. Using this structure to explore potential new or mandatory measures (e.g., each code for existing buildings, time of replacement requirement, point of sale requirement, indoor air quality standards, greenhouse gas mitigation fee) and having these stakeholders be part of the solution creates buy-in from the outset and, again, helps build trust.

Both Boston and Washington, D.C., have very successful (and different) examples of this kind of committee. Boston's Green Ribbon Commission is targeted at the business community. Washington, D.C.'s Green Building Advisory Council, which is run by the Institute for Market Transformation, includes representatives from both the private and nonprofit sectors.

Show That It Can Be Done

Tangible projects that can be studied and experienced can have a powerful impact. Featuring (and subsidizing) demonstration projects and documenting best practices for

locals to learn from makes the future feel real, creates trust, and inspires. Demonstration projects should include both new and existing assets of different building types across the city that reach multiple stakeholders and cultural demographics (e.g., East Side and Downtown, low-rise and high-rise multifamily, schools and community centers). This program could also be aligned with the Zero Emissions Neighborhood (ZEN) program the city is developing.

To support these demonstration projects, the city should provide gap financing and look for ways to shine a light on different technologies in different sectors. Participating projects can be required to share all their cost data, giving the city valuable information that will allow it to better understand the cost implications of its policies. Case studies should be shared on the Zero Carbon Hub.

A citywide design competition for hypothetical all-electric, zero carbon multifamily projects is another useful way to increase enthusiasm for the decarbonization innovations. This has been done to great success in the Bay Area and elsewhere, and San José could rally similar participation and success. Examples include the Bay Area's Resilient by Design and a Living Building Challenge hosted by Washington, D.C. Partnering with a nonprofit organization could lift the administrative burden off city staff.

Conclusion

The city of San José's leadership has been demonstrated through its Climate Smart San José plan and the key actions it has taken to move the plan forward. Realizing all the goals of the plan will require the city to dig deep and maintain its endurance in order to deliver on its climate commitments. At the same time, city leaders need to inspire San José citizens, businesses, and institutions to come along with them on this journey.

The panel strongly encourages the city to further lean into and leverage its unique assets and culture on its way to its vision of the future. This will be enabled by what the city has already been doing very well—prioritizing equity and quality of life for everyone in San José. It will be essential to keep this at the center and to continue with deliberate and meaningful engagement so that the plan is no longer the plan, it is just the way things are done.

It is not just important for San José to succeed in this work for the people of San José. The audience stretches far beyond the city boundaries. It is important for all of us that San José show other communities around the country and around the world the way forward to a carbon-free future.



Additional Resources

Building Innovation Hub (Washington, D.C.), <https://buildinginnovationhub.org>

CalEnviroScreen, <https://oehha.ca.gov/calenviroscreen>

Equitable Building Electrification: A Framework for Powering Resilient Communities, Greenlining Institute, https://greenlining.org/wp-content/uploads/2019/10/Greenlining_EquitableElectrification_Report_2019_WEB.pdf

The Flipside Report: A White Paper on Targeted Geographic Electrification in California's Gas Transition, Building Decarbonization Coalition and Common Spark Consulting, https://www.buildingdecarb.org/uploads/3/0/7/3/30734489/the_flipside_report_-_targeted_electrification_for_gas_transition.pdf

Global Warming's Six Americas, Yale Program on Climate Change Communication, <https://climatecommunication.yale.edu/about/projects/global-warmings-six-americas/>

NYC Accelerator (New York City), <https://www1.nyc.gov/site/nycaccelerator/index.page>

SMUD 2030 Zero Carbon Plan, Sacramento Municipal Utility District, 2021, <https://www.smud.org/-/media/Documents/Corporate/Environmental-Leadership/ZeroCarbon/2030-Zero-Carbon-Plan-Executive-Summary.ashx>

The Racial Equity Index: A New Data Tool to Drive Local Efforts to Dismantle Structural Racism, National Equity Atlas, July 23, 2020, <https://nationalequityatlas.org/research/index-findings>

About the Panel

Jeff Kingsbury Panel Chair Indianapolis, Indiana

Kingsbury has over 30 years of experience in the planning and development of communities throughout the United States, encompassing more than 35,000 acres. He has been a principal in the development and disposition of over \$630 million in real estate and consulted on master planning, economic development, and regulatory issues for private-sector clients as well as cities, counties, and nonprofits in 16 states.

In 2019, he cofounded Ancora Partners, a Durham-based leading developer, owner, and operator of university and health system-anchored real estate in U.S. knowledge markets. The firm is the lead developer of Electric Works, an adaptive use of a former historic GE campus into a \$286 million mixed-use innovation district in Fort Wayne, Indiana. In 2005, he founded and served as managing principal of Greenstreet Ltd., an Indianapolis-based strategic planning and real estate practice.

Kingsbury has been a senior adviser to Cherokee, the leading private equity firm investing in brownfield redevelopment, with more than \$2 billion under management. He is the founding chairman of the Redevelopment and Reuse Council of the Urban Land Institute and served as chairman of the Sustainable Development Council, a juror for the Institute's Global Awards for Excellence, and an adviser for the Committee on Climate Change, Land Use, and Energy. With ULI Indiana, Kingsbury served as chair of Mission Advancement and works closely with the Central Indiana Council of Elected Officials to advance regionalism. He is a co-author of the book *Developing Sustainable Planned Communities* (ULI, 2007) and a peer reviewer of the text *Professional Real Estate Development*, 3rd Edition (ULI, 2012).

Kevin Bates Greensboro, Georgia

Bates graduated from Stanford and has over 30 years of experience as a commercial real estate developer in Silicon Valley.

He handles all aspects of the development process and has personally completed more than 50 buildings totaling over 2.5 million square feet.

His focus is on retrofitting existing commercial buildings to net zero energy, with carbon neutrality and a strong emphasis on the health and wellness of the interior environment for the occupants. The driver for Bates is to demonstrate that this way of repurposing existing building stock can be done in a manner that is more profitable for the ownership than the less expensive way of building to meet minimum code. He does this by weaving together innovative technology and products with time-tested passive methodologies to maximize what nature gives us for free and to create a fabric of sustainability that is cost effective. Every decision is based on where the vectors of efficiency, cost effectiveness, and the experience of the occupants intersect. It is a very thoughtful, holistic approach, which results in assets that are quantifiably more profitable and significantly healthier for the occupants than a standard renovation.

Jose Bodipo-Memba Sacramento, California

Bodipo-Memba is the director of sustainable communities for the Sacramento Municipal Utility District (SMUD). The Sustainable Communities program aims to bring environmental equity, mobility access, and economic vitality to all communities in SMUD's service area through partnership alignment. Bodipo-Memba has spent over 18 years managing development projects associated with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). He is the program manager for SMUD's Long Range Asset Management Plan and the environmental compliance coordinator for the 5,000-acre Solano Wind Project in Rio Vista, California.

Bodipo-Memba's development projects have covered a range of technical areas including greenfield specific plan development, infill development, school and facilities planning, site feasibility analysis, wind energy, and infrastructure improvement. With direct project experience throughout California, he has shown the versatility needed to address the variety of environmental and planning issues cities face.

Bodipo-Memba is active in the community, serving on the Sacramento Planning and Design Commission, the Center for Fathers and Families board of directors, the North

State Building Industry Association board of directors, chair of ULI Sacramento, and a member of the ULI National PDIC. He is the past chair of Next Move Sacramento and the Nehemiah Emerging Leaders Program board.

He was a 2010 recipient of the *Sacramento Business Journal* 40 under 40 award, the 2012 Drexel University Oxholm Award for Community Leadership, and the 2015 Drexel University 40 under 40 Distinguished Alumni award. Bodipo-Memba holds a BA in history from the University of California at Berkeley and an MBA from Drexel University.

Page Bolin Arvada, Colorado

Bolin is a senior project developer for Community Energy Inc., a national utility-scale solar energy project developer. In her current role, she leads land acquisition/leasing, landowner partnership management, and planning and entitlement components for her projects. She brings over 30 years of diverse land planning and development experience to her team.

Before her current position, Bolin spent nine years working for the Colorado State Board of Land Commissioners as a commercial real estate specialist, providing acquisition, disposition, and value-add expertise to the

School Trust portfolio of urban commercial assets. She led the acquisition of over \$50 million in commercial assets and the disposition of over \$15 million in underperforming assets. She also led the creation and implementation of the Land Board's Renewable Energy Leasing Program, doubling renewable energy leasing revenue for the Trust between 2014 and 2018. She brings valuable insight into the permitting processes of the communities in which she is working. Her background in all segments of land development and her skill in successfully entitling a diverse portfolio of projects has given her a comprehensive understanding of how to anticipate community needs and efficiently navigate local processes to get projects approved.

Bolin holds a bachelor's degree in environmental design from the University of Colorado at Boulder, a master's in urban and regional planning from the University of Colorado at Denver, and a certificate in energy and sustainability from the University of Denver.

Marta Schantz Washington, D.C.

Schantz is the senior vice president for ULI's Greenprint Center for Building Performance, a worldwide alliance of real estate owners committed to improving the environmental performance of the industry—reducing

carbon and increasing building value. Through measurement, benchmarking, knowledge sharing, and implementation of best practices, Schantz leads Greenprint and its members as they strive to reduce greenhouse gas emissions 50 percent by 2030 and achieve net zero carbon operations by 2050. She brings deep experience in the real estate sustainability market to lead and collaborate across organizations and stakeholders to achieve program goals and successes. Recent focus areas range from city/real estate partnerships for climate policy to embodied carbon in real estate, to class B/C office energy efficiency.

Before her time at ULI, Schantz consulted on utilities and real estate at Waypoint Energy, performed federal energy consulting at Booz Allen Hamilton, and conducted energy project cost analyses at the U.S. Department of Energy. She is a LEED Green Associate and a Fitwel Ambassador. She holds a BS in biological engineering with a minor in science technology and society from the Massachusetts Institute of Technology.

Molly Simpson **Boston, Massachusetts**

Simpson is a manager for the Fannie Mae Multifamily Green and Healthy Housing Financing. In this capacity, she focuses on

developing and implementing financing products that increase the sustainability of the country's multifamily housing stock.

Before joining Fannie Mae, Simpson was the senior manager of the District of Columbia's Department of Energy and Environment's Solar for All program where she led the strategic planning and implementation of an ambitious plan to serve 100,000 households with solar electricity and reduce energy burdens by 50 percent by 2032. During her tenure at the department, Simpson also served as the housing affordability and green program analyst in the Urban Sustainability Administration. In this interagency role, Simpson worked across agencies expanding capacity for green building programs and catalyzing sustainability policies in the residential sector, with an emphasis on housing affordability.

Before that, Simpson was the manager of the ULI Terwilliger Center for Housing where she was responsible for developing and implementing educational and research programs related to housing policy and practice. She has also worked in sustainability policy and practice at the U.S. Department of Housing and Urban Development and as a consultant to federal clients including the U.S. Environmental Protection Agency and U.S. Centers for Disease Control and Prevention.

Simpson holds a master's degree in sustainable urban planning from George Washington University and a bachelor's in environmental studies with concentrations in political studies and economics from Bard College.



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