



# City of SACRAMENTO

## EXISTING BUILDING ELECTRIFICATION

### Frequently Asked Questions

Updated January 2024

On June 1, 2021, the Sacramento City Council adopted a framework for existing building electrification ([Resolution No. 2021-0166](#)). The framework defines how the City will develop a strategy to transition existing buildings to all-electric by 2045. Electrification of existing buildings is a crucial step in the City's work to achieve carbon neutrality and advance equity.

The City is preparing an Existing Building Electrification Strategy that will serve as a long-term roadmap, outlining subsequent policies, programs, and actions for the City to implement, as well as recommended phasing.

#### What is existing building electrification?

Transitioning Sacramento's existing buildings to all-electric means replacing natural gas or propane appliances with electric alternatives, such as electric heat pump space heating and water heating, cooktops, ovens, ranges, and dryers. In some cases, electrical panel upgrades, sub-panels, or other retrofits may be necessary. There are also opportunities to pair electric appliance retrofits with solar photovoltaic arrays, battery storage, weatherization improvements, and energy efficiency upgrades to further reduce energy use and costs.

#### Why is the City developing a strategy for existing building electrification?

All-electric buildings reduce greenhouse gas emissions, improve public health and safety, and provide cost benefits. The City has committed to developing an equitable electrification pathway that avoids bill increases and ensures that benefits flow to historically marginalized communities.

- **Achieving carbon neutrality:** All-electric buildings are an essential part of Sacramento's path to carbon neutrality. By replacing appliances powered by fossil fuels with appliances that use renewable electricity, Sacramento can significantly reduce greenhouse gas emissions from the building sector. SMUD, a core partner in the City's electrification work, - has committed to providing 100% carbon-neutral electricity by 2030.<sup>1</sup> All-electric buildings that use SMUD's 100% renewable electricity will be zero-emission.
- **Public health:** Reducing natural gas and propane use improves both indoor and outdoor air quality, with important public health benefits.
  - Indoors, burning gas in household appliances produces nitrogen oxides, carbon monoxide, formaldehyde, and other harmful pollutants that increase the risk of

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<sup>1</sup> SMUD's carbon-free energy resources include large hydroelectric. Currently, SMUD's power is approximately 30% eligible renewable for purposes of California reporting, which excludes large hydroelectric. On April 28, 2021, SMUD's Board of Directors adopted the [2030 Zero Carbon Plan](#), which establishes the commitment to zero carbon for SMUD's energy resources by 2030.

respiratory disease.<sup>2,3,4,5</sup> For example, living in a home with a gas stove may increase children’s risk of asthma by 42%.<sup>6</sup> Low-income households may particularly benefit from building electrification because they are more likely to live in substandard housing with worse indoor air quality.

- Reducing combustion of gas and propane in buildings also decreases formation of harmful pollutants outdoors, including nitrogen oxides and ozone. The gas and propane burned in buildings generate six times more emissions of nitrogen oxides than all in-state power plants combined<sup>7(OBJ)</sup>. Reducing nitrogen oxides emissions decreases formation of ground-level ozone, a major pollutant in the Sacramento region<sup>8(OBJ), 9(OBJ)</sup>. Improving outdoor air quality is particularly impactful for <sup>10(OBJ)</sup> which are often located in areas with greater air pollution.
- **Cost Savings:** Although electrification retrofits to existing buildings may have upfront costs, retrofits including heat pump water heating and space heating, ventilation, and air conditioning are cost-effective for single-family homes and low-rise multi-family buildings in Sacramento.<sup>11</sup> Due to advances in technology and [federal](#), [state](#), and [local](#) incentives, upfront costs for electric options are increasingly competitive compared to gas options and are expected to be less expensive for some Sacramento households. All single-family homes in Sacramento are projected to see on-bill cost savings with whole home electrification, yielding ongoing cost savings.
- **Fire Safety:** Transitioning to all-electric buildings decreases the risk of natural gas leaks, explosions, and fires. Nationwide, natural gas ignites over 4,000 home structure fires annually, causing on average 40 deaths and \$54 million in property damage per year.<sup>12</sup>

<sup>2</sup> Krasner, A., Jones, T. S., & La Rocque, R. (2021) Cooking with Gas, Household Air Pollution, and Asthma: Little Recognized Risk for Children. *Journal of Environmental Health*, 83(8), 14-18. <https://www.proquest.com/scholarly-journals/cooking-with-gas-household-air-pollution-asthma/docview/2505418593/se-2?accountid=201395>.

<sup>3</sup> Seals, B., & Krasner, A. (2020). *Health Effects from Gas Stove Pollution*. Rocky Mountain Institute, Physicians for Social Responsibility, Mothers Out Front, and Sierra Club. <https://rmi.org/insight/gasstoves-pollution-health>.

<sup>4</sup> Zhao, H., Chan, W. R., Cohn, S., Delp, W. W., Walker, I. S., & Singer, B. C. (2020) Indoor air quality in new and renovated low-income apartments with mechanical ventilation and natural gas cooking in California. *International Journal of Indoor Environment and Health*, 31(3), 717-729. <https://doi.org/10.1111/ina.12764>

<sup>5</sup> Logue, J. M., Klepeis, N. E., Lobscheid, A. B., & Singer, B. C. (2014) Pollutant exposures from natural gas cooking burners: A simulation-based assessment for Southern California. *Environmental Health Perspectives*, 122(1), 43-50. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3888569/>.

<sup>6</sup> Weiwei, L., Brunekreef, B., & Gehring, U. (2013). Meta-analysis of the effects of indoor nitrogen dioxide and gas cooking on asthma and wheeze in children. *International Journal of Epidemiology*, 42(6), 1724–1737. <https://doi.org/10.1093/ije/dyt150>.

<sup>7</sup> California Air Resources Board. 2016 SIP Emission Projection Data: 2012 Estimated Annual Average Emissions. <https://www.arb.ca.gov/ei/emissiondata.htm>

<sup>8</sup> Sacramento Metropolitan Air Quality Management District. (2021). Air quality pollution and standards. <http://www.airquality.org/air-quality-health/air-quality-pollutants-and-standards>

<sup>9</sup> American Lung Association. (2021). *State of the Air 2021*. <https://www.lung.org/research/sota>

<sup>10</sup> Senate Bill 535 (De León, Statutes of 2012) defines disadvantaged communities as areas disproportionately burdened by multiple sources of pollution and/or high rates of poverty. The California Environmental Protection Agency identifies disadvantaged communities using [CalEnviroScreen](#), a tool of the Office of Environmental Health Hazard Assessment.

<sup>11</sup> E3 Energy and Environmental Economics, Inc. (2019). *Residential Building Electrification in California*. [https://www.ethree.com/wp-content/uploads/2019/04/E3\\_Residential\\_Building\\_Electrification\\_in\\_California\\_April\\_2019.pdf](https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf)

<sup>12</sup> Ahrens, M. & Evarts, B. (2018). *Natural Gas and Propane Fires, Explosions and Leaks Estimates and Incident Descriptions*. National Fire Protection Association. <https://www.nfpa.org/-/media/Files/News-and-Research/Fire-statistics-and-reports/Hazardous-materials/osNaturalGasPropaneFires>.

**What electrification incentives are available in Sacramento?**

SMUD currently provides industry-leading incentives to support building electrification. These include [rebates for businesses](#) as well as [home rebates](#). SMUD also offers several other programs for income -eligible customers, including the Energy Assistance Program Rate for low-income households and non-profits, and energy efficiency and building electrification retrofits in collaboration with community partners like [Habitat for Humanity](#). [TECH Clean California](#) provides incentives for heat pump HVAC systems and heat pump water heaters. There are additional federal incentives for electrification through the [Inflation Reduction Act](#), including up to 100% up front cost coverage for low income households, and tax credits that are available regardless of income.

Additional incentives are also available in early pilot projects, where the City is leveraging additional complementary resources. For example, with funding from the American Rescue Plan Act, the City is partnering with the Sacramento Hispanic Chamber of Commerce Foundation and SMUD to electrify approximately 33 businesses in the Northgate Boulevard area. The City and SMUD have also partnered to secure \$410,000 for electrification and energy efficiency retrofits for at least 25 low-income homes in the Stockton Boulevard area, as part of the City's home rehabilitation program. Additional SMUD-led electrification pilots are underway that leverage weatherization resources and incentives.

**Will the City require me to replace my gas stove or retrofit my building?**

With adoption of the strategy, the City will not establish mandatory requirements for immediate appliance replacements or building retrofits. As the City's long-term guiding policy document, the existing building electrification strategy will recommend actions to advance electrification in a manner that equitably distributes benefits and minimizes negative impacts, with a focus on historically marginalized low-income people of color and small local businesses. The City and partners will conduct extensive community engagement to develop recommended actions to transition existing buildings to all-electric by 2045.

**What types of buildings will be affected?**

The existing building electrification strategy will examine opportunities to transition single family and multi-unit residential as well as commercial existing building types to all-electric. While recommendations will vary by building type, the strategy will provide a holistic policy approach to achieve the City's goal of transitioning all existing buildings to carbon-free electricity by 2045.

**Why is the City not contemplating requirements for schools and other State buildings?**

The City does not have jurisdictional authority over building requirements for K-12 schools, community colleges, and other buildings owned by the State. These buildings follow requirements from the [Division of the State Architect](#) (DSA). However, in partnership with the New Buildings Institute, the DSA released the [Decarbonization Roadmap Guide for School Building Decision Makers](#) in 2022, and Sacramento City Unified School District adopted [Resolution 3348: Carbon Neutral Goals and Guidelines for SCUSD Buildings](#) in October 2023.

**How will existing building electrification affect homes and businesses?**

The existing building electrification pathway will identify specific recommended policies, programs, and funding needs and financing opportunities to transition existing buildings to all-electric energy by 2045. Policies and programs may include recommended incentives, standards, and assistance for replacing gas appliances with electric alternatives. Expanding current programs that offer weatherization services, energy efficiency upgrades, and rooftop solar may also support the transition to all-electric buildings. The final strategy will provide the City's roadmap to achieve Council's goals for electrification of the existing building stock. As a strategy, the document will provide a task list of additional actions for the City, SMUD, and other partners to complete in order to achieve the long-term goal of decarbonizing Sacramento buildings by 2045.

**What will happen to businesses that use specialized equipment that do not have feasible electric alternatives?**

Implementation of the Existing Building Electrification Strategy will be a phased approach that allows for ongoing technological development. Different policies and programs will go into effect at different times following adoption of the Strategy. Although there are already commercially available electric options for many specialized end uses (e.g., coffee roasters, pizza ovens), some equipment is still not available or cost-effective. The commercial building strategy prioritizes a performance-based approach that allows for flexibility for building owners who may have specialized equipment.

**How will the City make sure that low-income households benefit from existing building electrification and are not burdened with up-front costs?**

Ensuring that all Sacramento residents benefit from the electrification of existing buildings and can afford their energy bills is part of the "equity criteria," or core principles, that the City has developed to guide development of the Existing Building Electrification Strategy. Any program or policy would need to support these principles to be included in the Strategy. To start advancing these goals now and learn lessons that can inform the Strategy, the City applied for and received pilot funding to combine holistic home repairs with electrification retrofits in partnership with the City's Housing Anti-Displacement Program. Taking a whole-home approach is important to realizing the full benefits of building electrification, including resident comfort and health, affordable energy bills, resilience and safety, and greenhouse gas emission reductions. In addition, modeling results indicate that every home in Sacramento is projected to see utility bill savings with whole-home electrification, and analysis on up-front costs of electrification indicate that retrofitting appliances at the end of their useful life to high efficiency electric is often similar, or in some cases cheaper than a "like-for-like" gas replacement. Part of the City's role in the transition to electric appliances will be to provide information so households can "stack" incentives to keep the up-front cost of electrification as low as possible. All-electric buildings will save low-income households money on utility bills, a benefit that will increase over time as gas prices increase.

**If I have an older home, will I need to upgrade my electrical service in order to make the transition to all-electric appliances?**

There are some instances where homes will need to upgrade their electrical panel in order to make the transition to all electric appliances but advances in technology is making this increasingly rare. In many cases, power efficient appliances and circuit-sharing devices can help homes safely avoid upgrading their electrical panels. In addition, [SMUD](#) and the [Inflation Reduction Act](#) provide rebates and tax credits that can significantly reduce costs for households that do need to upgrade their electrical panel. Avoiding unnecessary panel upsizing may be particularly important for homes with underground wiring, where panel changes can be more complicated and costly.

<https://www.cityofsacramento.org/Community-Development/Code-Compliance/Tenant-Protection-Program>

### **How will the City protect tenants from pass through costs and/or "renovictions" due to electrification?**

Affordable housing and anti-displacement are included in the "equity criteria" developed to support the Existing Building Electrification Strategy and will be central to our policy development. In addition, our recently adopted Housing Element includes a program to strengthen tenant protections, and the current Tenant Protection Act will be revisited prior to its sunset date of December 31, 2024.

### **Are all-electric homes more vulnerable in the case of a power outage?**

Though it may seem that an all-electric home would be more vulnerable in the case of a power outage, most modern gas appliances also require electricity to run. In addition, electric retrofits can be paired with solar panels and battery storage, which creates a more resilient system in the case of an unexpected power outage. There is also evolving vehicle to home and vehicle to grid technology, where electric vehicles can be used to power a home in the case of a power outage.

### **Is the grid ready? What is SMUD doing to upgrade electrical infrastructure to accommodate increased load?**

SMUD is constantly working to ensure and improve reliability of the electric grid through a range of infrastructure improvement projects. You can learn more about projects underway [HERE](#). In addition, Sacramento is uniquely prepared to make the transition to all electric buildings due to the high prevalence of air conditioning systems in our region. Our peak demand for electricity happens in the summer when customers are running their air conditioners. Switching to all-electric heat pump HVAC systems will eventually create a new winter peak when customers run their heaters during cold weather. However, because heat pump systems are significantly more efficient than conventional air conditioners and gas furnaces, this new winter peak is not expected to be higher than our existing summer peak. With smart load shifting technologies that are available with equipment such as car chargers and heat pump water heaters, we can spread the electricity demand out throughout the day, which minimizes costs for customers and helps the grid meet demand.

### **Are other cities also working on building electrification?**

Many other cities across California and the country are developing strategies to transition their building stock to all electric. Berkeley and San Jose have developed Existing Building Electrification Strategies. Oakland, San Francisco, San Luis Obispo, South San Francisco, and many other cities and counties have plans in progress. In Sacramento County, the City and County of Sacramento and the City of Elk Grove are collaborating to advance electrification projects, policies, and activities for electrification together with SMUD, as committed in a 2022 Memorandum of Understanding.

### **How can I learn more about retrofit opportunities for my home?**

The City of Sacramento has partnered with SMUD and Vistar Energy's Xerohome to provide custom energy modeling for all residents of single family and duplex homes in Sacramento. [Xerohome](#) provides information on home energy use, estimated up-front costs, available rebates, and projected bill savings for electrification retrofits.