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San José Building Electrification: Frequently Asked Questions

Electrification Basics

1. What is building electrification?

Building electrification refers to the replacement of fossil fuel-based systems with highly efficient electric appliances. These fossil fuel systems include gas-powered water heaters, furnaces, clothes dryers, and stoves. Electrification will shift how San José buildings generate heat and hot water, dry clothes, and power gas stoves and ovens.

2. Why is building electrification important?

Climate science highlights the urgent need to reduce fossil fuel consumption to prevent the catastrophic effects of climate change. In San José, the building sector is the second largest source of greenhouse gas (GHG) emissions. The use of natural gas in buildings accounts for the largest portion of the City's total building emissions. Burning natural gas in buildings is not only detrimental to the environment but is also associated with negative health impacts and risks of dangerous fires and explosions. The City of San José has established ambitious GHG reduction goals aimed at achieving carbon neutrality and enhancing indoor health and safety. To support the community's transition to building electrification, the City is evaluating and implementing various initiatives

3. What are the benefits of electric appliances over natural gas appliances?

There are numerous benefits to switching homes from gas to electric appliances:

- Healthier and Safer: Removing gas appliances from buildings improves air quality and creates safer homes and businesses. Electric technologies eliminate indoor air pollutants by avoiding the combustion of fossil fuels, which also reduces the risks of fire and burns.
- Potential Lower Costs and Higher Efficiency: Energy-efficient electric alternatives may result in lower energy bills by maximizing energy use and enabling active management. Additionally, these technologies can result in operational cost savings and are becoming increasingly common and affordable.
- Climate Action: All-electric homes significantly reduce greenhouse gas (GHG) emissions, a major contributor to climate change. In California, electricity is sourced from clean, renewable resources such as solar, wind, geothermal, and hydropower. Using electricity to power appliances results in considerably lower emissions compared to natural gas.

4. What is a heat pump and why is it important to electrification?

Heat pumps operate similarly to refrigerators; they use electricity to *transfer* heat rather than *produce* it. Various home appliances utilize this technology, including space heating and cooling systems, water heaters, and clothes dryers. Heat pumps come in several configurations, including indoor and outdoor units as well as ducted and ductless options.

Heat pump HVAC (heating, ventilation, air conditioning) systems pull heat from outside for heating indoors and pull out heat from indoors for cooling. Heat pump water heaters (HPWH) work by transferring heat from either indoor or outdoor air into a storage tank to heat water.

Heat pump systems are significantly more efficient than their natural gas or electric resistance counterparts. They produce the same amount of heat using much less energy. These energy-efficient appliances play a crucial role in increasing electricity use in building systems, especially as electricity generation transitions to mainly renewable sources.

Electric Upgrades

5. What are the different types of electric upgrades that I can make to my home and what should I do first?

Upgrades that residents can make to support home energy-efficiency, electrification, and resiliency include:

- Induction cooktops and ranges
- LED lighting
- High-efficiency electric washer/dryer
- Heat pump HVAC
- Heat pump water heater
- Rooftop solar
- Battery storage
- Electric pool heater
- High-efficiency electric dishwasher and refrigerator
- Electric vehicle
- Weatherization

With numerous all-electric alternatives available, working with an advisor to develop a plan for your home is a great place to begin. Refer to Question 11 to learn about the resources that are available to help you begin the home electrification process. The City’s Climate Smart San José Building Electrification webpage includes information about electrification educational opportunities and the Induction Cooktop Checkout Program. Additionally, San José Clean Energy's Going Electric webpage provides more details on residential electrification, electric appliances, and the available rebates and incentives.

6. Will I need an electrical panel upgrade if I want to switch from natural gas to electric appliances in my home?

The panel voltage needed to electrify a home depends on the home's energy load, so homeowners should consult a contractor and get an inspection to answer their specific questions and to avoid upgrading beyond what is necessary. Peninsula Clean Energy found that 100 amps was enough to power 99% of the homes they analyzed, and many were not close to maxing out this limit. Additionally, there are many electrification strategies that can be taken to avoid an upgrade, such as using plug-in options, load sharing technology, lower-powered machines, smart panels, and more. Watch the Avoiding Panel Upgrades webinar from our 2024 Home Electrification Webinar Series to learn more. Panel upgrades are needed in certain cases to add more capacity, but this should be determined by a licensed contractor.

7. Can I make electric upgrades to my home or apartment if I am a renter?

There are multiple opportunities for renters to electrify their homes. Renters can apply for certain rebates and may be able to upgrade to portable units if it follows their landlord's protocols. The Switch is On provides information about how renters can begin to electrify their kitchens and details various programs that are available to help with this process. BayREN also offers tips for how renters can control their energy costs. Renters should consider talking to their landlords about the long-term savings and numerous safety, health, and environmental benefits of electrifying.

Costs/Incentives

8. How much will it cost to make my home all electric and is it worth it?

The cost-benefit analysis of electrification varies for each household and depends on factors such as the size of the solar panels, the existing equipment, and the alternatives being considered. A 2022 analysis of residential building electrification by the Building Electrification Institute (BEI) found that without evaluating the incentives, rebates, and/or grants that could be used, a full electrification retrofit for single-family homes is

$3,000-$4,000 higher than a retrofit to new gas equipment with central cooling (San José Customer Economics Analysis for Residential Building Electrification). Currently, there are rebates and incentives available to assist homeowners and renters in electrifying their homes and upgrading their electrical panels. For information on the various resources that can help identify available incentives to offset the upfront costs, please refer to Question 9.

9. Are there incentives or programs that can help reduce the costs of making electric upgrades?

Many programs at the local, state, and federal levels provide rebates and incentives to support building electrification.

The San José Clean Energy Going Electric webpage includes resources for electrification incentives, including The Switch is On Incentive Finder that allows customers to discover what is available to them.

Additionally, the City of San José is offering incentives to single- and multifamily households to help residents make their homes energy-efficient and electric, including an on-bill financing program to help with upfront costs. Please see current information about the City's EcoHome Rebate Program and EcoHome Payment Plan.

10. I have a limited income, are there special or additional incentives for me to upgrade my home?

Currently through San José Clean Energy's EcoHome Rebate Program, households located in disadvantaged communities or that qualify for public assistance programs may be eligible to receive additional support from the various incentives that currently exist. There are also special programs to help low-income families electrify their homes. The Low Income Home Energy Assistance Program (LIHEAP) is one resource that offers support for energy bills, equipment repairs and replacements, weatherization services, and additional energy-efficiency upgrades. Additionally, GRID Alternatives Energy for All is a state-funded program that helps low-income households access energy savings, clean energy, and job training opportunities. Homeowners with limited income can utilize Incentive Calculators to find out how much money they can receive from each incentive to calculate their total savings for home electrification projects.

Electrification Resources

11. I am overwhelmed by all the information out there on home electrification, how can I get started and is there anyone that can help me?

There are many steps in energy conservation that residents can take to improve their home's energy-efficiency before taking on larger electrification projects. Upgrading lighting to LEDs, turning off unnecessary lights and power strips, air-drying clothing, and improving home-weatherization are just a few options. Many organizations and programs also offer guidance to help building owners transition to electrification. BayREN has highly trained professionals that provide specialized energy consultations and Home Energy Advisors that will guide you through your home energy projects.

12. How do I find a contractor for an electrification-based project?

Many services such as The Switch is On will locate high quality contractors that can meet the needs of your home electrification projects. The San José Clean Energy Going Electric webpage also offers rebates and resources for contractors to get acclimated with building electrification services.

13. What steps has the City taken to support building electrification?

The City of San José has conducted significant community outreach and engagement related to building electrification, including:

- Meeting with community-based organization partners and others to ensure the perspectives of vulnerable communities are included, while also communicating with labor organizations, environmental organizations, nonprofits, and housing organizations.
- Community forums with community-based organizations, labor organizations and housing organizations.
- Virtual public information sessions to share the development of the framework for existing building electrification.
- Offering incentives to single-family and multifamily households in the City of San José to electrify their homes.
- Creating electrification trainings and workshops through a Home Electrification Webinar Series.
- Providing Residential Express Service that enables permit issuance on the same day of appointment for qualifying projects. that enables permit issuance on the same day of appointment for qualifying projects.

Electric Power Grid

14. Will California's electrical grid be able to withstand the increased electricity demand brought on by electrification?

As the demand for electrification grows, new electricity generation and transmission lines will be constructed over time to enhance grid resiliency. San José Clean Energy (SJCE) and other electric utilities are making significant investments in long-duration storage, grid upgrades, and renewable energy to ensure that the infrastructure can handle any increases in electricity demand. Technological advancements that require less energy will also make all-electric homes more efficient, resilient, safe, and reliable compared to those powered by gas. However, individuals can still play a role by conserving energy and implementing energy-efficient improvements to reduce the overall load and increase the grid's capacity.

SJCE offers three distinct Peak Reward Programs for residential customers, residential customers with smart devices, and commercial customers. These programs will pay customers to reduce their energy consumption during peak times to prevent stress on the electricity grid Participants will receive notifications when they are encouraged to lower their energy usage.

To learn more about this program, visit San José Clean Energy's Peak Rewards Program webpage.

15. How will electrification impact my home during power outages?

Many modern gas appliances no longer function during power outages because they require electricity to operate. Additionally, gas infrastructure is particularly vulnerable to fires and earthquakes. In contrast, electric appliances can be paired with local backup systems and controls that enable remote management of their usage. For example, solar panels combined with a home storage battery can enhance a home's resilience during blackouts by allowing certain circuits to remain operational. Furthermore, upgrading to more resilient infrastructure is essential to protect residents from power outages caused by extreme weather. Investing in clean energy now will also help minimize the impacts of severe weather conditions in the long term.

Permits

16. Will I need a building permit to replace my gas water heater or furnace?

Yes. Projects bigger than surface-level improvements or minor repairs and replacements typically require at least one type of building permit. Your installation contractor will need to apply for a permit with the City's Building Division. For more information, call or visit the Permit Center at San José City Hall.

Other

17. How long will it take to make my home all electric?

Rather than replacing all natural gas appliances at once, homeowners can replace them at the end of their life span, as part of a major renovation, or as more rebates and incentives become available. Homeowners should create a plan to incrementally electrify their home over time, which can take up to several years. If residents prefer to do everything all at once, electrifying everything in the home can be done in several months.

18. Am I required to get rid of my gas-powered appliances, even if they are new?

No. The California Air Resources Board (CARB) and the Bay Area Air Quality Management District (BAAQMD) are implementing policies to phase out the sale of new gas appliances and systems.

BAAQMD has established regulations that will ban the sale of gas water heaters starting in 2027 and gas furnaces beginning in 2029. It's important to note that this does not require individuals to stop using their current gas-powered appliances or to replace them immediately. Instead, it means that new gas appliances cannot be purchased. Any replacements that are necessary must be zero-NOx compliant, which currently only electric models meet.

19. What are the benefits of home battery storage?

Home batteries help shift energy usage from peak times, when electricity is more expensive, to off-peak times, when it costs less. This can lead to significant savings on electricity bills. These savings are even greater when the battery is used in conjunction with solar panels, as any excess solar energy produced can be stored for later use instead of being sent back to the electric grid. Additionally, home batteries can power essential appliances, like refrigerators and lights, during power outages. There are currently incentives available for homeowners to install battery storage systems, along with federal tax credits.

Please email climatesmart@sanjoseca.gov with any additional questions.