



COUNTY of VENTURA

Resource Management Agency
Building and Safety Division

Electrification is about more than just the climate.

In addition to reducing greenhouse gas emissions, all-electric buildings improve health, safety, resiliency, and cost.

La electrificación se trata de más que solo el clima.

Además de reducir las emisiones de gases de efecto invernadero, los edificios totalmente eléctricos mejoran la salud, la seguridad, la resiliencia y el costo.

HEALTH/SALUD



Electric appliances improve indoor air quality.

Los electrodomésticos mejoran la calidad del aire interior.

RESILIENCY/RESILIENCIA



Electric appliances provide greater resiliency when paired with solar and battery storage.

Los electrodomésticos eléctricos proporcionan una mayor resiliencia cuando se combinan con energía solar y almacenamiento de batería.

SAFETY/SEGURIDAD



All-electric buildings reduce the risk of gas leaks, fires, and explosions from gas infrastructure.

Los edificios totalmente eléctricos reducen el riesgo de fugas de gas, incendios y explosiones de la infraestructura de gas.

COST/COSTO



All-electric buildings cost less to build, and modern electric appliances are more energy efficient.

Los edificios totalmente eléctricos cuestan menos para construir, y los electrodomésticos modernos son más eficientes energéticamente.



For more information, visit [vcrma.org/en/divisions/building-and-safety](https://www.vcrma.org/en/divisions/building-and-safety) or call 805-654-2771.

Para obtener más información, visite www.vcrma.org/divisions/building-and-safety o llame al 805-654-2771.



Frequently Asked Questions for All-Electric Building

All-electric Overview

1. What is an all-electric building?

An all-electric building is one that runs on electric appliances and equipment rather than appliances that rely on fossil fuels such as natural gas. Common electric appliances include heat pump space heaters, heat pump water heaters, induction stoves and ovens, and electric clothes dryers. In new all-electric buildings, buildings are constructed to run solely on electricity—gas infrastructure is no longer installed during construction. Existing buildings often have *both* electric and gas infrastructure to power the appliances mentioned above and therefore require both electricity and gas. Building electrification (also called building decarbonization) is the process of phasing out the existing gas appliances by replacing them with electric alternatives in these existing buildings.

2. What are the drivers behind electrification in CA?

California has committed to achieving carbon neutrality and supporting the overall goal of reducing anthropogenic (e.g., human induced) greenhouse gas emissions by 85 percent below 1990 levels no later than 2045. To meet these targets, the state must transition away from burning fossil fuels. Buildings are significant emitters of greenhouse gas emissions because they rely heavily on fossil fuels to produce energy. One necessary step in reducing the state's emissions is to electrify buildings by replacing gas infrastructure and appliances with electric alternatives.

3. How does climate change affect the County?

Climate change is anticipated to effect Ventura County in multiple ways, especially with changes to temperature and precipitation patterns. Annual average temperatures are likely to increase 1.7-3.3°C (3-6°F) by 2090. The number of extreme heat days per year is expected to increase significantly, by 16 days in 2045 and by 75 days in 2099. Changes in precipitation patterns are also expected to lead to prolonged periods of drought and to more intense rain events that may result in more flooding, extensive and longer durations of flooding, permanent inundation in coastal areas due to higher ocean levels and shifts in the tidal range, increased shoreline erosion, and elevated groundwater levels and salinity intrusion. These changes in temperature and precipitation patterns may also result in a 15 percent increase in the potential amount of area burned by wildfire by 2085.

Source: Training PPT

4. Why do we need to electrify our buildings/Why is the County going beyond the State building code requirements?

Greenhouse gas emissions have increased by 50 percent since the industrial revolution and continue to increase at a rate of two parts per million every year. By the 2030s, and no later than 2040, the world will exceed 1.5°C (2.7°F) warming unless we take drastic action to reduce our greenhouse gas emissions. If warming continues, it is likely we will see unprecedented climate change impacts—increasing heat waves, more intense storm events and flooding, and longer periods of drought—that could reach critical tolerance thresholds for human health and agriculture. As electrification increases, many businesses will need to retool and shift production needs as consumers change purchasing decisions to include electric technologies and services (for example, heat pumps and electric water heaters). Going beyond the minimum state building code requirements helps prepare County businesses for what many expect to be a much more carbon-conscious economy in the future.



Building energy consumption in Ventura County, dominated by natural gas usage, accounts for 17 percent of local emissions. To support statewide climate goals, the County has implemented Program HAZ-AA of the Ventura County General Plan Update 2040 to reduce local emissions from buildings. This program required the County to amend the County Building Code and establish an all-electric ordinance that prohibits natural gas connections to new residential and commercial buildings in the County. It also requires large renovations and remodels to transition to all-electric as well. The all-electric ordinance became effective on January 1, 2023.

5. What are the benefits of all-electric buildings?

In addition to reducing greenhouse gas emissions, all-electric buildings improve health, safety, resiliency, and cost.

- Health: Electric appliances improve indoor air quality.
- Safety: All-electric buildings reduce the risk of gas leaks, fires, and explosions from gas infrastructure.
- Resiliency: Electric appliances and buildings provide greater resiliency when paired with solar and battery storage.
- Cost: All-electric buildings cost less to build, and modern electric appliances are more energy efficient.

6. When is all-electric required in the County of Ventura?

The all-electric requirement applies to all new residential and commercial buildings. It also applies to large additions where the addition is greater than 50% of size of main building and remodels where the remodel is greater than 50% of the value of the main building.

Source: Training PPT

7. What appliances/equipment does the ordinance apply to?

Certain appliances and equipment are exempt from the all-electric requirement in Ventura County. All-electric is not required for indoor and outdoor fireplaces and fire pits, outdoor grills, swimming pools and spa heaters, and emergency standby generators. All-electric is also not required in restaurants or other for-profit kitchens. Nonresidential buildings containing specialized commercial or industrial equipment that do not have a viable electric alternative for business use may also qualify for a modification. Contact the Ventura County Building and Safety Division at (805) 654-2771 for more details.

Source: Training PPT

8. Can I use propane gas equipment and appliances in my new home in lieu of all-electric?

Yes, propane gas is still allowed. The ordinance only bans natural gas connections and natural gas burning appliances and equipment.



Electric Appliances

9. Are electric appliances available?

Yes, modern electric appliances are readily available. They are available at most home improvement retailers and from virtually all local contractors. In addition, there are state and federal financial incentives available for many of these appliances now. Be sure to ask about available incentives when purchasing your appliances.

10. What is a heat pump water heater (HPWH) and how does it work?

HPWHs use electricity to move heat from one place to another instead of generating heat directly. To understand the concept of heat pumps, imagine a refrigerator working in reverse. While a refrigerator removes heat from an enclosed box and expels that heat to the surrounding air, a HPWH takes the heat from surrounding air and transfers it to water in an enclosed tank. During periods of high hot water demand, nearly all HPWHs have the ability to switch to standard electric resistance heat (hence they are often referred to as “hybrid” hot water heaters) automatically.

Source:

https://www.energystar.gov/products/water_heaters/high_efficiency_electric_storage_water_heaters/how_it_works

11. How does a heat pump water heater perform compared to its traditional electric and gas alternatives?

A heat pump water heater can be up to three times more efficient than gas or electric water heaters, offering both energy and cost savings. They also require no venting and provide good air filtration and dehumidification. When exploring different options to meet the needs of your household or business, review the first-hour rating to see how many gallons of hot water are produced in the first hour with a full tank.

Source: [Projects - 25251 Heat Pump Water Heater Fact Sheet r4 WCAG NB.pdf - All Documents \(sharepoint.com\)](#)

[Everything You Need To Know About Heat Pump Water Heaters – Forbes Home FAQs • Santa Rosa, CA • CivicEngage \(srcity.org\)](#)

12. What is a heat pump space heater and how does it work?

A heat pump is a space cooling and heating system that works by moving heat from one place to another. When it's cold outside, a heat pump extracts outside heat from the cold air and transfers it inside. When it's warm outside, it reverses direction and acts like an air conditioner, removing heat from your home.

13. How does a heat pump space heater perform compared to a traditional gas space heater?

An air-source heat pump, whether ducted or ductless, performs as well if not better than a gas space heater and has many benefits. Only one appliance is needed for both heating and cooling, it is energy efficient, provides air filtration and dehumidification, does not produce toxins like its gas alternative, and does not require a flue. It heats well even during cold outside air temperatures.

Sources: [Can Heat Pumps Actually Work in Cold Climates? – Consumer Reports](#)
[Even in Frigid Temperatures, Air-Source Heat Pumps Keep Homes Warm From Alaska Coast to U.S. Mass Market – National Renewable Energy Laboratory \(NREL\)](#)



14. What is induction cooking and how does it work? Do I need special cookware?

Induction cooking uses magnetism to cook food. It is *not* the electric resistance coils traditionally equated with electric cooktops. Instead of burning gas, an induction stove or cooktop reverses a magnetic field back and forth very rapidly, sending alternating magnetic energy into a metal pan or pot to heat it up. Most cookware available today is induction ready. All iron pans and most stainless steel are induction ready. Aluminum, copper and glass may also work if the bottom of the pan has an iron or steel plate. If a magnet sticks to the bottom of your pan, it is compatible with an induction stove.

Source: [Projects - Residential Induction Cooking Fact Sheet.pdf - All Documents \(sharepoint.com\)](#)

15. How does induction cooking compare to a traditional gas stove?

Most modern induction stoves are significantly more energy-efficient than their traditional gas counterparts. They heat pans faster, more evenly, and provide more accurate (delicate) temperature control. Induction cooking is also safer and healthier than gas stoves since they do not produce an open flame or emit toxic gases such as carbon monoxide and nitrogen dioxide. Interested in giving induction cooking a try? Visit your local Ventura County library to borrow an induction cookware kit that includes a portable induction cooktop, instructions, and a magnet to test your cookware for induction compatibility.

Source: [Projects - Residential Induction Cooking Fact Sheet.pdf - All Documents \(sharepoint.com\)](#)

16. Do electric ovens/ranges also use induction heating?

Standard electric ovens and stoves do not use induction cooking. Electric ovens and stoves heat food with thermal energy, rather than magnetism. While induction ranges are typically the top performing option, a standard electric resistance range is another, typically lower cost option, when going all-electric.

17. Will I need to upgrade my electric panel to accommodate electric appliances?

The electric panel size required for new construction by the state codes is sufficient for all-electric buildings. For retrofits, the electric panel is likely large enough if the building was built recently. If it is not, the Inflation Reduction Act provides rebates and tax credits for electrical panel upgrades that can significantly reduce costs if an upgrade is needed.

Sources: [Existing-Building-Electrification-FAQ-Jan2023.pdf \(cityofsacramento.org\)](#)

[All Electric Homes Benefits for Builders - YouTube](#)

18. Will I need additional solar panels?

Ventura County's all-electric building ordinance does not require additional solar panels beyond what is required in the Energy Code. Furthermore, for all building types where the Energy Code requires solar panels (e.g., single family, multifamily, and some nonresidential), the required quantity of solar panels is much less than the electrical usage of an all-electric building. In any case, adding solar panels is a cost-effective measure as long as not too many are added since electricity exports to the grid are not very valuable. Adding battery storage is a good way to mitigate exports if the first cost is not a barrier.

Source: [How Much Solar Power Do Electric Appliances Need To Run Properly? \(sunpowersource.com\)](#)



19. What is the cost to homeowners to build all electric? Do electric appliances cost more?

Building an all-electric, single-family home is less expensive than building a mixed-fuel home due to eliminating the costs incurred to install gas infrastructure. Monthly costs for an all-electric home compared to a mixed-fuel home can vary. Similar to gas appliances, electric appliances can also greatly vary in cost depending on their capacity and quality, but many electric appliances are comparable in price to their gas alternatives. Pairing electric appliances with solar can also offer significant utility cost savings.

Source(s): California Energy Codes and Standards 2019 Cost-effectiveness Study: Low-Rise Residential New Construction

2022 Single Family New Construction Cost Effectiveness Study

Resiliency

20. Can the grid handle the increased load from all-electric buildings?

The short answer is yes. Southern California Edison is continually monitoring the electricity grid to ensure that it can meet peak demand, while concurrently modeling future peak demand based on expected increased electrification. Electrifying our buildings will increase electricity usage since natural gas usage will be declining. Many modern electric appliances are extremely energy-efficient and may not require a significant increase in electricity generation. Smart technology also allows us to shift electricity use from peak to off-peak hours and use our grid more efficiently which improves reliability and resiliency. Additional loads from EV charging will provide the greatest increases to electrical demand, and these demands will require additional investment in the electricity grid over time. A study by Southern California Edison projects that our electric grid and energy supply will be able handle the additional demand from all-electric buildings in the coming years with additional planning, innovation, and investment in necessary upgrades.

Sources:

[Reimagining the Grid - December 2020 \(edison.com\)](https://www.edison.com/reimagining-the-grid-december-2020)

[Reliability - Frequently Asked Questions \(edison.com\)](https://www.edison.com/reliability-frequently-asked-questions)

[FAQs • Santa Rosa, CA • CivicEngage \(srcity.org\)](https://www.srcity.org/faqs-santa-rosa-ca)

[New Building Electrification, Solar, and Electric Vehicle Charging Ordinances | City of Glendale, CA \(glendaleca.gov\)](https://www.glendaleca.gov/new-building-electrification-solar-and-electric-vehicle-charging-ordinances)

21. Are all-electric homes more vulnerable in the case of a power outage?

Modern gas appliances also require electricity to run since they have electric starters which is required by code. Older gas appliances can be started with a match, but this is not always the case. An all-electric home with solar and battery storage provides the most resiliency during a power outage since the home can independently generate its own energy.

Source: [Existing-Building-Electrification-FAQ-Jan2023.pdf \(cityofsacramento.org\)](https://www.cityofsacramento.org/existing-building-electrification-faq-jan2023.pdf)

22. How reliable is the electric grid compared to natural gas pipelines?

Both gas pipelines and the electric grid go down on occasion and may need to be turned off during natural disaster events such as earthquakes, floods, and wildfires. An all-electric home paired with solar and battery storage offers the most resilience during utility shut offs as the home can generate its own energy.

Source: [FAQs • Santa Rosa, CA • CivicEngage \(srcity.org\)](https://www.srcity.org/faqs-santa-rosa-ca)



23. Doesn't electricity from the grid also produce greenhouse gas emissions?

Currently, electricity from the grid does produce emissions. However, emissions from the grid are decreasing due to the advancement of clean energy options like solar and wind. Legislation requires utilities in California to have 60 percent of their retail electricity sales come from renewable and carbon-free sources by 2030, 90 percent by 2035, 95 percent by 2040 and 100 percent by 2045. Even though the electric grid still produces emissions today, it is important that we begin the transition to all-electric homes since it will be 100 percent clean by 2045.

Source: SB100 and SB1020

Getting Started

24. What electrification incentives are available for Ventura County residents to reduce upfront costs?

New state, federal and utility financial incentives help make electric appliances less expensive. Visit the following websites to find information on available incentives:

- <https://incentives.switchison.org/residents/incentives>
- <https://www.3c-ren.org/>
- <https://www.sce.com/residential/rebates-savings/rebates>

25. Where can I find contractors and HVAC professionals familiar with electrification?

Visit the following websites to find professionals with building electrification expertise:

- <https://switchison.cleanenergyconnection.org/tech-clean-california-contractors>
- <https://www.3c-ren.org/for-residents#resident-form>

26. Where can I find information on permit requirements for my project in Ventura County?

To learn more about the permitting process in Ventura County, visit vcrma.org/en/divisions/building-and-safety or call 805-654-2771.

27. Where can I learn more about all-electric buildings?

Visit the following websites for more information on going all-electric:

- <https://www.3c-ren.org/>
- <https://switchison.org/>
- <https://www.sce.com/home-energy-guide/electric-home>

28. If I'm a professional, how do I get help in understanding these new requirements?

Visit <https://www.3c-ren.org/contractor-overview> for additional information, training, and resources.