



Clean, climate-friendly buildings in Oregon

Frequently Asked Questions (FAQs)

April 2021

1. What is a “clean building”?

In this context, a clean building does not rely on heating oil, fossil gas (a.k.a. “natural” gas), or other fossil fuels for its energy needs, AND operates without releasing harmful greenhouse gas and particulate air pollution.

2. Why should we construct all-electric/fossil-free buildings?

Clean, fossil-free buildings have numerous benefits for their occupants and the surrounding community.

SAFETY & HEALTH: Gas appliances combust methane indoors and are a major source of indoor air pollution.¹ A growing body of research is finding that exposure to this pollution leads to negative health outcomes.² Additionally, gas leaks pose a major safety risk for building occupants and the surrounding community. Replacing gas appliances and their accompanying pipe infrastructure with their electric counterparts can dramatically improve indoor air quality and make buildings safer for everyone.

COST SAVINGS: When a building is outfitted to use fossil gas, that choice is typically locked in for 50+ years. It’s also more expensive to hook a building up with both gas and electric infrastructure compared to building all-electric from the start. Instead of constructing new buildings to depend on a polluting, non-renewable energy source like fossil gas (and having to undergo costly renovations of existing buildings relying on gas), property owners have the opportunity to future-proof their investments and save money by building all-electric today.

CLIMATE PROTECTION: Emissions from the built environment are now Oregon's second-largest source of climate pollution,³ and projected to continue growing. Despite the worsening climate crisis, we are using more fossil gas than ever before to power our electric grid and heat our buildings. Multnomah County has committed to power its community-wide electricity needs with 100% renewable energy by 2035,⁴ and the state of Oregon should soon be on the path to 100% clean energy statewide by 2040.⁵ Constructing buildings to utilize clean electricity—instead of fossil gas—for heating and hot water is one of the most effective ways to reduce a building's climate-harming emissions and air pollution.

3. Are all-electric buildings actually possible? Is this new technology?

We already have the technology to construct all-electric buildings, and they're not even a new concept. After World War II, the *Gold Medallion Electric Homes* campaign touted new-build electric homes as futuristic and luxurious.⁶ This helped spur technological refinements that have culminated in the safe, affordable electric appliances we enjoy today. Combined with more recent advances, like highly-efficient electric heat pumps and on-site solar energy and storage systems, all-electric buildings combine environmental benefits, safety, and performance in ways no fossil fuel can match.

There are countless examples of all-electric buildings being constructed across the Pacific Northwest. Public buildings in Portland that have recently been built all-electric include the 15-story Portland Building and Kellogg Middle School. The architect of Kellogg Middle School has noted the upfront cost *savings* from constructing the school to be all-electric, rather than installing the infrastructure required for both electric and fossil gas.⁷

Seattle, San Francisco, and dozens of other cities have taken the next step by passing building codes to electrify buildings across the city with clean energy and eliminate the use of fossil gas in new buildings.^{8,9} Construction of all-electric buildings is happening now and accelerating across the West Coast and country to respond to the climate imperative, which will lead to more innovation.

4. Why are we advocating for all-electric buildings? What about renewable natural gas (RNG) and hydrogen technologies?

Renewable natural gas (RNG, a.k.a. biogas) is created primarily by capturing biomethane from dairy farms, landfills, and wastewater treatment plants, among other sources. RNG holds some promise as a niche lower-carbon alternative for some ‘hard-to-electrify’ applications, such as some industrial processes. However, decarbonization studies have concluded that RNG could only replace about 3% to 16% of our overall use of existing fossil gas¹⁰ and will cost much more than electrifying wherever that is a viable option.¹¹ RNG is still primarily methane—just like fossil gas—and its use poses the same public health and safety risks.^{12 13}

Currently in the United States, hydrogen as an energy source is produced almost exclusively from fossil gas.¹⁴ It currently costs up to six times more to produce ‘renewable hydrogen’ from non-fossil fuel sources. While it is expected that the percentage of ‘renewable hydrogen’—created from use of increasingly clean electricity—will increase over the coming years, it cannot be blended in pipes with conventional fossil gas above approximately 20% and still utilize existing gas pipeline infrastructure. RNG concentrations above 20% would require the wholesale replacement of pipelines, connections, and end-use gas appliances, like furnaces and water heaters.^{15 16} While renewable hydrogen will likely be a lower carbon technology for the industrial and long-haul shipping and trucking sectors in the coming decades, electrification of buildings wherever possible remains the most efficient and cost-effective choice today.

5. What about power outages like the February ice storm? How can we build energy resilience as we transition to clean energy and electrify buildings?

We can ensure our buildings are more energy resilient *without dirty fossil fuels* by hardening our electrical infrastructure and adopting clean energy technologies, most of which are well-tested and available today. While some gas-operated cooktops can function without electrical power, most modern gas appliances—like ovens, furnaces, water heaters, and clothing dryers—rely on built-in electronic components, rendering them inoperable without electricity.

Clean energy technologies that utilize all-electric appliances and deep energy efficiency innovations, coupled with on-site solar and storage systems, can ensure community buildings keep their lights and heat on and offer reliable shelter to community members in need after disasters and during power outages.¹⁷ Emerging smart grid technologies hold even more promise, allowing utilities to decentralize power generation and transmission, automatically reroute power around trouble spots, and prevent many outages before they occur.¹⁸ The same technologies will allow customers to more precisely manage their home's energy consumption, utilize their electric vehicles as massive batteries, and share stored energy with their neighbors.¹⁹

Endnotes

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