ELIMINATING FOSSIL FUELS FROM BUILDINGS

The Problem

Burning methane gas in buildings worsens the climate crisis, endangers public health, and increases costs to our communities.

Buildings account for nearly 40 percent of greenhouse gas emissions in the United States. These emissions come from the use of oil and methane gas (commonly referred to as "natural" gas). Nationwide, more than 500,000 new buildings are connected to the gas system annually. As these numbers can attest, we cannot solve the climate crisis if we continue to use fossil fuels in our buildings.

Gas in buildings is not only a threat to climate health; it is also a threat to public health. Children who grow up in homes with gas stoves are more likely to develop asthma. The Lawrence Berkeley National Laboratory has found that in a majority of homes with gas stoves the indoor air quality was so poor when stoves were turned on that such levels would be prohibited by law if they were recorded outdoors. Most recently, a study by Harvard University found that poor air quality caused by gas appliances results in thousands of premature deaths every year and healthcare costs in the tens of billions.

The continued use of methane gas is also likely to increase costs for residents whose homes continue to be powered by the gas system. The cost of methane gas is anticipated to rise as communities across the country move toward more renewable sources of energy in accordance with state and federal targets, and existing subsidies for gas are eliminated. As a result, customers who are left on the gas system will likely be stuck paying higher prices given the shrinking pool of rate-paying customers.

There is no responsible scenario in which gas continues to play a major role in our energy future. Methane gas is a fossil fuel; it is dirty, dangerous, and costly.

The Solution

By taking steps to ensure that buildings in your jurisdiction are using 100% clean electricity, local governments can mitigate climate change, protect public health, and reduce costs for residents. These efforts are often called "decarbonization" or "electrification" policies.

Building electrification policies are twofold: 1) ensuring that any ***new*** construction does not use methane gas; and 2) tackling the use of gas in ***existing*** building stock through retrofit programs and benchmarking policies. All electric homes and buildings help to ensure that people are breathing cleaner air, and that our communities are more resilient in the face of natural disasters.[1]

Many local governments have implemented policies requiring new construction to be all-electric. In addition to the environmental and public health impacts, these policies are oftentimes cost-neutral, or even provide immediate cost savings to residents and businesses.[2] These local policies have in turn helped to inspire policy at the state level, and have helped develop and grow the market for all-electric appliances. This approach, however, has equity implications. Such policies have

[1] For example, many heat pump water heaters (which are electricity-operated) can store hot water for up to 72 hours, which would mean that even in a blackout you could still access hot water for showers, etc. Moreover, when gas infrastructure is damaged or destroyed, it can take weeks or months to restore service, as compared to hours or days for an electricity outage.

[2] Once all electric appliances are installed, we see lower utility costs in many regions because heat pump technology is significantly more efficient than their gas counterparts. These savings will only increase as renewable energy becomes more abundant and rate reform further accounts for the true climate and societal cost of gas.

generally been passed in more affluent communities, which could result in higher costs in nearby lower-income communities that have not implemented such electrification policies.

With respect to existing buildings, some local governments have implemented building performance standards. These policies create a greenhouse gas (GHG) emissions cap for a given building, and then require annual GHG emissions reductions. These emissions caps incentivize all-electric retrofits, which are the only cost-effective way to meet the annual reductions over time. Although this approach can be applied to all buildings, local governments have typically only applied such standards to larger buildings (for example, in buildings over 100,000 square feet).

Policy Issues

Cost considerations: Even a fairly simple single-family home retrofit can sometimes cost upwards of $10,000. These upfront costs are one of the key barriers to existing building electrification, but there are already a number of solutions being implemented to address this barrier. Incentives from utilities, appliance manufacturers, and local governments can help to meaningfully offset these upfront retrofit costs. See the 'Funding' section below for more information about funding opportunities for local governments.

Moreover, it is crucial that contractors have the requisite training to ensure that they are utilizing the most up-to-date all-electric appliance technology to achieve cost savings. By combining incentive layering, innovative financing, and new technology, it is possible to significantly reduce both the upfront and total cost of existing building electrification projects, but aligning these elements is time consuming and costly in itself. State and federal policy that offers more incentive funding, combined with streamlining the process and contractor education are key elements that will make building electrification retrofits successful at scale.

Equity considerations: Building electrification policy should be made in collaboration with advocates for environmental justice and affordable housing, public health professionals, and labor to ensure a just transition from fossil fuels to a more equitable and sustainable future for our communities.

First, it is crucial to ensure that the work of building electrification results in high-quality jobs that bring in historically disadvantaged communities. Second, building electrification policies should be designed to be inclusive of housing stock for lower-income families. Third, local governments need to ensure that tenants are not subject to dramatic rent increases or displacement, which may result from publicly funded retrofits increasing home values. If not addressed in tandem, the goals of affordable housing preservation and decarbonization can be in conflict. Financial subsidies promoting decarbonization should target affordable housing that is owned and operated by small owners, nonprofits and others that do not usually have equitable access to capital.[3] Lastly, local governments should use building retrofits – oftentimes a once-in-a-generation event – as an opportunity to improve overall public health beyond gas appliances by taking the opportunity to address other in-home health concerns such as mold or asbestos.

Local Examples

- ***Ithaca.*** In November 2021, the city passed the Efficiency Retrofitting and Thermal Load Electrification Program, arguably the most ambitious building electrification plan in the country. The program aims to electrify all buildings in Ithaca – both new and existing, public and private, and commercial and residential – by 2030.
- ***San Francisco***. In 2020, the city passed an ordinance requiring all new construction in the city to use electric power. The San Francisco example is notable, because labor and environmental groups reached a compromise that generated high-quality jobs and made significant strides in building decarbonization.
- ***Seattle Public Schools.*** In February 2021, the Seattle School Board voted to run on 100% clean and renewable energy by 2040, which includes electrifying all school buildings and buses. The resolution is here.

[3] For more information on preserving housing affordability and building electrification, check out this study looking at the potential impact of building decarbonization on affordable housing in Los Angeles, published by planning and advisory firm Arup in September 2021.

Preemption

As a result of industry efforts, 20 states have now enacted preemption laws that prohibit—or have the effect of prohibiting—a utility service based upon the type or source of energy to be delivered. In other words, these preemption laws prevent local governments from imposing electrification requirements for buildings, which would have the effect of prohibiting methane (or "natural") gas.

Funding

Sources of federal funding to support building electrification include:

- The Energy Efficiency and Conservation Block Grant Program, administered by the U.S. Department of Energy, is a federal grant program that issues grants to local governments for energy retrofits. The 2021 Infrastructure Investment and Jobs Act (IIJA) dedicates an additional $550 million for FY 2022 for the program.
- The IIJA establishes a grant program that will disburse $500 million to **public schools** for retrofits that would decrease energy costs.
- The IIJA establishes a grant program that will disburse $225 million for implementation of updated building codes.

Additionally, Energy Savings Performance Contracting (ESPC) is a budget-neutral approach to make building improvements that reduce energy and water use and increase operational efficiency. By partnering with an energy service company, a local government can use an ESPC to pay for today's facility upgrades with tomorrow's energy savings—without tapping into capital budgets.

For more information, check out the Sierra Club's electrification framework and Greenlining's guide to Equitable Electrification.

Co-authored by The Sierra Club