nbi new buildings institute

The Sooner the BETR!

The Building Electrification Technology Roadmap

The climate is changing before our eyes. Meanwhile, buildings are responsible for over a third of annual global emissions.

While climate change often feels like an intractable dilemma, many solutions for addressing buildings' role in climate change are readily available and accessible today. Building electrification (the shift from fossil fuel burning appliances to electric technologies powered by an increasingly clean grid) is widely recognized as a critical pathway for achieving significant greenhouse gas emission reductions. Governments and private actors alike are enacting electrification policies and plans to reduce emissions. This is one reason why within the building sector we have experienced a purposeful shift from energy targets to greenhouse gas emission reduction targets.

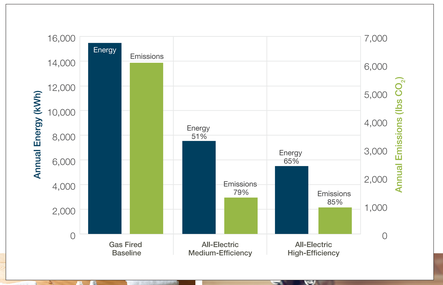
Although the use of multiple fuels in homes and buildings has a long history of meeting our comfort and technical needs, on-site fossil gas combustion has a limited future. We must electrify buildings to meet climate action goals and avert catastrophe.

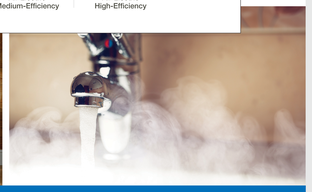
We know **why;** now it's time to consider **what, where,** and **how.**

BETR helps efficiency programs planners and implementers, governments, and industry players accelerate the adoption of advanced electric technologies.

ENERGY AND EMISSIONS SAVINGS

Energy and emissions savings from electrification can be very compelling. For example, replacing the gas furnace and water heater in a Sacramento single-family home with a currently-available air source heat pump and heat pump water heater cuts end-use energy usage in half and emissions by 5x.





For 38 all-electric product types, covering four key end-uses, across five major building types, BETR tells us:

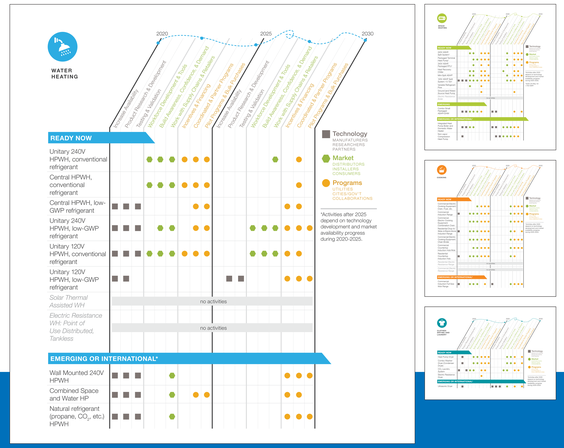
1 **What is the technical status of the product today?**

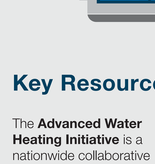
2 **Where is it headed on the road to adoption?**

3 **What can we do to overcome barriers to adoption?**

ELECTRIFICATION TECHNOLOGY SCORING OF STATUS AND APPLICATIONS

ELECTRIFICATION TECHNOLOGIES ROADMAP OF RECOMMENDATIONS

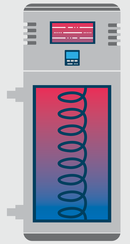




Five Collective Strategies to Building Electrification

These five collective strategies focus on the recommended top priorities for utilities and organizations working to advance building electrification programs and decarbonization policies in the state of California.

This includes efficiency program administrators, jurisdictions, nonprofits, and decarbonization advocates. If one thing is clear from this Roadmap, it's that we must act with greater urgency to accelerate building electrification technologies. By working together to take these recommendations into concrete actions, we can make great progress toward reducing the energy use and GHG emissions of all buildings.



3-4 TIMES MORE EFFICIENT

Heat pumps and heat pump water heaters are often three to four times more efficient than the gas equipment they replace. With today's advanced grid connectivity and optimized operation, building electrification can deliver dramatic energy and emissions savings.

Key Resources

The **Advanced Water Heating Initiative** is a nationwide collaborative market transformation effort to catalyze a game-changing electrification technology: heat pump water heaters.

advancedwaterheatinginitiative.org

The **GridOptimal Buildings Initiative** empowers players on both sides of the meter to transform today's and tomorrow's buildings into active grid citizens to enable and accelerate grid decarbonization.

newbuildings.org/gridoptimal

The **Getting to Zero Electrification Resource Hub** is an open-source collection featuring dozens of electrification-focused tools, guides, briefs, and reports—plus hundreds of other zero carbon building resources.

gettingtozeroforum.org/electrification

newbuildings.org/resource/building-electrification-technology-roadmap