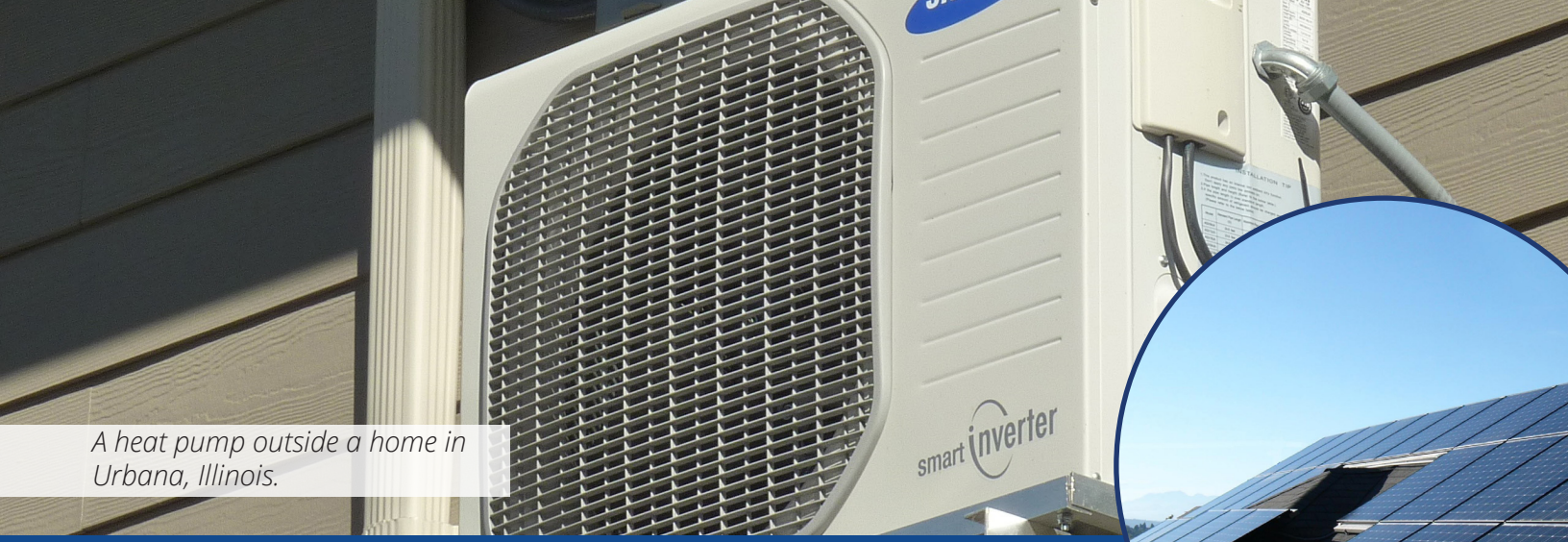


A heat pump outside a home in Urbana, Illinois.

Solar panels on a Seattle home.

Electric Buildings

Repowering homes and businesses for our health and environment

Repowering our homes and businesses to run on electricity is a key step on the path to 100% renewable energy for America. New and improved technologies are making it easier and more affordable than ever for Americans to switch away from fossil fuels like oil and gas.

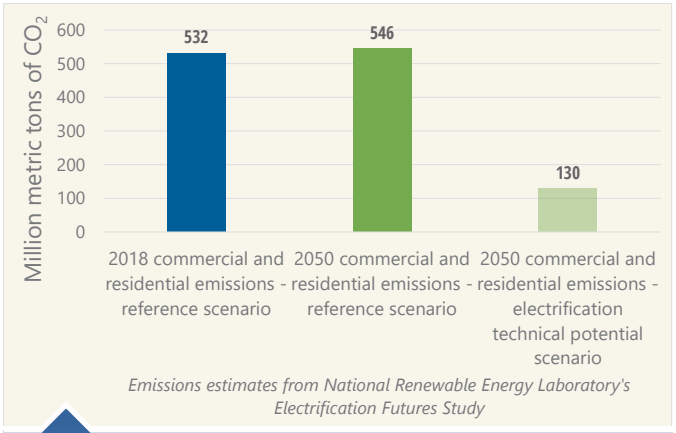
Burning fossil fuels puts our health and climate at risk

- Fossil fuel burning in U.S. buildings produced 9% of greenhouse gas emissions nationwide in 2018.
- Fossil fuel use creates indoor and outdoor air pollution, increasing the risk of respiratory diseases, heart disease, cancer and infectious diseases like COVID-19.
- Reliance on gas risks our safety. Since 2000, almost 6,000 gas pipeline incidents have killed hundreds of people and injured over 1,000.

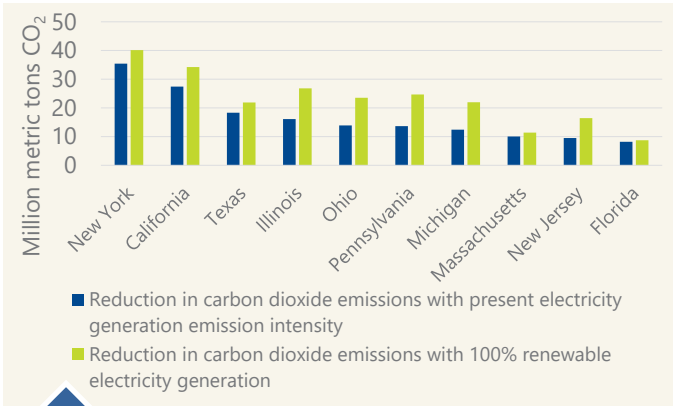
Electrifying buildings will help the environment and reduce fossil fuel use

Electrifying all possible buildings could cut 2050 annual emissions by 306 million metric tons of CO_2 according to an analysis by the National Renewable Energy Laboratory.

- With 100% renewable electricity, 2050 emissions reductions could reach 416 million metric tons of CO_2.
- Electrifying buildings could reduce gas consumption by over 7 trillion cubic feet in 2050, simultaneously improving air quality and health.



CO_2 emissions from on-site fuel combustion in buildings.



Top 10 states for reduction in CO_2 emissions from maximizing building electrification.

Building electrification often makes sense for consumers

- All-electric new homes are cheaper over 15 years than mixed-fuel homes across the country, according to Rocky Mountain Institute.
- Retrofitting homes with electric heat pumps is already cost effective in many places, especially if both a furnace and A/C are replaced when they wear out.
- Electrification allows owners to take advantage of falling prices for clean electricity, increasingly clean power from the electric grid, and the benefits of rooftop solar photovoltaic panels or community solar projects.

Policy recommendations

Policymakers at the local, state and federal levels should adopt policies to accelerate the transition from fossil fuels to clean electricity in our buildings. They should:

- Require all-electric systems in new construction, including heating systems, hot water systems and appliances.
- Implement rebate programs, incentives and low-cost financing for electric systems and appliances.
- Implement regulatory solutions, including rate design and fuel-switching regulation changes to support and incentivize electrification.
- Create and expand tax incentives for electrified buildings.
- Require building energy transparency and implement building performance standards that limit carbon emissions.
- Educate developers, contractors, retailers and consumers about options for, and benefits of, electrification.
- Update appliance efficiency standards to reduce energy demand.

Induction stovetops are similarly priced, faster, more efficient and easier to control than gas stoves.

Electric technologies can repower America's buildings

- Space heating: Heat pumps use electricity to transfer thermal energy between outside air, ground or water and air inside the home, and can be several times more efficient than furnaces, even in cold weather.
- Water heating: Heat pumps and solar thermal systems heat water more efficiently than fuel-powered systems.
- Appliances: High-efficiency electric appliances use less energy and are often more effective than fossil fuel-powered alternatives.

Common barriers slow U.S. building electrification

- Unfamiliarity with modern technology on the part of consumers and contractors.
- High initial costs of retrofitting buildings.
- Long lifetimes of fossil fuel-powered systems mean they are not replaced frequently.
- Regulatory barriers like fuel-switching restrictions and unfavorable rate designs that increase the cost of electrification.

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