

Building Electrification: The Shift Away from Gas

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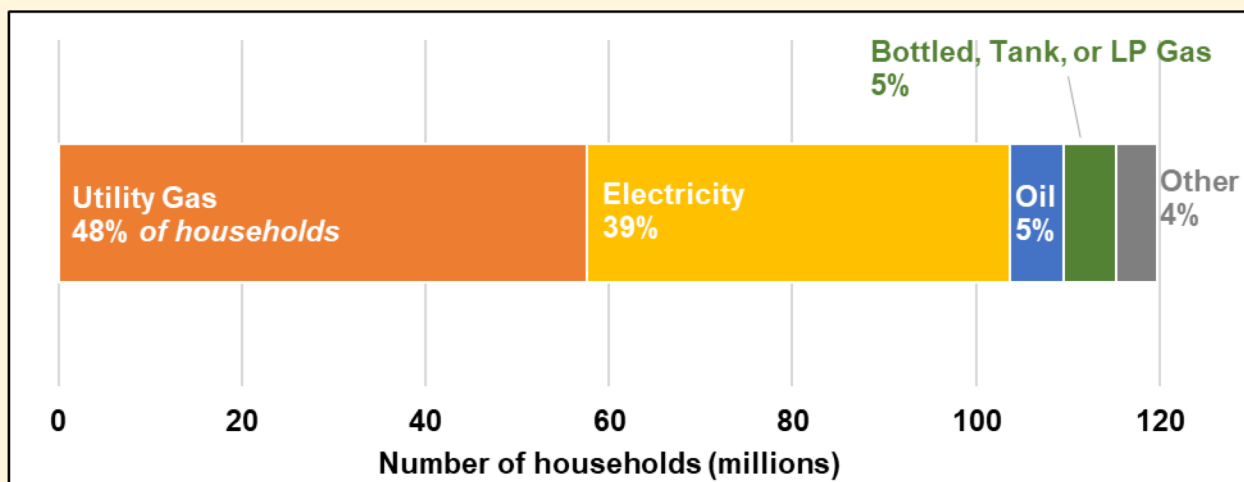
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Applied Economics Clinic
Economic and Policy Analysis of Energy, Environment and Equity

How do we currently heat our homes?



Home heating fuels in the United States (2018)

Concerns with fossil fuel heating

Heating with fossil fuels such as gas and oil raise issues in the following areas:

- Health
- Climate
- Safety



Energy inequalities

Energy Burden: the share of household income that goes toward energy costs

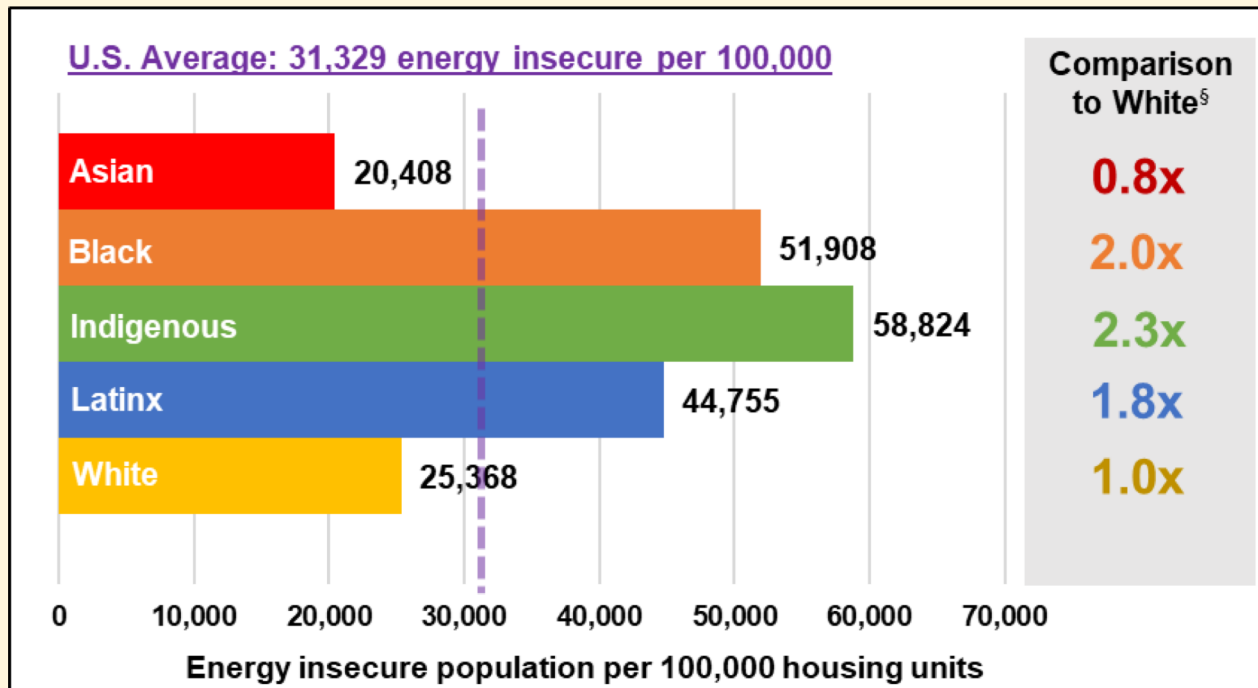
Energy Security: the uninterrupted availability of energy sources at an affordable price

Pollution exposure: exposure to air, water, and soil pollution, especially when pollution levels exceed that caused by a communities' own consumption



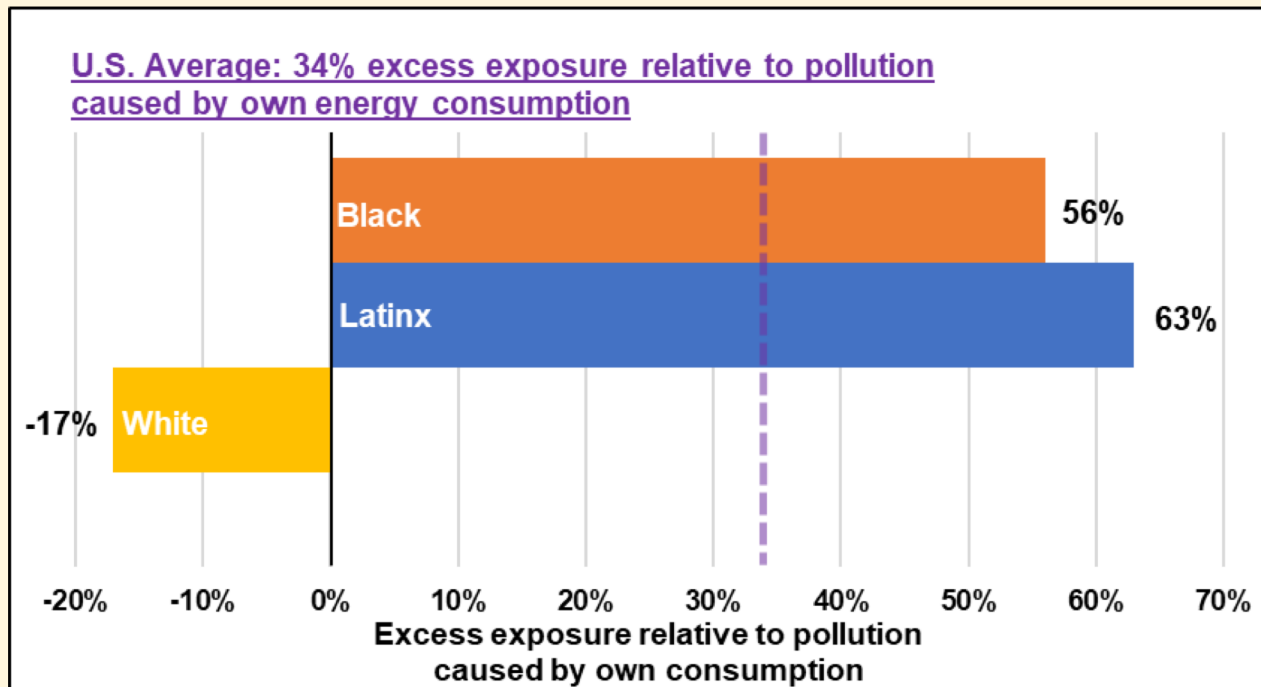
Energy insecurity on a national level

Indigenous and Black households in the United States experience energy insecurity at a rate more than double that of white households



Pollution exposure relative to energy consumption on a national level

Non-Hispanic whites experience less air pollution exposure than what is caused by their own consumption, while Black and Latinx populations are exposed to more pollution than what is caused by their consumption



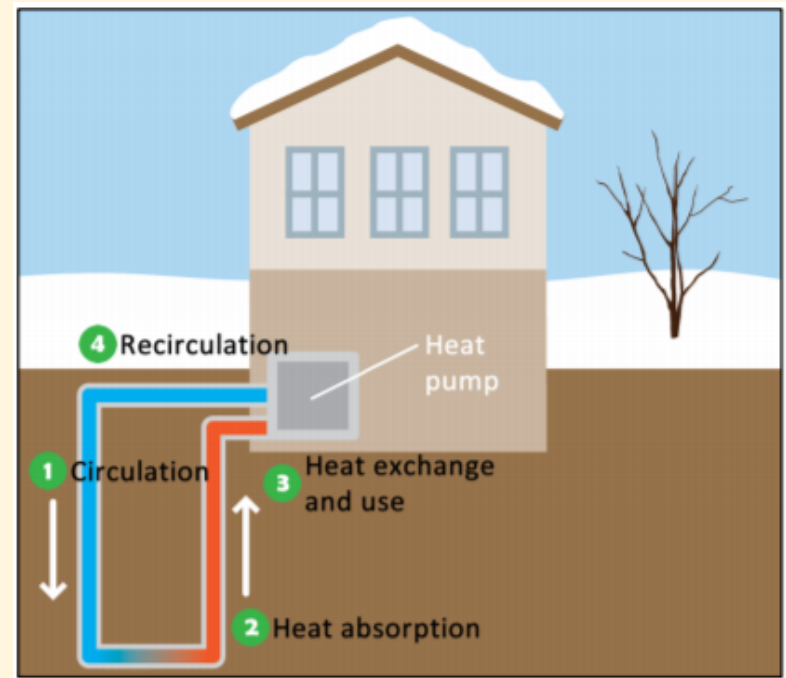
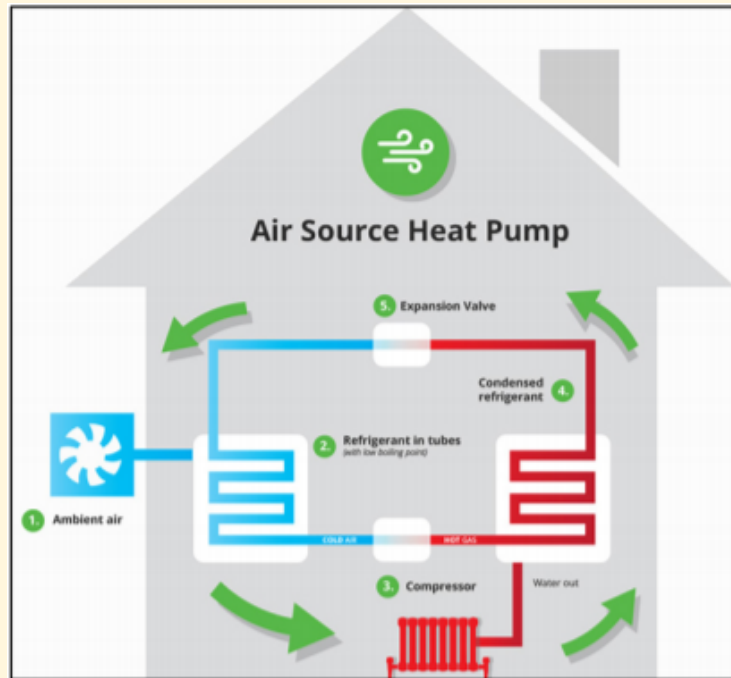
What is building electrification?

Building electrification is the replacement of heating fuels with electricity, by switching from oil boilers and gas furnaces to modern electric air-source or ground-source heat pumps



Benefits of electrification

- Increased efficiency
- Cost savings
- Less indoor air pollution
- Safety



Source: Reproduced from Ways 2 Go Green. 2018. A Brief Introduction to Air Source Heat Pumps. Available at: <https://www.ways2gogreenblog.com/2017/10/18/a-briefintroduction-to-air-source-heat-pumps/>.

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Source: Reproduced from Koones, S. 2019. Geothermal Systems For Energy Efficiency, Comfort And Cost Savings. Forbes. Available at: <https://www.forbes.com/sites/sherikoones/2019/10/31/geo-thermal-systems-for-energy-efficiency-comfort-and-costsavings/#34a6a4aa187a>

Leading the transition away from gas: California

In early 2020, California's Public Utilities Commission instituted a rulemaking to investigate the path for transitioning away from gas as an energy source.

The rulemaking calls for the implementation of a long-term planning strategy to manage the State's transition away from gas-fired technology.



Leading the transition away from gas: Massachusetts

Massachusetts' Attorney General has requested the Department of Public Utilities to launch an investigation into the future of gas.

According to the Attorney General, status quo business and operating practices are not sufficient for gas utilities to meet the Commonwealth's emission reduction goals into the future.



Leading the transition away from gas: New York

New York has launched several programs that target the intersection of building electrification and the State's climate policy goals.

The *New York State Clean Heat Statewide Heat Pump Program* was designed to support customers in transitioning to energy-efficient electrified spaces.



Leading the transition away from gas: Philadelphia, PA

The City of Philadelphia issued a Request for Proposals to create a business diversification study for Philadelphia Gas Works (PGW), the municipally-owned gas utility.

Specifically, PGW seeks feedback on how to thrive financially and retain its workforce in a low-carbon future.



Leading the transition away from gas: Rhode Island

Rhode Island's Governor signed Executive Order 19-06 outlining steps for a heating sector transformation that would ensure reliability and protect against climate change.

This order aims to reduce emissions from the heating sector while ensuring state residents have access to “safe, reliable, and affordable heating.” (Raimondo, G., 2019)



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Questions?

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