

Energy efficient heat pump technology increases the value of homes in the U.S.

October 21 2020



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Launched this week in *Nature Energy*, a new study led by the Center for Global Sustainability (CGS) researchers examines the cost of heat pump installation in American households and the effect on house prices and

home values. They find that heat pumps not only offer an energy-efficient source of electrified heating and cooling but also increase the value of the average home by adding on average a US\$ 10,400–17,000 price premium for households in nearly half of the U.S. states.

To reduce the [carbon emissions](#) necessary to avoid irreversible global damage, policies must consider electrifying important aspects of the economy from vehicles to furnaces that are still burning natural gas to [heat](#) homes. Heat pumps are an energy-efficient technology that may replace furnaces or boilers as well as provide air conditioning, especially as the demand for cooling increases with record high temperatures every year.

"A key message to policymakers and homeowners is that investing in [heat pumps](#) is a good investment," says Prof. Lucy (Yueming) Qiu, co-lead author and Associate Professor at the University of Maryland School of Public Policy and CGS. "Similar to where we are seeing increased resale value in American households with residential solar, our findings indicate that heat pumps can have the same effect due to increased premiums—placing a higher value on energy-efficient technologies in homes."

"Our findings can help steer policy towards closing the 'energy efficiency gap' in the U.S.—the gap between projected investment in energy-efficient technology and actual investment—by encouraging the installation of heat pump technology all while reducing emissions in the [electricity sector](#) and increasing the value of the average American household by up to nearly 7%," adds co-lead author Xingchi Shen and Ph.D. student at the University of Maryland School of Public Policy.

The study also examines what factors drive an individual to purchase a house with heat pumps and finds that the more environmentally conscious, middle class, or those living in mild-climate regions are more

likely to pay the higher premiums for an energy-efficient [home](#).

"The electricity sector is now the largest source of emissions in the U.S. and it is clear that a comprehensive climate policy must examine all aspects that contribute to emissions, including individual household electricity use," says co-lead author Pengfei Liu and an Assistant Professor at the University of Rhode Island. "Because of this research, we now know that people are willing to pay more for a house with energy-efficient technology, therefore policymakers should leverage this to incentivize the adoption of heat pumps and ultimately drive down emissions across the U.S."

The study finds that the price premium gained through installation is still larger than even the cost of that installation, which can be an additional incentive for heat pump installation.

"Just being environmentally conscious is not enough to transition U.S. households to electric, consumers want to know the risks associated with adopting energy-efficient technologies in their homes," says Lucy Qiu. "Our findings show that the upfront burden of installation is gained back and more when selling their homes. This is important to reduce the energy efficiency gap. We know the benefits of heat [pump](#) technology, but for homeowners that are nervous to take that step, our findings show that they will benefit economically in the long run."

More information: Shen, X., Liu, P., Qiu, Y. et al. Estimation of change in house sales prices in the United States after heat pump adoption. *Nat Energy* (2020). doi.org/10.1038/s41560-020-00706-4

Provided by University of Maryland

Citation: Energy efficient heat pump technology increases the value of homes in the U.S. (2020, October 21) retrieved 23 April 2024 from <https://techxplore.com/news/2020-10-energy-efficient-technology-homes.html>

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