

# Heat pumps on the rise after Minnesota passes new energy law

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Air source heat pumps are on the rise in rural Minnesota and utility officials expect momentum to grow as a result of the state's new energy conservation law.

A year-and-a-half-old collaboration between the nonprofit Center for Energy and Environment and five outstate Minnesota utilities is aiming to make heat pumps mainstream by the end of the decade by offering training and other support to contractors, as well as rebate referrals and information to consumers.

The Minnesota Air Source Heat Pump Collaborative has identified rebates available to customers in nearly every utility territory ranging from \$200 to \$2,000. The number of rebates awarded by its members more than doubled to 3,107 in 2020 compared to 1,356 in 2019.

Utility officials expect those numbers to keep climbing, in part due to the state's recently signed Energy Conservation and Optimization (ECO) Act. The legislation frees up utilities to make comparisons between propane and other fuels when marketing heat pumps. In addition, it allows utilities to count [energy savings](#) from fuel-switching toward their [energy conservation](#) targets.

"The single biggest idea here from a policy standpoint is this bill says if you're reducing total [energy](#), you're doing energy efficiency even if that means electricity use goes up," said Darrick Moe, executive director of the Minnesota Rural Electric Association. "The law pushes past the fuel-switching prohibition."

Gas and electric utilities are now essentially allowed to poach each others' customers, though the economics suggest most conversions will flow toward electrification. Utilities are also capped on the amount of energy savings they can claim through fuel-switching, which can't exceed 0.55% of the requirement.

The fuel-switching change applies statewide, but there's more interest in Greater Minnesota, where many customers rely on relatively expensive propane heating and the switch to heat pumps can produce quick cost

and energy savings.

"It's kind of a no-brainer in houses with propane furnaces," said Ben Schoenbauer, senior research engineer at the Center for Energy and Environment, which has conducted a wide range of research on heat pumps that shows they can save customers 30% to 55% when they replace propane or electric resistance heat.

The Air Source Heat Pump Collaborative emerged after a 2018 study by the Center for Energy and Environment showed the high potential of heat pumps to produce energy savings this decade, according to program development manager Emily McPherson. Members include Minnesota Power, Southern Minnesota Municipal Power, Great River Energy, Missouri River Energy Services, and Otter Tail Power.

The recent rise of heat pumps in those territories is a result of more generous rebates, as well as supply chain problems in the air conditioning sector and more people working at home doing improvement projects. McPherson said heat pumps continue to be popular in rural areas and she hopes the ECO Act "will help continue the momentum."

Christopher P. Schoenherr, government relations and chief external affairs officer for Southern Minnesota Municipal Power Agency, said the key to growing the market will be educating contractors. That's why the collaborative is offering free online training to help HVAC professionals learn the technology.

"We're already seeing the interest start to build," he said. "Outreach to contractors and other trade allies is going to be the key to really making this take off because they're the folks that are going to be talking directly to the customer."

Jeff Haase, manager of member services at Great River Energy, said the entry point for heat pumps comes for many homeowners when they are looking for a new air conditioner. Then they discover a heat pump can both cool and heat a home for most of the year. "You're looking at it through the lens of the furnace, but you're also looking at it through the lens of the air conditioner," he said.

In northern Minnesota, homeowners could see great value in using heat pumps for cooling on the few hot summer days in that part of the state, and also use it to heat their homes during the fall and spring, which coincides with when wind energy is widely available. Customers generally need just one propane tank to get through winter, and they can buy it off-season when prices are cheaper than January or February.

The heating-cooling combination led Mark Nelson to replace the propane heating and cooling system in his Pine City home with a heat pump and a new propane furnace. He used a rebate to reduce the cost of the technology and subscribed to a heat pump electricity rate offered by East Central, where he works as the manager of government and business relations.

The heat pump keeps his home warm until temperatures drop below 25 degrees Fahrenheit, when the propane furnace starts up. His fuel consumption dropped annually from 1,200 gallons to 500 gallons. The electricity rate and lower propane use save \$300 to \$400 yearly and the new system runs quieter, saves money and provides as much comfort, "if not more," he said, than the old system.

Newer, more expensive cold climate models can heat well below zero while mini-split air source heat pumps, popular for air conditioning, heat down to 25 or 30 degrees. While the cold climate air source heat pump technology manages subzero temperatures, the appliances generally cost several thousand dollars more than fossil fuel furnaces.

Moe, of the rural utilities association, said utilities that already have heat pump rebate programs may decide to increase those incentives now that they can count the savings toward their energy conservation targets. He sees a likely boost in air source heat pump sales rather than a giant leap, though.

"I'm not saying a year from now everybody's going to be using heat pumps, because the reality is it is kind of a transition that's already happening, and now the program's better equipped to be a tool for that," he said.

The replacement of propane and natural gas with [heat pumps](#) only delivers a 5% decline in carbon emissions. As the state's utilities transition to cleaner power, though, the carbon reduction will increase.

"Just looking over what the utilities plan to do in the next 10 to 25 years with (closing) coal plants it's going to be a big, a big win," Schoenbauer said. "Those changes will happen within the lifetime of a [heat pump](#) installed today."

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