

## Ashfield News Energy Committee December 2022 Home Heating

Heating season is upon us and the time is right for the Energy Committee column to turn to home heating. The Massachusetts 2020 Decarbonization Roadmap calls for efficient electric heating in approximately 1 million homes and in 300 million square feet of commercial buildings by 2030. To meet this target and avoid the worst of climate change we need to move away from burning fossil fuels for heat. The use of Air Source Heat Pumps (ASHP) and Mini Splits can help.

<https://rmi.org/millions-of-us-homes-are-installing-heat-pumps-will-it-be-enough/>

“Air Source Heat pumps are heating and cooling systems that move heat indoors in the winter and draw heat outdoors in the summer...They’re powered by electricity to move—rather than create—heat to keep your home or business at a comfortable temperature year-round. Today’s cold climate heat pumps can be up to 400% efficient and many provide efficient heating at outdoor temperatures as low as -15 °F”

<https://www.massave.com/heatpump>

Many people use the terms Air Source Heat Pumps (ASHP) and Mini Splits interchangeably, but they are actually somewhat different. Both move heat in the way described above. ASHP’s use centralized ductwork and are capable of heating a home between 1400 and 3100 square feet. They can be installed with a central thermostat just like a furnace. Ductless minisplits are built to heat 375- 750 square feet of space. Minisplits pair an outdoor condenser unit with a fan with several indoor wall-mounted units set up in individual rooms with remote controls to set temperature. They can be shifted between heat mode, cool mode, dehumidify, and fan only.

<https://www.nordicghp.com/2015/11/mini-splits-air-source-geothermal-whats-the-difference/#:~:text=A%20heat%20pump's%20energy%20supply,air%20via%20a%20refrigeration%20process.>

Many Ashfield residents have started the transition to air source heat pumps. Diane Sibley and Jim Murphy got three heat pumps in the fall of 2019. “Our objective was environmental and to be as free from fossil fuels as we can afford. The pumps work very well. They keep the house consistently warm and work down to -13 degrees fahrenheit. Some people say the pumps don't work at colder temperatures but that is not true for us. Three heat pumps are the only source of heat for our small one-story house. We thought we would not use the air conditioning but now appreciate it during extreme heat which we may experience more with climate change. We have not used our oil furnace since the pumps were installed. We don't have a wood stove. There is a small thermostat located on a wall for each minisplit that regulates the temperature. I use a program on my cell phone to set the temperature but there are also remotes I could use. This means I can control the temperature when I am away using my phone. At first I thought the idea of programming the heat from afar was far-fetched and I wouldn't use it, but in fact I have. I am completely satisfied with every aspect of the heat pumps/mini splits. I highly recommend them. I should add that we have a large solar array that provides all the electricity we use and we have not paid for electricity since installation. What I can't report is how expensive it would be to run the heat pumps buying electricity from a public utility compared to heating with oil. What I can say is I'd rather be paying off the solar loan than buying fossil fuel.”

Alex and Joe Osterman made the switch to ASHPs in 2020. “We have always heated with a combination of wood and oil heat, but we ran the woodstove to reduce our use of oil. Our oil furnace is over 40 years old and could go at any time, and we wanted to move away from fossil fuels. We liked the idea of a heat source we could power with our solar panels. We are both therapists and when the

pandemic hit we were seeing clients via zoom with doors closed. The wood heat couldn't get into our rooms and we were COLD! The oil furnace wouldn't come on because the rest of the house was being warmed by the woodstove. So we needed a heat source that could heat and cool individual rooms. To make it more affordable we split up the installation over 2 years. We put an outdoor condenser connected to 3 indoor wall mounted units on the north side of the house the first year and an outdoor unit powering 3 more indoor units on the south side of the house the second year. We have loved our minisplits. They are quiet and make it much easier to keep different rooms comfortable. Because we did not opt for a central thermostat we were not eligible for as large of a rebate but we did still get a rebate, which of course helped."

How much Air Source Heat Pumps cost to run depends on their efficiency, how much they are run, and the price of electricity. ASHP's efficiency is measured with a SEER rating (Seasonal Energy Efficiency Ratio). A good SEER rating is 14 or higher and very efficient ASHP's can have a SEER rating of 33. With the current price of electricity at approximately 13 cents per kWh and average usage an ASHP in the Osterman's home described above would cost \$11.40/mo to run. While there are 6 indoor heat pump units they are not all run all the time, so the monthly cost of running all heat pumps is far less than \$11.40 x 6 or \$68.

<https://learnmetrics.com/how-much-does-it-cost-to-run-a-mini-split/>

Currently, the MASSAVE program offers a number of rebates on ASHP's. For ASHP's homeowners can get up to \$10K in rebates, with additional rebates for integrated controls. In addition, there is an INTEREST FREE Heat Loan program through Massave through which homeowners can pay for heat pumps over time with no added cost. Massave has a list of ASHP contractors and information on rebates and the Heat Loan program on their website.

<https://www.massave.com/en/saving/residential-rebates>

In 2023, the Inflation Reduction Act will start offering heat pump time of sale (or upfront) rebates that won't require waiting for rebates, up to \$8,000 for low and moderate income households! This may cover their entire cost. More information can be found at <https://www.hvac.com/resources/inflation-reduction-act-heat-pump-rebates/>

Please consider making the switch to ASHP – it's a good decision for cost, comfort, and the environment! And as always feel free to reach out to the Ashfield Energy Committee with any questions related to energy issues in town and the transition to renewable energy. We can be reached at [energy@ashfield.org](mailto:energy@ashfield.org)