

Ashfield News July 2023- Solar Hot Water heating

Heating water with oil or propane contributes to climate change by producing greenhouse gases (GHG). These are gases, such as Carbon Dioxide and Methane, that contribute to the greenhouse effect by absorbing infrared radiation. It will help to meet Greenhouse Gas (GHG) reduction goals if Ashfield residents switch to heat pump and/or solar hot water heating. This month's energy committee column will focus on solar hot water.

Solar hot water is produced by panels/collectors on the roof or south side of a home or nearby on a ground-mounted rack. Collectors need at least 5 hours a day unobstructed sun and should be at least 75% shade free. There are 2 major types of solar collectors: glazed flat plate collectors (which look very similar to solar electric panels) or evacuated tube collectors. Flat plate collectors are most efficient overall but evacuated tube collectors do better in the winter. With both types of solar collectors it is not the water which flows through the collectors but a heat exchanger fluid which gets hot and heats the water in the home's hot water tank. Most residential solar hot water systems will use 2-3 collectors and a hot water tank designed specifically for solar hot water systems. The ideal time to add a roof mounted solar hot water system is when the roof is being replaced anyway. (gocleanMassCEC.com).

Installing a solar hot water system is a great idea financially. The cost of heating water drops 50-80% and homeowners are protected from price fluctuations in heating fuels(www.energy.gov). Payback time is estimated to be 5-10 years on average, though exact savings will depend on what type of water heating a homeowner is switching from. Incentives are available to help pay for solar hot water installation. Massachusetts Department of Energy Resources (DOER) provides a 1 time Alternative Energy Certificate (AEC) payment of \$400-\$1000 for installation of solar hot water. The state of Massachusetts provides 15% of the cost of a solar hot water system, up to \$1000, and Federal tax credits are available through the Inflation Reduction Act for up to 30% of the cost of a system. In addition, Mass Save provides 0% loans of up to \$25,000 over 7 years for installation costs not covered by rebates. (goclean.masscec.com). The average lifespan of a solar hot water system is 20 years (www.energystar.gov).

Mary Johnson is an Ashfield resident who has already made the switch to solar hot water. She had her solar hot water system installed in 2020 when her oil furnace which had heated her water was reaching the end of its life. Mary states "working on solving climate change is what I do for work, so a greener renewable energy option was appealing to me. I love the fact that now almost half of the year my hot water comes from the sun and is absolutely free." In terms of finances Mary states, "Replacing my old boiler was going to be expensive no matter what I did. There were really good incentive programs to switch to a renewable energy system so it made sense and was better for me than trying to stick with oil especially given the price volatility never mind the climate damage....I got a zero interest loan for 7 years...because of the incentive payments and the difference in the lower cost of fuel my monthly costs didn't change even though I now have a brand new system which also increased the value of my home." Mary uses an auto feeding wood pellet forced hot water boiler to supplement the solar hot water heating in the colder months when needed.

One important difference between solar hot water and solar photovoltaic is that excess energy from a solar hot water system can not be sold back to the utility. This makes sizing a solar hot water system important. Contractors can provide guidance on this based on the number of people in the home. A list of contractors can be found on the Massachusetts Clean Energy Center website as well as questions to ask a contractor.

The Ashfield Energy Committee will be at farmers Market Saturday July 29 9am-1pm and Spartan Solar will be at the booth 10-12 to answer any Q's about Solar Hot Water and to sign people up for home visits to discuss whether a solar hot water system is right for you. We will also have solar photovoltaic installers there that day. Current Energy will be there 9-11 and PV2 will be there 11-1 to answer questions about solar photovoltaic systems and battery storage.

As always please contact the Ashfield Energy Committee with any questions, comments, or concerns regarding energy conservation or renewable energy in town. You can reach us at energy@ashfield.org. You are welcome to attend one of our monthly meetings and we invite you to consider joining the committee. Our next meeting will be Monday July 10, 3:45 on the first floor of town hall and on zoom.