

RESIDENTS DITCH OIL HEATING DURING HEATSMART PROGRAM



The Benjamins took advantage of the HeatSmart program to transition to air-source heat pumps.

Homeowner: Todd and Maureen Benjamin

Year Built: 1956

Style: 2-story Farmhouse colonial

Size: 2,800 square feet

Electric home features:

- Multi-zone ductless air-source heat pumps for heating and cooling
- Ready for electric vehicle charging
- Electric cooking
- Rooftop solar PV
- Radiant floor heating

The Benjamins moved to their home on Sudbury Road in 2012 and it was during the 2018 HeatSmart campaign that they made the decision to replace their oil heat. The decision was based on improving home comfort and the desire to get off fossil fuels, and they did it in a big way, including deep weatherization, solar PV and air-source heat pumps.



The timing was right

The HeatSmart program in 2018 came at the right time, with the homeowners ready to embark on a home renovation project. The Benjamins saw this as the chance to make big changes and take advantage of the community info sessions, financial incentives and coaching that the HeatSmart program offered. The community support to upgrade to heat pumps gave them the comfort level to do their research and move forward.

Their motivations to go electric

Prior to the renovation, the Benjamin home was of moderate efficiency, costing typically \$2,600 per year in fuel oil for home and water heating. The existing system was aging, and like many homeowners, they had never liked heating with oil. Additionally, the two heating zones in their home weren't as comfortable as they desired and the window air conditioners were less than ideal. The home also needed some dehumidification. They wanted to solve as many of these problems as they could in one go.

Reducing heat loss through insulation and air-sealing

In order to transition to heat pumps without a backup heat source, the home needed to be made more efficient, which involved a substantial insulation and air-sealing project to make it as tight as possible. An energy audit provided by Concord Municipal Light Plant helped to identify which areas of the house most needed improvement, and they received a \$1000 rebate to help with the cost. Reducing the heat loss was important for two reasons. It meant they could reduce the size and cost of the heat pump system needed and it made certain rooms more comfortable. Since the heating system was installed in the same year, it's difficult to identify the energy savings from the home weatherization, but it was expected to have a very short payback.

The Benjamins are very happy with their heat pump systems. The 2018 HeatSmart program helped them move forward with their plans to get off of oil and make their home more comfortable. Todd's one piece of advice to other residents thinking of going electric is to "work with people who are willing to listen and craft a plan that is unique to you."

\$32,000

Cost of new heat pump system

\$4,500

Incentives and rebates for heat pumps

10KW

New rooftop solar PV supports electric load

Choosing and installing the heat pump

The 2018 HeatSmart program was helpful in providing information on heat pumps, connecting them to coaching services and enabling an easy estimate from a selected installer. Todd spoke with the Concord coach to understand the equipment options being proposed and ask the right questions to make his decision. He got estimates from several installers. The selected system included two multi-zone hyperheat compressors for the upper and lower floors and 6 indoor air units, two of which serviced multiple rooms through short duct sections. The system seems a good design to get the right amount of heat to all the rooms in a house, which is not a simple task.

Adding solar PV was complementary to heat pumps

The Benjamins also added a solar PV on their roof, which helps to keep the electricity costs down. With the federal tax credit and state and CMLP incentives, the solar pays for itself in just a few years, especially with the heat pump. The 10KW system (36 solar panels) was chosen to cover most of the added electrical load from heating and cooling. However, it isn't perfectly balanced since the winter heating load comes during the months when the solar production is at its lowest. They also installed outlets for electric vehicle charging for an EV when they get one.

Very satisfied with the choice to go electric

Having lived with the system through three winters, the Benjamins are quite satisfied with the choice to go electric. They are happy with how comfortable the home is now, but noted that occasionally the system can blow a bit of cool air when it has a defrost cycle. The system has been able to heat the home even at the coldest winter temperatures they've seen. Todd's one piece of advice to other residents thinking of going electric is to "work with people who are willing to listen and craft a plan that is unique to you."



Interested in how heat pumps can make your home more comfortable and sustainable? Visit ConcordCleanComfort.org for information about coaching, rebates, and more.