

FROM OIL TO GROUND-SOURCE HEAT PUMPS



Sharon Jones transitioned her 1950's ranch home from oil to ground-source heat pumps.

Homeowner: Sharon Jones

Year Built: 1954

Style: Single-story ranch

Size: 1200 sqft + mostly finished basement

Electric home features:

- Ground-source heat pump for heating and cooling
- Electric vehicle level 2 charging
- Heat pump hot water heater
- Electric cooking
- Rooftop solar PV

After living in her Concord home for over 25 years, Sharon Jones made the decision to transition off fossil fuels to heat and cool her home. Now with a ground-source heat pump, she has seen an enormous increase in comfort level. "It's perfect all the time," she says. "It's like being in the lobby of a nice hotel. It's always perfect and you don't even think about it."



The first move toward an electric home

Sharon's transition to an all-electric home was the result of a multi-year process that started with a somewhat surprising but necessary home improvement, septic work. During work to the home's septic system, an electric line was damaged. Sharon jumped at the opportunity in completing the electric repairs to install enough power and an outlet to install an electric vehicle charging station.

The decision to go with heat pumps

The transition to electric heating and cooling was a bit of a snowball effect. Sharon had been thinking about adding air-conditioning to her home and had been maintaining her oil furnace while planning ahead for a transition to heat pumps. Sharon was motivated to stop using fossil fuel. Heat pumps provide a climate-friendly solution. She had heat pump contractors come into her home to evaluate the potential for air-source heat pumps, but Sharon did not like the patchwork approach to using mini-split air-source heat pumps. Due to limited space in the ductwork, a central air-source heat pump would have required replacing the fossil fuel furnace, which was a nonstarter for a climate-oriented homeowner. That led Sharon to opt for a ground-source heat pump solution to provide heating and cooling.

Making the upgrade

An old water heater was on its last legs and replacing that with a heat pump hot water heater, prompted the full upgrade, including a "desuperheater" which uses the ground-source heat pump to pre-heat water going to the water heater.

Sharon took advantage of the support of a heat pump coach who helped her to choose an installer. After receiving multiple quotes, she went with the installer who provided the cheapest quote, but that installer was also the one who answered her questions best and provided the best solution.

PROJECTS	COST	INCENTIVES & REBATES	NET COST
Ground-source heat pump	\$42,287	\$16,861	\$25,426
Heat pump water heater	\$4,150	\$750	\$3,400
Total	\$46,437	\$17,611	\$28,816

\$1,200

Annual energy savings

\$17,000

Utility rebates and tax incentives

"There is a myth that all-electric is terrible and expensive. It's not true."



Challenges and concerns

The finished basement posed challenges for the heat pump transition because it had a ducted supply, but no return. Some installers recommended more ASHP units, but the selected installer recommended simply adding a non-ducted return, which was a cost-effective and efficient solution. Sharon was concerned about whether her home would be comfortable year-round, especially in the cold months, because she heard that without improved insulation the heat pump may not be able to keep up. This has not proven true and her home is comfortable year-round. She is still planning to improve the weatherization of the home with insulation and weather-stripping to further improve the efficiency of the heat pump system.

Advice for others

In addition to working with a heat pump coach, Sharon suggests taking advantage of a home equity line of credit and low interest rates to finance the improvements. She also learned a bit about heat pump water heaters in the process. They come with multiple modes, including an option for electric resistance if the load is not being adequately met. This isn't as efficient, so Sharon suggests getting a larger heat pump water heater and putting it in heat pump mode for improved efficiency.

Leading the charge on climate

Sharon is happy with her ground-source heat pump system and the comfort and climate benefits it provides. Like many homeowners, Sharon wrestled with the question of whether it was worth investing in her property without knowing how long she planned to stay in the home. Sharon came to the conclusion that it was worth it no matter what because getting off fossil fuels is important for curbing climate change. "Should I invest in this property? For me the answer was 'Yes, absolutely.' Whether I stayed or went was not important. I would rather leave this as a legacy."