

Greening FMC: A New Heating System for the Meeting House

For many years, FMC has been making efforts to reduce our environmental footprint. The Trustees Committee and others have taken a number of actions to reduce our energy use and the associated environmental and greenhouse gas impacts. Through these combined efforts we have reduced our CO2 emissions by over 50% compared to 2005.

Proposed New Heating and Cooling System for the Meeting House

Our current project is an electric heat-pump replacement for the old oil-fired furnace in the Meeting House that is nearing the end of its life. The Trustees Committee has identified an electric heat-pump replacement system that:

- Eliminates oil furnace carbon emissions (by 100% using green electricity),
- Heats the building efficiently (electricity cost likely less than what we pay now for oil),
- Filters the air to control the spread of air-borne diseases such as Covid,
- Makes use of the existing ducts and does not require new wall openings,
- Allows for independent control of the basement MAAP space and the Meeting room, and
- Will also provide cooling if we need it in the summer.

Process

To investigate the possibilities for upgrading the old oil heating system in the Meeting House, we hired a mechanical engineering firm Elevated Design (EDI) to evaluate what was there and what the options might be. They designed an electric heat pump based system that has many benefits (as listed above). They produced design drawings and recommended several contractors. We reached out to the contractors and, based on cost and references, have selected Guardian Energy. We received a proposal from them in mid-December with a firm price for two months. The total cost is \$143,000, which is offset by some rebates (see below). We also plan to engage EDI to monitor the contractor's work. A project for the future is the heating system for the Friends Center, which is likely to be more difficult and expensive for a number of reasons.

In December 2023 we published and distributed an initial description of the proposed project. On January 7 we presented the project information in a Sunday morning Forum. On February 11 we held a Sunday afternoon session to further discuss the project and answer questions. We hope to bring this to a Meeting for Business on February 22 to get initial approval.

Financial

The total bid cost for the project is \$143,000; expected utility rebates of \$20,000 reduce the net cost to \$123,000. The Trustees Committee has some funds available but will also need to invest about \$52,000 from FMC's unrestricted invested funds, which on Dec 31 were valued at over \$2,000,000.

Greening Commitment and History

FMC has a long history of environmentally responsible efforts.

On 1/27/2008 the Meeting approved a Minute on Carbon Emissions Reduction (selected items below):

- Faced with firm scientific evidence of climate change and knowledge of the devastating consequences for all life on earth if it is unchecked, Friends Meeting at Cambridge feels called to faithful action. **We are prepared to take substantial measures to reduce our own households' and the Meeting's greenhouse gas polluting.**
- We envision that this process will include **contracting for professional consultation regarding the costs and efficacy of our options and that it will progress incrementally**, though without delay.

Some previous actions that have been taken are:

- Installed energy-efficient lighting in all the buildings;
- Installed a dish sanitizer to eliminate the need for disposable plates and utensils, switched to cloth napkins, implemented food composting;
- Commissioned the 2010 EnerSpective Study (energy and water efficiency assessment report) that identified and prioritized improvements to building enclosure, heating, domestic water, ventilation/cooling, and lighting;
- Organized 2012 HEET Volunteer Day (energy- and water-saving improvements);
- Switched to 100% Green Electricity through the City of Cambridge;
- Renovated Friends Center and Meeting House windows (reducing air leakage, \$50k Cambridge Historical Commission (CHC) grant);
- Installed a new energy-efficient exit door on the Meeting House;
- Blower door test and thermal imaging for Meeting House (Spring 2023); and
- Added storm windows on Meeting House (CHC grant) (Fall 2023).

These combined efforts have reduced FMC's CO2 emission by over 50% from what they were in 2005.

The new electric heat pump heating and cooling system proposed for the Meeting House is another step in our commitment to carbon emissions reduction.

If you have any questions contact Mark Webster or David White at trustees@fmcquaker.org