

August 2019

Property Committee Update:

FIRST YEAR OF MINI-SPLIT, HEATING AND COOLING

A brief history of energy use at Frederick Friends:

FFM purchased the building in August 1994. The main energy question we asked was how long would the boiler last that heated all three floors of the building. We replaced the front first floor windows because of lead and children's access but not energy efficiency. Our first effort at reducing energy consumption was using Interfaith Power and Light's buying coop to reduce our energy rate with Potomac Edison (PE) and get connected with renewable wind energy. In 2007, Property Committee started looking into insulating the building and other possible energy improvements. In 2008, FFM hired Housewarmer LLC for 20,351.00 to air seal, blow insulation and evaluate water usage and solve other issues. The scope of work involved all levels of the building and moved the building from 3 "air-exchanges" per hour to just one. This reduction has resulted in a 20% drop in total, yearly energy use.

By 2016 -17, Frederick Friends asked other energy questions for the Meeting House and our personal homes. A solar committee met to see what it would take to install solar on or around the building but was not able to reach a consensus on the many factors involved (site, design, money, ownership etc.). In 2018 a request for air-conditioning lead the Meeting to once again consider energy use in the building. A consensus was reached over the need to reduce our fossil fuel use and if possible move to an electric heating source that would be generated by renewable energy. FFM installed a mini-split heating/ air-conditioning on the first floor or Zone one (large meeting room, small office and front children's room). This systems is now a year old.

In 2019, Property Committee found a way to help Meeting use renewable energy. By using "Community Solar", a new MD state created energy alternative, FMM could buy into solar without installing panels on the property. A company using this concept (Common Energy) enables Meeting to buy credits in a local Solar array (renewable energy) and satisfy 90% of our electrical usage at a 10% discount from PE's rate. Thus at least 90% of our electrical usage will be from a solar array.

One year use of mini-splits at Frederick Friends:

Bottom line questions:

Did Meeting use less energy?

Yes.. during the July 2018 to June 2019 we used 3500KWH less of energy compared to averaging the past 2 years. This saving was mainly from mini-split heating in the large meeting room. Increased electrical use from air-conditioning on Sunday mornings was not a significant change.

Did Meeting save money?

No... We spent \$226 more in the 2018-2019 year. On average, gas cost about \$0.030/KWH and Electricity Cost \$0.117/KWH. Both energy sources have costs that can vary monthly. Gas is

cheaper than electric and this is the reason for the higher energy bill this year. Fossil Fuel cost are expected to rise as the world becomes more aware of Climate Disruption.

What problems were created for Meeting in using the Mini-splits?

In general, Property Committee had very few complaints about the new energy system. No one complained about noise or temperature. Turning the remote on and off, or setting the temperature was a challenge as we expected. (Giving the cooling /heating controls to forty Quakers could be part of the problem.) The biggest problem was resettling the units back to base temperatures before permanently leaving the room.

Specifics of Mini-split:

Installation Date: June 2018

Cost: \$12,031.00

Equipment: L.G. Model: LMU 36 CHV, 36000Btu, seer..22 HSPF.. 9.7
Plus four indoor units-- 2@ 14,300Btu, 1 @9,000Btu, 1 @7000Btu.

This data analysis was done using the past three years of gas and electric use in the building. There are four charts available showing past trends and future trends of Mini-split use in the large meeting room. These charts are not included here because of the need to explain many details incorporated in the analysis. If you are interested in the details, call Bob Hanson or David Kuntz.

Submitted by Bob Hanson and David Kuntz, August 2019