

February 23, 2024

To: UMC Leadership Team and Membership

From: Jean Landis and Matt Rooke for the Creation Care Committee

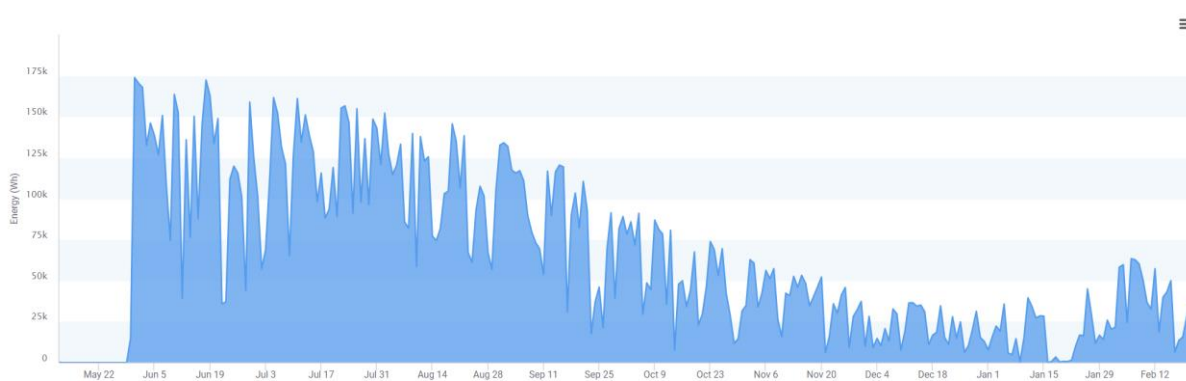
Re: Creation Care Committee Report

The Creation Care Committee aspires to bring the church building into compliance with a Net-Zero Energy Plan.

**Prong 1--Solar Panels:** The first prong of our aspirational two-prong plan was implemented through the installation of 75 rooftop solar panels which began generating energy from the sun on May 31<sup>st</sup>. Since then, the solar panels have been producing more electricity than we have been using, enabling us to bank credits to use during the winter months.<sup>1</sup>

Using several years of utility data from West Penn Power, Matt Rooke set up an ENERGY STAR PortfolioManager account so we can track our progress. ENERGY STAR is a program run by the U.S. Environmental Protection Agency (EPA) and U.S. Department of Energy (DOE) that promotes energy efficiency. PortfolioManager is the primary national program for benchmarking facility energy use. The building score represents our percentile energy consumption against similar facilities. We chose 2019 as our benchmark year. In 2019 the meetinghouse score was 68. In 2023, with half a year of production from the solar panels, our score was 74 which means we rank in the top 26% similar worship facilities.<sup>2</sup> We should see the score rise in 2024 as we see a full year of energy production. Matt anticipates that we will reach a score at or above 75 by June, which will make us eligible for ENERGY STAR certification. If we reach that benchmark, we qualify for EPA recognition and will plan a congregational celebration! Since 2010, 127 Worship Facilities have earned an ENERGY STAR certification, but none have been certified in Pennsylvania.

UMC Daily Solar Production to Date



Solar power project has a much bigger impact on energy costs than on energy use (GHG, EUI or the ESTAR score). Solar power isn't considered "free energy" in this tracker, and we don't get "credit" for the electricity the system produces and sends to the grid (we do get "credit" from the utility company, thankfully!). Since

<sup>1</sup> Anyone interested in the detailed usage and savings figures can request them from the committee.

<sup>2</sup> Anyone interested in examining the ENERGY STAR PortfolioManager data can request it from the committee.

the system came online in June 2023, we have generated 14,000 kWh of energy; extrapolated to a full year, this means \$3,100 worth of electricity and the equivalent greenhouse gas reductions of taking 4 ½ automobiles off the road.

**Prong 2—Optimal Energy Conservation Measures:** At the time Matt set up this portfolio manager, the committee had not yet completed many projects to reduce our building’s electrical usage. In conjunction with the on-site solar production we now have, if we are to achieve net-zero energy consumption, we need to implement the planned conservation measures that were proposed as the second prong of our net-zero plan. To that end, in December and January, Matt, Jim and Marvin carried out several activities related to increasing energy conservation: identified potential sources of heat loss, added and replaced insulation, and solicited quotes for high efficiency heat pumps.

Insulation: Matt Rooke inspected the attic adjacent to the sanctuary and found multiple areas of heat loss that needed insulation. He recommended the following:

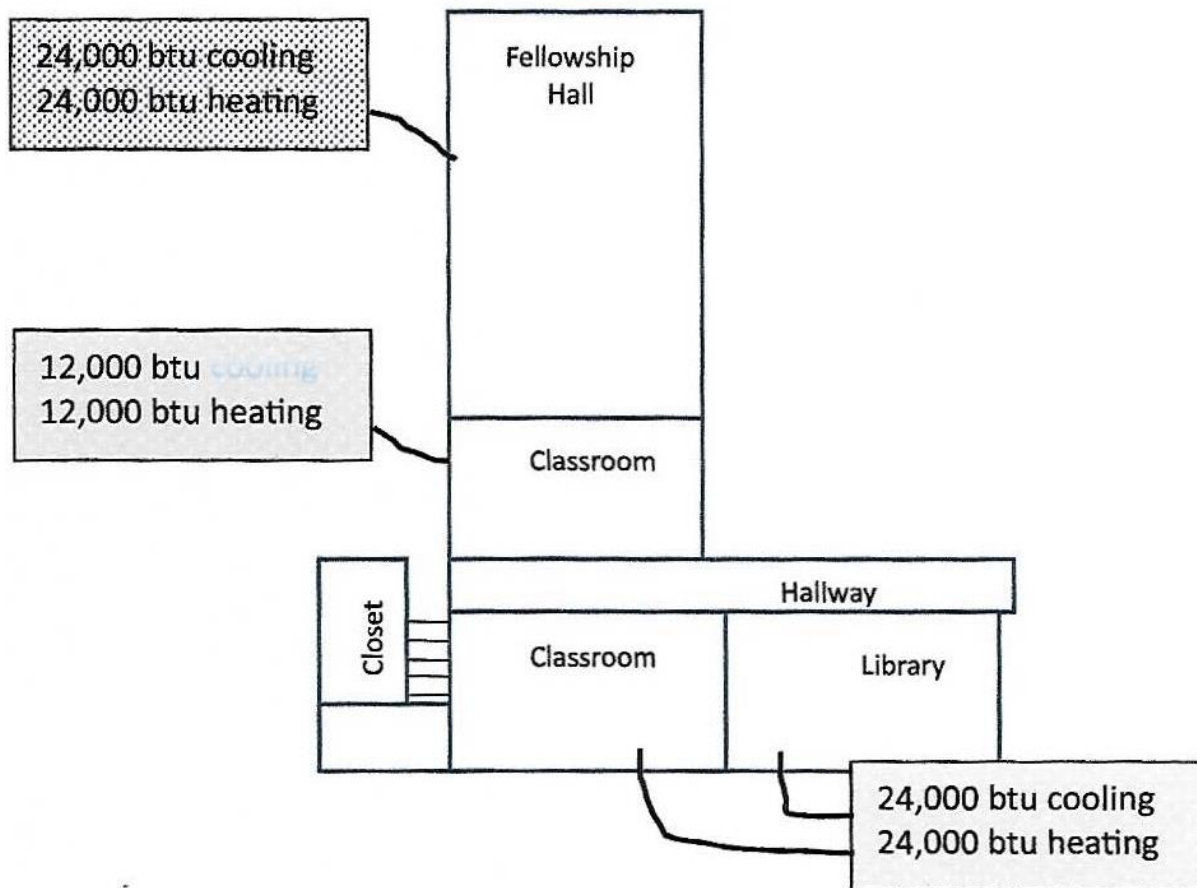
- 1) Secure and air-seal the exhaust fan duct connection to the sanctuary grille. There was a big gap and should be the priority.
- 2) Insulate the back of the plywood panel behind the exhaust fan grille.
- 3) Replace the batt insulation where it has fallen down on the wall between the attic and sanctuary.
- 4) Air seal any small gaps or penetrations in ceiling between attic and foyer/classrooms and make sure insulation is in place.
- 5) Cut access from the side attic into the attic behind the altar/stage area. Make sure all insulation is in place (identified at least one big gap missing area through IR camera).

On January 24<sup>th</sup>, Matt, Marvin and Jim completed the identified insulation work (See some before and after photos below—additional photos can be viewed upon request). Matt reported that it’s hard to calculate exactly how much energy savings would be realized. However, since they were able to close some significant gaps from the sanctuary to the vented attic and replace a good bit of the insulation that was out of place, he estimates an approximate 4% of heating energy savings. Marvin added insulation behind the stage in the front of the sanctuary, which should also save some heat loss. These combined efforts are getting us a little closer to net zero, but to reach that goal, where possible, we need to replace our resistant heat sources with high efficiency heat pumps.

Heat Pumps: Jim obtained two updated quotes to install high efficiency heat pumps in the church basement, one from Integrity Heating and Cooling, LLC and one from Stan Bierly. The two companies’ costs were similar, but they differed in their approach. The committee met twice to review the two quotes and decided to present the following proposal from Integrity to the congregation:

**Integrity High Efficiency Heat Pump Proposal \$23,000**

- 1-24,000 btu head in Fellowship Hall
- 1-12,000 btu head in North classroom
- 1-12,000 btu head in South Classroom
- 1-12,000 btu head in Library



As shown in the illustration, this approach would involve the installation of three outside heat pump units and four inside wall mounted heads. All units carry warranties of 12 months for parts and 1 year for labor.

As noted in our last report, the passage of the Inflation Reduction Act (IRA) offers tax credits and/or rebates for the installation of high efficiency heat pumps. The committee still is exploring our eligibility for these incentives, as well as for additional grant funding opportunities to help defray the cost.

The Creation Care Committee:

Marvin Hall

Kathryn Heinzl

Jean Landis

Matthew Rooke

Jim Rosenberger

Some Before and After Photos of Church Attic

