Cool Congregations Challenge Application

Energy Efficiency with Lights, Insulation, and Heating & Cooling
Energy Saver Category
Project dates: **January 2017 to April 2019**
Cost savings: **$5,545/year**
Emissions reduced: **105,632 pounds of CO2 per year**
% of energy savings:
  - 40% savings of electricity
  - 20% savings of gas

• Describe the challenge that your congregation faced.
The main challenge was meeting our congregation’s commitment when we voted in January 2017, “By 2030, our congregation commits to reduce its carbon pollution from the building by 50%.”

Also, we had multiple challenges implementing energy-saving projects that required retrofitting into a building with three interconnected sections, constructed or remodeled over 100 years.
  - **Lighting**: The sanctuary was lighted by incandescent chandeliers and stage lights controlled by an obsolete and failing dimming system. Other lighting consisted of old fluorescent fixtures, many of which were failing.
  - **Insulation**: Attics in the Education Wing and Fellowship Hall needed additional insulation. However, the Education Wing also needed extensive work to stop warm air from leaking through holes in an old ceiling concealed above a suspended ceiling.
  - **Heating and Cooling**: Several furnaces and air conditioners were failing, outer rooms had temperature problems, and the under-slab ducts in the Education Wing were collapsing. We found difficulties obtaining bids for these complicated problems in a very active construction market. However, one HVAC company located nearby stepped forward with a reasonable proposal.

Our final challenge was finding funding for these needed improvements.

• Explain how challenge was met
We started reducing our carbon pollution with a series of energy efficiency projects. We used the free energy audit done by our utility company and free assistance from the Energy Group (a local engineering firm) to identify options, obtain bids and engage contractors.
  - **Lighting**: A church member who was a licensed union commercial electrician worked with a lighting firm to design and fabricate custom LED light assemblies for our huge Sanctuary chandeliers, and supervised the hanging of the light assemblies. He also installed the new LED stage lights, replaced the failing dimmer system and control, and wired everything.
  - **Insulation**: Church members prepared the Education Wing and Fellowship Hall attics by fixing missing ceiling areas and putting down walkways. A contractor installed more insulation.
  - **Heating and Cooling**: A local company developed a heating, ventilation and air conditioning (HVAC) system to replace the failing furnaces and air conditioners in the Education Wing, consisting of a furnace/AC system for the first floor and a multi-point heat pump system for the upper floor. The HVAC contractor also replaced most of the air conditioners and several furnaces with high-efficiency units. Church members worked with the contractor to help find
locations and pathways for furnaces and AC lines, solve roof leaks and help commission the systems.

A capital campaign was underway as we started. It was helped by stipulating 15% be used for projects outside the church (so people would feel we were not just spending money on ourselves). The 15% did not include energy-saving projects.

• Describe the final result, and if appropriate, the type of involvement from congregants or community.
  • **Lighting:** Converting the sanctuary lights to newly developed LEDs saved 90% of the energy used by these lights. Sanctuary light quality also improved. In addition, lights were replaced in the corridor, office and classroom with LED panels or drop-in LED tubes. About 75% of major lights were converted to LEDs.
  • **Insulation:** Insulation was updated to an r-value of 38 in the two main attic areas.
  • **Heating and Cooling:** More energy efficient HVAC systems completely replaced existing units in the Education Wing, Fellowship Hall upper level, and the Narthex. The HVAC system for the Sanctuary was renovated with new air conditioning equipment.

(See also “how challenge was met” for types of involvement.)

We are seeing a 40% savings in electricity and 20% savings in gas compared to recent seasons with similar weather. This has set us up well to tackle the next step of installing solar panels to complete our goal of 50% carbon reduction.

• Explain what inspired your congregation to do this project, and what about this project others will find inspiring?
  Our green team was inspired by Mary Pipher’s book, *The Green Boat: Reviving Ourselves in Our Capsized Culture*. She described the importance of supporting each other on this challenging and often discouraging journey. So we named our team “Green Boat” and now start each meeting with a potluck and time to talk and support each other. Then we get down to team business.

We shared our inspiration with the congregation through IPL workshops, soup & movie events after church, adult education, 5-minute pulpit times, newsletter articles and posters.

An important part of getting our congregation behind action for climate change was to choose a goal that seemed attainable. The first step of the Paris Pledge was attainable, but the second step of being carbon neutral was too big for our congregation, and even our green team had trouble envisioning how we could attain it. So we asked the congregation to vote to commit to reduce its carbon pollution from the building by 50%, and they were able to get behind it.