

St. Thomas Lutheran Church's Quest to Lower Its Energy Use

Per cent of households achieving the 14% goal:	33%
Average reduction by those households:	22%
Reduction in natural gas use:	43%
Reduction in electricity use:	8%

In 2007, St. Thomas did a building expansion that paid some attention to energy efficiency. Enhanced insulation, fluorescent lighting, and double-pane windows were among the features that created a much improved building envelope. Another aspect of the project that has saved energy was combining all of the offices into a central location, which has a separate HVAC system. This makes it possible to use only one of ten thermostats (and one HVAC system) during most office hours. Two adjacent meeting rooms are on the same system, and day-time and evening meetings are almost exclusively held in these rooms.

In 2010, St. Thomas established a Green Team, named by the Congregation Council and charged with the tasks of completing the Task of the Month program for household energy conservation, reducing congregational energy usage with a target of 50%, seeking renewable energy alternatives, and overseeing final designs for a building expansion project—with a view to the other changes. Through a matching grant from the Indianapolis Center for Congregations in 2011, funds were used to obtain a full energy audit, assist with architect costs, and pay a consultant to design a low-energy solution to lighting issues in our sanctuary.

Following the energy audit in the fall of 2012, the Property Committee set about completing the high-return repairs that were identified. These include sealing gaps in walls and at ceilings, reconnecting disconnected HVAC conduit in two ceilings, and fixing air leaks around windows and doors. The Property Committee is also gradually replacing all of the old T-12 fluorescent lights with more efficient T-8s, a task that will be completed in 2014. And the Green Team did research that discovered an important new set of guidelines related to church organs. It had been our practice to keep the largest room in our building—the sanctuary—at 68 – 74 degrees year-round. We learned that organs can handle somewhat greater temperature fluctuations without significant problems with tuning or maintenance. The range is now 62 to 80—a very important factor in our energy savings. We keep the other zones between 58 and 80.

A key factor for energy conservation is recognizing the thermal inertia of the building and using the thermostats to limit temperature excursions whereby a setting of 80 means the room temperature will not exceed 80 degrees but the actual temperature will usually be lower. In previous years when cooling was maintained in the low 70's our electric bills for July and August were more than double the other months. Now our summer electric bills are dramatically lower because the indoor temperature fluctuates a few degrees in the upper 70's without using the air conditioner compressors. Few complaints have been received after the plan was explained. People have adapted by learning that long sleeves and sweaters are not necessary to counter the effects of excessive cooling. Short sleeves are welcome for summer worship.

The Green Team assisted in planning for a new expansion that is now set for completion within two years and will include a geothermal HVAC system, enhanced insulation, and all LED lighting. In October of 2012, the Green Team recommended to the Congregation Council that the obsolete and insufficient sanctuary lighting be replaced according to the consultant's plan with LED lights. Combining some funds from a bequest and the remainder from existing capital improvement funds, the Council and congregation voted to move forward with the plan. Completed in October of 2012, 15,800 watts of incandescent lighting was replaced with 838 watts of LED lighting—about one-nineteenth of the energy. This achieved a tripling of illumination, modernization of lighting-effects capability, and the ability to spot light significant liturgical furnishings.



After completing the Task of the Month program (available through Hoosier Interfaith Power & Light), yet another opportunity presented itself. The Office of Energy Development provided a \$150,000 grant to H-IPL to assist congregations with installing solar arrays. Since congregations were selected based on progress on energy reductions, St. Thomas was selected to be one of six congregations to receive \$25,000 towards the project. We added \$41,000 and installed a 27.56 kilowatt solar array on our south-facing roof that went online on April 10, 2013. It has already produced nearly 19 megawatts of electricity, and we expect it to generate at least two-thirds of the electricity we use on an annual basis. Only \$25,000 of the total cost was in the form of a loan, and we fully expect to pay that loan off within eight years—using the same budget for electricity that we have had for several years now. We will reduce that line item in our budget only after the loan is fully paid off. After that, we will have an increase of more than \$2,000 more for our mission and ministry. With the rising cost of electricity, this benefit will only increase over time.



These significant developments at St. Thomas were made possible by a growing commitment to caring for God's good creation. The congregation started recycling and asking members to bring their own mugs for coffee hours way back in the 1980s. Awareness of problems related to the environment, especially climate change, has dramatically expanded efforts to cut back on carbon footprints at home and in the congregation. The pastor led the way, installing



geothermal HVAC at his home in 2007 and a solar array in 2011. Other members have done the same, and the pattern will grow with time—of which we believe we have very little if we are to soften the long-term effects of climate change on our planet and on generations to come.