Luther's Greenhouse Gas Reduction Goals

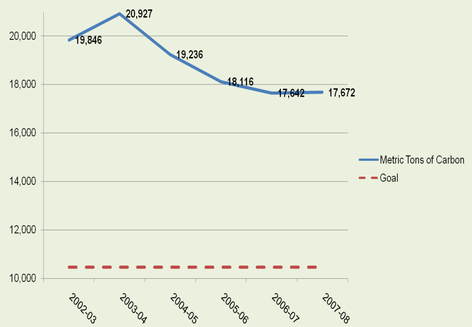
1) Reduce carbon emissions by 50% in the short term
2) Develop a plan for carbon neutrality

Luther's Sesquicentennial strategic plan; Presidents' climate commitment

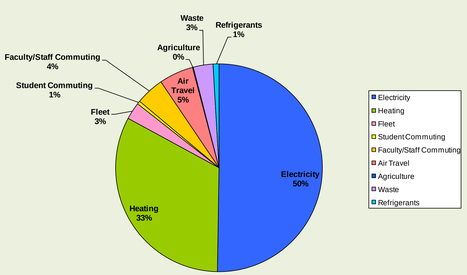
Luther College's Greenhouse Gas Reduction Goals and Strategies

Luther's carbon footprint

Luther's GHG Emissions FY 03-08



Total CO_2 Emissions 07-08



Luther's 50% reduction strategy

Phase I: Energy Efficiency (15.5%)

Energy Audit and Efficiency Upgrades

A 2004 audit of 17 campus buildings identified several projects with significant savings potential

- Luther invested $1.5 million in energy efficiency initiatives with an average estimated pay-back period of seven years
- The most significant of these projects was an energy management and control system that controls and monitors the heating, ventilating and air-conditioning, as well as lighting systems for every room of every building on campus.
- Luther reduced its peak 2004 electricity consumption by approximately 23 percent and its heating fuel emission by approximately 17 percent by switching from #6 fuel oil to natural gas.
- The college's savings have been greater than expected, allowing for additional investments in energy efficiency and professional feasibility studies regarding renewable energy options.

New Sampson Hoffland Laboratories

(completed fall 2008)

LEED Certified – Gold level

Rocky Mountain Institute Grant

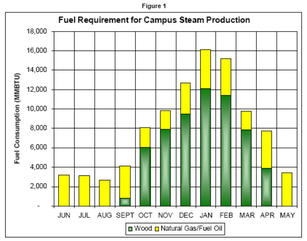
Luther is one of twelve colleges and universities selected to receive a $45,000 seed fund grant to improve energy conservation and management on its campus

Wood Chip Energy

Luther is exploring installation of a wood chip boiler (or similar gasification system)

- Would work in tandem with Luther's existing heating plant.
- One 400 horsepower wood fired boiler would supply approximately 59,502 MMBtu of steam heat and displace approximately 62 percent of the college's natural gas consumption.
- This would offset another 2,970 MT of greenhouse gas emissions, enabling Luther to reduce its peak campus carbon footprint by an additional 14.2 percent.
- Estimated total installed cost is $4,881,250

Figure 1



Phase II: Wind Energy (15%)

Current Status

Luther plans to install one (1.65 MW) turbine on the bluff west of the campus

- Generate app. 4.9 million kWh per year
- 35% of 14.4 million kWh consumed in FY 08
- 3,102 MT greenhouse gas reductions
- 15% additional carbon footprint reduction
- $3,752,385 total installed cost for one Vestas V82 turbine.

WindVision

Contract for Carbon Offsets

Luther has contracted to purchase renewable energy certificates (RECs) from Wind Vision, LLC, a community wind project in St. Ansgar, Iowa.

- The turbine is projected to produce at least 2.5 million kilowatt hours of electricity per year.
- The related RECs will offset an additional 1,550 MT of greenhouse gas emissions, enabling Luther to reduce its peak campus carbon footprint by an additional 7.4 percent

Phase III: Biomass Boiler (14.2%)

Phase IV: Carbon Offsets (7.4%)