Creative Approaches to Financing Efficiency and Renewable Energy Projects
Luther College, Decorah, Iowa

ABSTRACT Meeting climate action goals requires creativity and innovation not just in technology but in approaches to financing. In order to meet its aggressive carbon reduction goals, Luther College has utilized numerous financing techniques with both efficiency and renewable energy projects. A combination of grants, loans, third party investors, internal financing and other approaches have enabled Luther to meet its goal of reducing its carbon footprint by 50% with minimal use of offsets. Luther generates its own electricity with the largest solar array in the state of Iowa and a utility-scale wind turbine connected to the campus grid. Renewable energy is important but energy efficiency projects have the biggest impact and the best return on investment. Luther College has demonstrated that carbon reduction is not only possible but cost effective with creative approaches to financing.

LUTHER COLLEGE
• Residential, selective liberal arts college in Northeast Iowa
• 2400 undergraduate students
• Rural setting
• Electricity purchased from Alliant Energy, mostly coal
• Heat from on campus boiler, natural gas
• Focus on Electricity as largest component of campus carbon footprint

CLIMATE ACTION GOALS
• Charter signatory of ACUPCC, 2007
• Climate Action Plan approved by Board of Regents, 2012
• Emission Reduction Goals
• 50% from 03-04 peak by 2015
• 70% reduction by 2020
• 100% net-zero emissions by 2030

CLIMATE ACTION FUND
• Dedicated fund for energy projects
• Strategic investment of budget surplus dollars
• Reinvest savings from previous projects
• Available funds to big and small projects
• Projects vetted through the Energy and Water Task Group of Campus Sustainability Council
• Approval by Facilities and Sustainability Committee of Regents

CARBON OFFSETS
• Minimal use of offsets to achieve reductions
• Skepticism of validity and additionality of many carbon offsets, including those offered by investor-owned utilities
• Climate Action Plan limits use of offsets to no more than 25% of reductions with priority given to local projects with known entities
• Current offsets come from a community-scale wind project 50 miles from campus

ENERGY EFFICIENCY PROJECTS
• Reduced electrical usage by over 30% while adding new buildings
• Over $2.2 million invested in energy efficiency since 2004
• Most cost efficient way to reduce emissions

EFFICIENCY FINANCING
Utility Performance Contract
• Alliant Energy supported a comprehensive study of energy usage and opportunities
• Luther borrowed and invested $1.5 million to work in 17 buildings: including efficient lighting, variable speed motors, and energy management system
• 7-year payback; now saving ~$250,000/year; adds to Climate Action Fund

Operating Budget Adjustments
Identify and complete cost-effective efficiency projects with internal financing
• 25 efficiency projects currently tracked
• Cost: $740,000
• Average payback: 3.6 years

Energy budget savings
• Ongoing list of projects to be completed when energy expenses are below budget
• Dedicated portion of lighting budget to phased LED conversion

Grants
• Studies funded by private foundations, state government, utility program

CAMPUS SOLAR PV
• 1.13 megawatts of PV in 6 locations on campus
• 2 large arrays installed 2012 and 2015
• 1.4 mil kWh/year

SOLAR PV FINANCING
2015 Array – 810 KW, $1.6 million installed
• 3rd party PPA (power purchase agreement) - fixed price for 10 years with Oneota Solar, LLC, owned by a local investor
• After 10 years Luther acquires ownership of the facility
• “Open book” negotiation with investor
• Projected Savings: $1 million over the 25-year-rated life of the panels.

2012 Array – 280 KW, $1.2 million installed
• Pairs with geothermal for net zero residence hall for 100 students
• Leased equipment for 7 years from private company, owned by a local investor
• Lease payments are funded by avoided electricity purchases
• Additional funds from donations earmarked for renewable energy
• SRECs (solar renewable energy certificates) sold to Decorah Bank & Trust to reduce the bank’s carbon footprint
• After 7 years Luther acquires ownership of the facility
• Projected savings: Luther will pay less for electricity over the 25-year-rated life of the panels than it would to purchase electricity from the grid

WIND TURBINE FINANCING
$3.2 million – total project cost
$971,250 – Federal treasury grant (American Recovery and Reinvestment Act)
$500,000 – USDA REAP grant
$928,200 – low-interest debt (guaranteed through USDA)
$350,000 – interest free debt (Iowa Energy Center)
$1,150,000 – Luther investment
13-year payback
Projected savings – over $1 million during the 20-year life of the turbine.

OVERALL PROGRESS
• Achieved 50% reduction goal in 2015 based on 2004 peak emissions baseline
• Positive impact on the bottom line – money available for future projects as well as to support educational mission of the college
• Demonstrated the business case for sustainability

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