



A Strategy for Self-Funding Energy Efficiency Projects

By Paul Chamberlin



Facility managers have long struggled to fund pure energy efficiency projects, when that funding competes with repair and modernization needs. Through persistence and some good luck, the University of New Hampshire found a way.

IN THE BEGINNING...RESTRICTIVE REBATES

Through the early 2000s, steady investments in energy efficiency improvements had been made as the campus leveraged its own funds with rebate programs offered by the local utility companies. However, these programs became more restrictive, concurrent with UNH investing in a combined heat and power plant to better utilize on-site energy, but which essentially eliminated any remaining eligibility for rebate programs. While renovation and new construction projects continued to require high-efficiency lighting, motors and HVAC systems, investment in pure energy efficiency projects stopped and campus energy use intensity (total energy per GSF) started to climb; an unacceptable trend for a campus with a strong culture of being “green.”

EEF: INVESTING IN ENERGY EFFICIENCY

Campus energy managers, members of the Office of Sustainable Programs and the campus Energy Task Force (ETF) recognized that a dedicated funding stream for energy efficiency improvements was needed if the trend was to be

reversed and the concept of an Energy Efficiency Fund (EEF) was developed. The fund would invest in energy efficiency improvements and the value of the estimated annual energy savings would be returned to the fund through a surcharge on the utility rate charged to campus units. (UNH utilities operate as a cost center and charges campus units for utilities consumed.) This would replenish the fund and allow further investments.

However, an initial source of funds needed to be found. After several unsuccessful initiatives, in 2009, UNH was able to secure a \$650,000 grant of American Recovery and Reinvestment Act (ARRA) funds, and the EEF was launched. Since then, UNH has seen more than \$500,000 in energy savings “returns” and the Energy Task Force estimates that after a decade, the university will realize about \$3 million in energy savings and prevent more than 8,500 metric tonnes of greenhouse gases from being emitted—the equivalent of over 1,600 passenger vehicles or 19,000 barrels of oil.

The EEF is a “revolving” fund: savings from the energy efficiency projects are estimated using a combination of sub metering and engineering estimates that follow the International Performance Measurement and Verification Protocol. Savings are captured through a System’s Benefit Charge included in the utility costs charged to campus units. Thus a slightly higher rate offsets lower consumption due to the energy efficiency

improvements and the net impact of funding the EEF on campus units is cost neutral. Gas and electric utility companies recover similar costs from their customers using similar system benefit rate structures. The UNH Energy Office targets an average five-year payback on projects funded. Project selections are approved by the UNH Energy Task Force, which comprises administrators, faculty, staff, and students from across campus.


- The EEF has already invested in many projects, including:
- Efficient lighting retrofits across campus
- Digital lighting controls in the main library
- Insulating steam distribution piping
- Upgrading a lab ventilation system in the engineering building. The building will also see one of the next investments, a passive solar heating system

- Updated equipment in UNH's cogeneration plant
- A recently initiated retro-commissioning program which targets 5 to 20 year old energy-intense buildings where we believe returning HVAC systems to peak performance can result in significant efficiency improvements

In the most recent Fiscal Year 12, UNH saved over \$250,000 from projects the EEF funded.

MEETING OBLIGATIONS

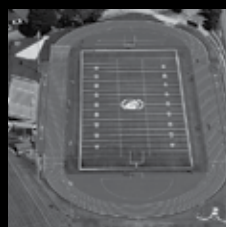
The fund is part of UNH's climate action plan, WildCAP, and is an important element of the UNH strategy to meet its American College + University Presidents Climate Commitment obligations. In 2011, UNH joined 32 other colleges and universities to launch a national challenge to invest in revolving funds that finance energy efficiency upgrades on campus. Called the Billion Dollar Green Chal-

lenge, the effort is being coordinated by the Sustainable Endowments Institute. The challenge is inspired by the exceptional performance of existing green revolving funds, which have a median annual return on investment of 32 percent, as documented by "Greening the Bottom Line," a report published by the Sustainable Endowments Institute. 

REFERENCES

1. The University of New Hampshire (UNH) main campus, located in Durham, NH, has an enrollment of over 12,000 undergraduate and 3,000 graduate students. The campus has 5.6 million square feet of building space.

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