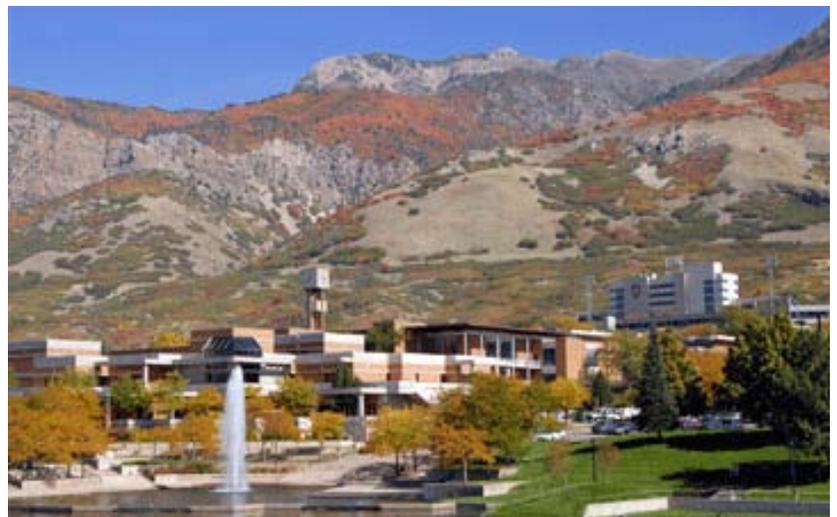


Weber State University

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Summary

Location: Ogden, Utah

Full-time student enrollment: 24,048

Combined gross square footage of all buildings on campus: 2,619,258

Endowment: \$62 million

Type: Public

Weber State University (WSU) began its \$9 million revolving fund in 2010 after securing seed money through a loan from the institution's endowment and other capital sources. To allow the fund to expand beyond its original size, 25 percent of cost savings from efficiency projects accrue to the general utilities budget; 75 percent will replenish and grow the revolving fund even after the initial project cost has been repaid. However, this earmarked 75 percent is currently being used to repay the endowment loan. As of May 2010, WSU is anticipating \$1,000,000 in annual energy savings by 2015, and will fully repay the endowment loan (with interest) in nine years.

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History

Negotiating a Green Budget

WSU's move toward sustainability was formalized with President F. Ann Millner's 2007 signing of the American College and University Presidents' Climate Commitment.¹ As the university took steps to reduce its environmental impact, it soon identified the need for a reliable funding mechanism to support efficiency projects on campus. In cooperation with the administration, the facilities management team was able to design a self-sustaining green revolving fund.

The first step to making the green revolving fund a viable option for the university was to establish guidelines for its maintenance and how it would "revolve."²

*According to Jacob Cain, Energy and Sustainability Manager at Weber, "We made an agreement with the administration that [the fund] would receive 75 percent of all energy savings we can generate [through efficiency investments]."*³

In order to calculate savings, the energy management team measures every commercial utility meter at a baseline figure. Using that baseline, the team calculates cost comparisons for each utility bill. In this way, the energy management and facilities teams developed a process that enabled the university to finance projects producing a clear return on investment through reduced operating expenses.

However, the facilities team was concerned that, after the fund was established, the administration would use the energy savings as a justification to cut baseline utility budgets. This would pose a fundamental problem for facilities managers, because without consistent funding of the utilities budget, their ability to meet basic functions would likely be compromised. This would reduce the incentive for the facilities team to identify and install efficiency projects, and thus limit the ability of the fund to finance new projects on campus.

To prevent reductions in utility budgets, the facilities team worked with school administrators to agree to maintain a fixed utility budget that would increase to reflect increasing rate changes and campus growth. According to Cain, “The administration will take risk for campus growth (increase in square footage) and for utility rate increases. The energy program will take the risk for changes in building function (computer labs) and weather.”⁴

Securing Start-up Money

With the framework for the fund’s operation in place, the facilities team then began to search for sources of seed capital. Weber examined a number of options, including issuing bonds, municipal leasing, and hiring an energy service company (ESCO). While the university explored working with an ESCO for a year, ultimately they were unable to “swallow the high markup costs associated with doing projects through an ESCO.”⁵ Instead, the university bought the investment-grade analysis and pursued an

alternate funding source. After internal analysis, fund managers determined that the most practical method for funding WSU’s efficiency projects was to leverage the university’s endowment.

In May of 2010, the administration invested \$5 million, or 8 percent, of the university’s endowment into a green revolving funding mechanism. Efficiency projects financed through the fund are anticipated to generate over \$1 million in annual energy savings by 2015; the fund is projected to payback the endowment’s loan in nine years.⁶

Weber financed the fund from their endowment as an investment, rather than a one-time grant or gift. In this way, Weber was able to structure the seed funding as an investment inside of its endowment portfolio, which avoided any logistical barriers involving how the endowment funds can be used. Often, donors contribute money to endowments as restricted gifts in order to specify how an endowed gift may be spent—but there are very rarely restrictions placed on where such gifts can be invested.

To supplement the endowment seed money, the facilities team acquired one-time funding sources to begin the fund. These included grants from the American Recovery and Reinvestment Act of 2009, funds from Weber’s capital improvement budget, utility rebates, other grants, and cost savings from previously installed efficiency projects. This combination of one-time allocations, added to the endowment loan, brought the total fund size to \$9 million.

Operations

WSU's Revolving Fund Overview

Name: No official title at present

Year created: 2010

Size: \$9 million

Source of capital: Endowment, external grants, rebates, and others.

Average payback period: 9 years

Administrator: Facilities Management Team

Largest project financed: \$2.25 million invested in interior lighting retrofits and lighting occupancy sensors

In order to select projects, the committee performs a life-cycle cost analysis of all proposed projects to determine their eligibility.

Projects do not have to meet any minimum financial return or payback period requirements to receive funding, but must demonstrate a clear return on investment. The committee presents satisfactory proposals to senior administrators, who give final approval for projects and decide how much funding to allocate for each.

Managing the Fund

The entire WSU campus community can submit ideas for energy conservation projects. Proposals are sent to a four-person facilities committee that is responsible for identifying and reviewing potential efficiency projects. This committee is composed of the university's Energy Manager, Associate Vice President for Facilities, Director of Campus Planning and Construction, and the Director of Plant Operation.⁷

Project Data

As of December 2010, the committee had identified nearly \$8 million worth of potential projects. Out of 26 proposed projects, the institution had begun implementing 13, and 10 more were slated to begin in 2011. In 2010, the fund's first year of operation, efficiency projects accrued \$440,000 in cost savings for the university.⁸ The revolving fund's projects target a range of conservation strategies, such as installing



Nearly six miles of insulation was installed on the steam lines, condensate lines, and chilled water supply and return lines in Weber State buildings in 2010. Projects like these help to keep the efficiency of the pipe system high

high-efficiency lighting and occupancy sensors, improving HVAC monitoring, and installing solar water heating technologies. In the following section, two examples of projects financed by WSU's green revolving fund will be examined.

Example 1 – Piping Insulation Project

In July 2010, the four-person review committee approved a project that would replace insulation for steam pipes. Insulating hot water pipes reduce heat loss and can maintain water temperature 2°–4° Fahrenheit higher more than non-insulated pipes.⁹ This upgrade will allow the school to lower the baseline temperature on its water heaters while being able to maintain normal water temperatures for campus users, overall improving heating efficiency and resulting in significant energy savings that will reduce water heating costs.

The facilities management team began construction of the insulation project in

July of 2012, slating it for completion in the spring of 2012. When finished, the project will have installed nearly six miles of pipe installation on steam lines, condensate lines, and chilled water supply and return lines.¹⁰

The total project cost was \$114,362 with an annual savings projected to be \$62,664. The simple payback period for this project is two years.

Example 2 – Installation of Vending Misers

The energy team identified the campus-wide installation of vending misers as a low-hanging fruit investment that would enable the campus to reduce energy costs. These devices power down beverage and snack vending machines when not in use, which diminishes energy consumption when the machine is idling. The misers contain motion sensors that power the machines on when potential customers approach.



Vending machine misers, like the one shown here, can be located in nearly all the buildings across the Weber State campus. Misers like these control the vending machine's electricity and ensure that the machines are powered down when not in use.

Installed with the assistance of the facilities department's electrical shop on campus, the project was completed in two months and culminated in approximately fifty vending misers in 26 of the main campus buildings.¹¹ The total cost of these installations is \$5,000, with annual savings projected at \$718 and an expected simple payback period of seven years.¹²

Lessons Learned

After WSU searched for other methods of financing sustainability improvements, staff concluded that the best option for their campus would be to design their own method of funding; they did not look to model their fund on that of any other school. WSU's program was conceived internally and designed to be campus-specific in its development and execution. In this way, the university sought to leverage its staff and other existing resources. "We decided to do this ourselves. This was a new model that was proposed, not one that we have ever heard of anyone else using," said Cain.¹³

After determining the framework for how the fund would operate, the largest challenge that WSU's fund has confronted is the accounting process for tracking cost savings from efficiency projects, which requires meticulous reporting. To identify the amount that should return to the fund from project utility savings, the fund management team measures every commercial utility meter at a baseline figure and then calculates costs for each utility bill. Through this method, all data on taxes, fees, and billing structures can be included and accounted for.

WSU has found that these ongoing calculations and documentation of the findings are necessary to accurately determine cost savings.

Weber also attributed its success to its ability to cast a wide net for external sources, and thus was able to substantially grow the fund in its early years.

Recommendations for Starting a New Fund

By investing 8 percent of the university's endowment into efficiency projects via its green revolving fund, Weber State has demonstrated its institutional commitment to sustainability.

By having a funding mechanism, there is a guaranteed source of available financial support for years to come. According to Cain, "If

you try to accomplish energy savings by just lobbying (complaining) to the administration for more money, you will not succeed in the long term. You may receive some money, but a long-term numbers-driven program for yearly funding must be developed in order to succeed over the long haul.”¹⁴

The WSU fund’s numbers-driven approach has made it a model that other campuses can replicate. With its focus on the ability to produce impressive returns on each investment, the fund’s strategy is universally applicable. Other institutions seeking to improve sustainability can look to WSU’s model, which taps the school’s intrinsic resources to achieve a stable source to financing efficiency projects far into the future.

Endnotes

- 1 American College and University Presidents' Climate Commitment, accessed December 2010, <http://www.presidentsclimatecommitment.org/node/6450>.
- 2 A fund "revolves" when cost savings generated from reduced operating costs are tracked and used to repay the fund (thus providing capital for future projects).
- 3 Cain, Jacob. E-mail to Christina Billingsley. "Re: Weber State – Green Revolving Fund Inquiries." December 2, 2010.
- 4 Cain, email to Emily Flynn. "Fw: Weber State Case Study." September 1st, 2011
- 5 Ibid 3.
- 6 Ibid 3.
- 7 Cain, e-mail to Billingsley, December 2, 2010.
- 8 Cain, Jacob. E-mail to Christina Billingsley. "Re: [Confidential] Draft – Weber State Revolving Fund Case Study." February 1, 2011.
- 9 "Insulate Hot Water Pipes for Energy Savings," U.S. Department of Energy, October 20, 2010, accessed December 7, 2010, http://www.energysavers.gov/your_home/water_heating/index.cfm/mytopic=13060.
- 10 Bodine, Jennifer. Phone interview with Emily Flynn August 12th, 2011.
- 11 Cain, e-mail to Emily Flynn. "Weber State University Photos." August 22, 2011.
- 12 Ibid 3.
- 13 Cain, Jacob. E-mail to Billingsley. "Re: Weber State – Green Revolving Fund inquiries." December 2, 2011.
- 14 Ibid 13.