

Lane Community College

Energy Carryover Fund

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Summary

Location: Eugene, Oregon

Full- and part time enrollment: 37,254

Combined gross square footage of all buildings on campus: 1,173,620

Endowment: \$8,905,187
as of June 30, 2013

Type: Public

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The Energy Carryover Fund, Lane Community College's green revolving fund (GRF), was created in 2006 with an allocation of \$165,585 from surplus funds in the college's utilities budget. The fund has helped Lane meet their sustainability goals and formalize a process to identify energy efficiency projects. Since its creation, the Energy Carryover Fund has gone through operational and structural

changes as Lane learned how to best utilize the fund.

The Energy Carryover Fund is administered by the Vice President of College Services, the Energy Analyst, and the Sustainability Coordinator. The fund has an average ROI of 23 percent and has achieved a total of \$113,087 in savings to date. The GRF has also served as an opportunity to engage students in Lane's renewable energy program in order to gain hands-on learning experience in selecting and implementing projects.

History

A Strategy to Reduce Energy Use

Before Lane Community College (Lane) adopted sustainability as a core value in 2007, Lane's Vice President of Operations formally created a campus green revolving fund (GRF). The fund, known as the Energy Carryover Fund, tracked the transfer of leftover money in the college's utilities budget and used it to finance energy efficiency and renewable energy projects on campus.¹ The vice president recommended that the fund invest in strategies that would reduce energy use and enable Lane to seed a portfolio of renewable energy projects in which students could participate.²

The green revolving fund concept was chosen as a method to hedge against the school's rising energy costs.

The first step in implementing the Energy Carryover Fund was to record estimated cost and projected annual and total financial and energy savings (in MMBTUs) for 21 proposed projects. These projects included lighting efficiency upgrades, photovoltaic installations, and direct digital controls (DDC)

commissioning. At the time of the fund's creation, few institutions of higher education were tracking and adapting energy use on campus; of this small group, Lane was the only community college.

Reallocating Savings from the Utilities Budget

Lane's GRF is structured differently than the typical green revolving fund. While a traditional fund loans money for specific energy or resource projects and tracks the cost savings from each effort in a dedicated account, the Energy Carryover Fund is replenished by the leftover money between the operating expenditures at the end of each fiscal year and the projected annual energy savings (and related incentives) in dollars, which is then earmarked for energy efficiency projects. At the fund's inception the college did not have comprehensive building sub-meters installed on the main campus, so in order to track energy savings, Lane developed a calculation for establishing annual energy savings based on an energy use benchmark from 2005 and the current year's energy prices.

Over time, the fund balance has fluctuated. The Energy Carryover Fund began with \$165,585, the amount left over from the 2005 academic year

utilities budget (plus dollars from project incentives and capital outlay funds). In 2008, the fund took a hiatus due to a series of budget pressures.³ These factors contributed to the reduction of the total fund size to where it stands today at \$124,900. However, with an infusion of stimulus money, bond availability, and grant money, Lane was still able to implement energy efficiency projects on campus in the years following 2008, due in part to the projects already identified for the Energy Carryover Fund.



Pictured above, one of Lane's classrooms employs energy-saving building strategies, such as day-lighting, ceiling fans, and operable windows.

Operations

Energy Carryover Fund Overview

Year created: 2005-2006

Size: \$124,900

Source: Unused utility budget from 2005, incentives from local utility, and capital outlay funds

Average payback period:

Approximately 3 years

Administrators: Vice President of College Services, Energy Analyst, and Sustainability Coordinator

Average return on investment: 23 percent

Total savings: \$113,087

Managing the Fund

The Energy Carryover Fund is managed within Lane's Institute for Sustainable Practices (ISP) by the Energy Analyst and Sustainability Coordinator who are responsible for the fund's day-to-day administration. Previously, the Energy Analyst had coordinated the fund within Lane's facilities

department, but in 2013 the role transitioned to the ISP. This allowed the Energy Analyst to dedicate more time for data and analysis of campus projects.

Project Criteria and the Project Selection Process

Potential projects are chosen from a prioritized master list drafted by the Energy Analyst with help from energy management students as part of a class requirement. Projects are prioritized and considered for approval based on the following set of criteria:

- Projected resource savings
- Funding availability
- Availability of incentives
- Expected life of the project
- Financial payback
- Creation of educational opportunities
- Timing within the academic calendar
- Availability of technical support to implement and oversee the project
- Ease of project maintenance
- Health and safety implications
- Support of Lane's core values⁴
- Support of Lane's climate commitment⁵



Lane builds hands-on practice with sustainability inside their curriculum. Above, second-year commercial auditing students study an air handler prior to beginning an energy audit.

After the project has been chosen and the funding allocated, the Energy Analyst coordinates the implementation of the project. The Energy Analyst collaborates with facilities management and Lane's Planning Trades Coordinator to discuss the hiring an external contractor or the use of in-house staff to handle project installation. If the college decides to hire an external contractor, that expense is included in the total project cost. The Energy Analyst is then responsible for tracking and monitoring the energy conservation measures or renewable energy project's performance over time.⁶

These criteria allowed the school to plan multiple years of work and estimate energy use and the potential energy savings from Energy Carryover Fund projects.

Lane keeps their decision-making process intentionally informal. A small committee, consisting of Lane's Facilities Director, Budget Officer, Sustainability Coordinator, Energy Analyst, Chief Financial Officer, and lead faculty in the energy management degree program, make decisions on a case-by-case basis. The committee relies on methodology outlined in a flow chart to decide on which projects to fund. The flow chart takes into account opportunities for energy savings, projected project payback, and available incentives and funding to ultimately decide if a project should or should not be funded.

Performance

Lane has made strides in reducing the campus' overall environmental impact through the implementation of their GRF. The college has realized consistent annual returns from "low hanging fruit" projects, such as the installation of plug load controls, compact fluorescent lamps, low wattage space heaters, and strategic heating and lighting use.

These GRF projects have decreased Lane's overall energy consumption of buildings but required little change in day-to-day activities for campus users.

Overall Impact

Since the Energy Carryover Fund began, the fund's 8 installed projects have reduced campus energy consumption by an estimated 8,211 MMBTU. To date, the largest project financed by the fund is the DDC Commissioning project. For more information, see the spotlight below.

Student-run Renewable Energy Projects

The Energy Carryover Fund financed three separate 1.5 kW solar panel installations on campus in 2008.⁷ Lane designed these projects to be learning laboratories that provided solar electric installation training for both students in the renewable energy program and facilities staff. The project raised awareness of the panel's impact on campus by providing faculty and students with detailed information on solar energy generation; Lane even made accessible information for children in an on-campus childcare center. The energy generated from the three systems offsets some of the electrical energy use and associated costs at the buildings where they are installed.

Project Spotlight

Project: Direct Digital Controls Commissioning (DDC)

Installation completed: 2008

Project cost: \$32,088

Simple payback: 2.27 years

Annual return on investment: 37.3 percent

Estimated annual savings: \$14,115

Estimated savings to date: \$85,748

In July 2008, Lane completed a re-commissioning project in 17 campus buildings. The project was a continuation of a previous 2004 upgrade from the building's pneumatic mechanical controls to direct digital controls (DDC). The upgrade created a hybrid system that kept pneumatic controls on the building's mechanical equipment (like dampers and actuators) and translated air signals into digital control. This change allowed staff-centralized control of the entire building from a remote location via a computer network. Energy savings from the project were realized by strategically

scheduling building mechanical equipment with the centralized DDC system according to the occupancy needs.

The project's commissioning agents tested the existing mechanical equipment and newly upgraded operational controls to identify issues that were costing the college money by wasting energy. Following the commissioning agents' findings, Lane adjusted the mechanical and digital controls system components to optimize the performance of the upgraded system.

Lane's DDC project qualified for incentives from the local electrical utility due to a program within the utility that offered incentives for projects related to building scheduling and re-commissioning. The project has saved Lane's campus an estimated 6,432 MMBTU in fuel use to date, with 647 MMBTU of electricity and 412 MMBTU of natural gas. The DDC project payback paid back in less than three years.⁸ Over the life of the project, Lane estimates savings of approximately \$211,750 and an annual ROI of 37 percent.

Lessons Learned

Increased Identification of Projects through the GRF

By instituting a formal GRF, Lane staff was given time to plan and compile a longer, more comprehensive project list and create a tracking system for the projects. Because of this, Lane has benefitted from both GRF-funded and non-GRF funded projects to advance the school's overall sustainability goals and allow Lane to capitalize on shovel-ready projects outside of the GRF if additional financial resources becomes available.

Importance of Clear Fund Guidelines

Lane recommends establishing clear fund management guidelines and operating practices early to ensure that the GRF runs smoothly. The Energy Carryover Fund initially faced several barriers due to the fund's dependence on the

annual transfer of utility funds. However, Lane met an unanticipated situation when there were no leftover funds from the operating budget after the first year of operation.⁹ Year-to-year budget pressures, external factors, and internal funding competition has also restricted the amount that is allocated to energy efficiency. Since then, Lane has adapted operating guidelines to anticipate contingencies like this and the school updates their guidelines to account for year-to-year changes on campus.

Shift in the Role of the Energy Analyst

In 2013, Lane moved the Energy Analyst's position from Facilities Management and Planning to the Vice President for College Services. This move allowed the Analyst to focus more heavily on data and analysis and less on day-to-day facilities management.¹⁰

Looking Forward

Setting Sights on a New Fund

Lane plans to phase out the Energy Carryover Fund to develop a more traditional GRF for energy efficiency projects. In this new fund, which will build on the lessons learned from operation of the Energy Carryover Fund, dedicated capital will be allocated to a unique account and will loan money for water, recycling, resource conservation, and energy efficiency projects on Lane's campus; loans will be paid back through measured savings. Though no official deadline has been announced, the new fund is poised to come online within the next year.¹¹

Conclusion

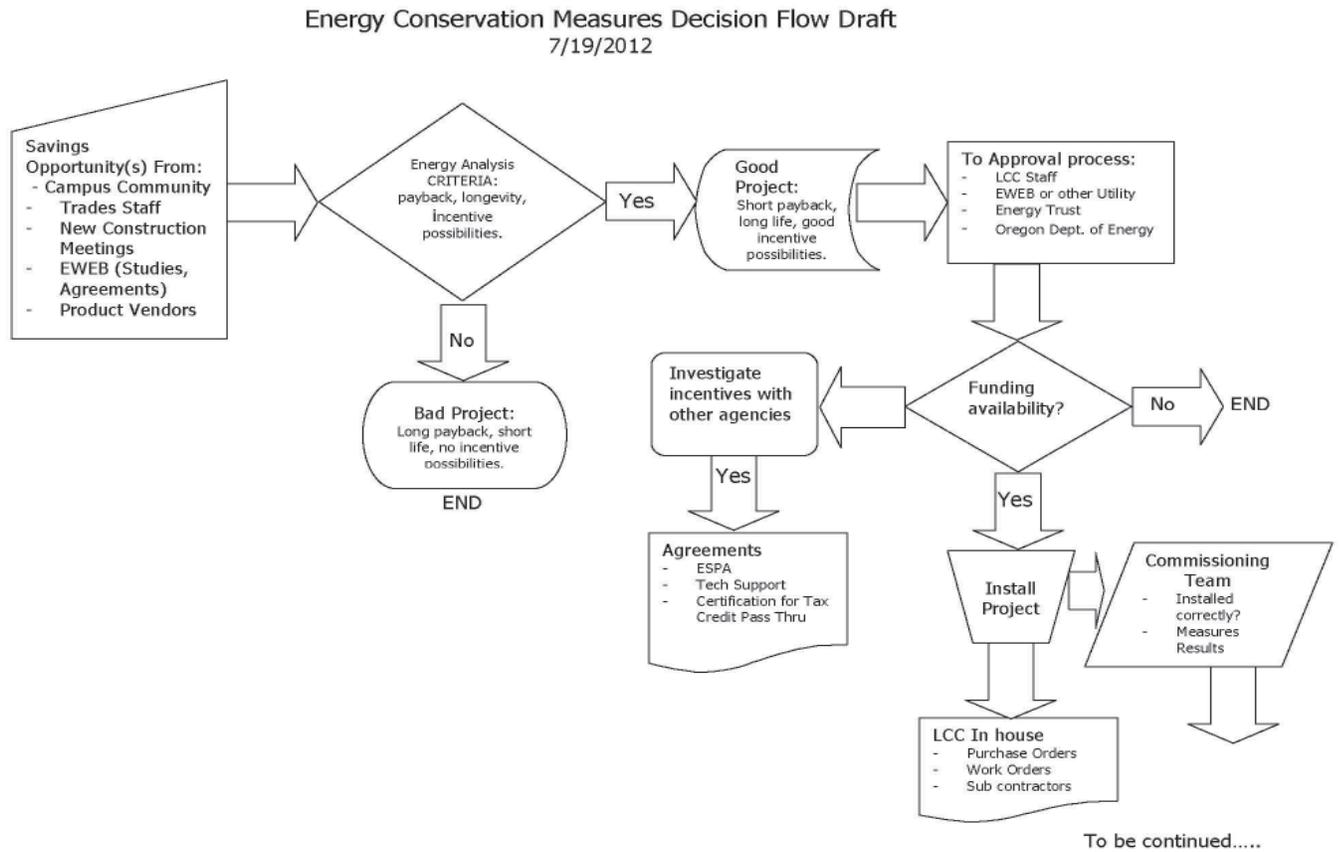
The Energy Carryover Fund was successful at promoting energy efficiency and renewable energy projects as learning labs on campus, and encouraged student participation in renewable energy projects. The GRF investment also helped Lane infuse dollars and staff time into small but meaningful projects that otherwise may have gone unfunded on campus. Though the school plans to develop a new GRF, the systems created for financing Lane's GRF projects remain active and staff continues to use the Energy Carryover Fund as a tool to help achieve the school's climate commitment goals.

Endnotes

- 1 Caine, Rebecca. Phone interview with Jennifer Hayward. March 28, 2011
- 2 Flynn, Emily and Silverstein, Jaime. Email with Anna Scott. "Draft of Lane's Updated GRF case study." January 14, 2014.
- 3 Foley, Rob. Email with Jennifer Hayward. "Survey for Lane." July 19, 2012.
- 4 Lane's core values are learning, diversity, innovation, collaboration and partnership, integrity, accessibility, and sustainability. For more information, visit <http://www.lanecc.edu/research/planning/vision-mission-core-values>.
- 5 Lane Community College, "Climate Action Plan." <http://www.lanecc.edu/sites/default/files/sustainability/cap.pdf>. Accessed February 4, 2014
- 6 Lane Community College, "Summary of Energy Management Account Carryover Fund Guidelines." November 2006.
- 7 Lane Community College. Climate Action Plan. <http://www.lanecc.edu/sites/default/files/sustainability/cap.pdf>. Accessed February 5, 2014.
- 8 "Revolving Loan Funds Survey." The Sustainable Endowments Institute. February 1st, 2010.
- 9 Hafner, Erin. email to Emily Flynn. December 10th, 2010.
- 8 "The Green Revolving Investment Tracking System." The Billion Dollar Green Challenge. Accessed January 31, 2013. Grits.GreenBillion.org.
- 9 "Summary.XLS." Excel document. Received January 31, 2014.
- 10 Email from Anna Scott, Lane Community College. "Draft of Lane's Updated GRF case study." January 14, 2014.
- 11 Flynn, Emily. Phone call with Jennifer Hayward, Lane Community College. January 31, 2014.

Appendix A. Energy Conservation Measures Decision Flow Draft

The committee that selects projects for Lane’s Energy Carryover Fund consults the following flowchart to help prioritize future projects.



DATA1:ScottAE:Energy Mgmt Fund:ECM_Flowchart_11-2011.doc