A Revolving Loan Fund (RLF) is a financial model that involves investing funds from a collective pool of assets into a developing project. As the project begins to generate its own revenue, the money from the loan is repaid back into the original fund and can be loaned out again to support other projects. In recent years, RLFs have garnered significant attention as a means of investing in environmentally sustainable projects, specifically in the areas of energy efficiency upgrades and renewable energy expansion. Nowhere is this more prevalent than on college campuses; many schools looking to invest in sustainability efforts have created their own in-house “Green Revolving Funds,” which invest in everything from heating retrofits to solar panel installations (Bornstein).

Macalester College had its own RLF for a short time. From 2007-2009, Macalester’s Clean Energy Revolving Fund (CERF) generated almost a quarter of a million dollars in savings for the college by implementing energy efficient upgrades across campus that were funded through the RLF model (Hansen). However, several problems with CERF implementation led to its merging with the Macalester Facilities budget in 2010. Currently, the remaining RLF funds are earmarked for sustainability-related projects but are not generating anywhere close to the amount of institutional savings as had the CERF. In this paper, I will discuss the background of the RLF model, examine the history of the Macalester CERF, and make several recommendations regarding efficient RLF practice that could help streamline CERF implementation at Macalester in the future.
The RLF financial model is deceptively simple (see Figure 1). On its most basic level, an RLF is “any self-replenishing pool of money that uses interest and principal payments on outstanding loans to issue new loans” (Barlow 23). This is best explained with an example: suppose my front door won’t close all the way in the middle of winter. Normally, I would pay a home repair technician out of pocket to fix the door, knowing that this expense would more than cover itself in the savings on my heating bill in the coming months. However, suppose also that the repair cost is out of my price range, and that I’m a member of some institution with an RLF dedicated to insulation repairs. In this scenario, I could request a loan from the RLF to cover the immediate cost of the repair, and as the expense of my heating bill went down, I would invest these savings back into the RLF until the initial loan (plus interest) had been repaid. This way, I would have fixed my door, and other people belonging to this institution with similar insulation problems would now have a greater sum of money from which to draw loans.

It’s not hard to see the appeal of such a model for colleges and universities, particularly when it comes to energy upgrades. RLFs are attractive to schools for their “flexibility, low cost of funds, and ancillary benefit of student engagement” (Barlow 23). Investments in energy efficiency are low-risk and usually pay off quickly. For example, Denison University in 2012 outfitted one of its buildings with state-of-the-art sensor-controlled heating and cooling systems. While these retrofits cost $108,000 up front, the school estimates it has saved $28,000 annually on heating and cooling costs -- enough to fully recuperate the expense of the loan in just four years (Bornstein). Such loans also yield a consistently substantial return on investment; unless a building is destroyed or its energy usage changes drastically, the principal investment is usually recovered in a matter of years. Moreover, college students often view the RLF model as an
exciting opportunity for direct input in campus sustainability efforts, and many students at
schools with RLFs submit their own proposals for energy efficiency improvements.

The best-known campus RLF is that of Harvard University, which established its $12
million Green Loan Fund in 2002. Since then, Harvard’s fund has loaned money to over 200
projects that continue to save the university over $4 million annually. The Harvard Green
Campus Initiative currently oversees the fund’s operations and investments, and an Advisory
Committee made up of central administrators and facilities staffers “reviews project applications
and shares knowledge and best practices across departments” (Barlow 26). However, this model
is not unique to large, wealthy schools; in fact, Harvard is one of fifty institutions nationwide that
has signed on to the Billion Dollar Green Challenge, a call-to-action for college campuses to
collectively invest $1 billion into green RLFs. The Sustainable Endowment Institute, the
organization at the forefront of this movement, “provides step-by-step guidance to help
universities and colleges...establish Green Revolving Funds,” including detailing various funding
models, advisory board procedures, and loaning practices (Bornstein).

Not to be outdone by other sustainability-minded schools, Macalester College joined the
RLF movement in 2007 by creating its own Clean Energy Revolving Fund (CERF). Under the
guidance of students Timothy DenHerder-Thomas (‘09) and Asa Diebolt (‘09), the CERF
secured an initial sum of $27,000 from Macalester College Student Government (MCSG) and the
Environmental Studies department, soon followed by a $40,000 contribution from President
Brian Rosenberg’s discretionary fund (DenHerder-Thomas 10). Implementation rules were
outlined: for short-term projects, 90% of the estimated savings were paid back until 110% of the
initial cost had been recuperated, while long-term projects were made to invest 50% of their
savings until 125% had been paid back to the original fund (DenHerder-Thomas 6). With the
support of student government and key campus officials, CERF’s five-member administrative board quickly began hearing proposals for on-campus green initiatives (Barlow 27).

Just three years later, though, the CERF was shut down. The remaining funds were merged with Macalester’s newly created Technology, Equipment, and Maintenance (TEM) budget, a discretionary fund within the Facilities office that grants capital requests for facilities improvements. Of this budget, $125,000 is annually earmarked for investment in sustainability-related projects to honor the previous work of Macalester’s CERF, but only a small fraction of that actually ends up being invested from year to year; moreover, in a fiscal pinch, the sustainability earmark is often among the first components of the Macalester budget to get cut (Hansen).

What happened to Macalester’s CERF? I argue that three crucial components were missing from the CERF framework that made it an unsustainable funding model: a lack of representation from Macalester’s Facilities office on the CERF administrative board, an unsustainable approach to accounting for loan savings, and no proper assessment tools to gauge long-term project success. For each respective problem, I will suggest a potential solution that could help Macalester’s Sustainability Office jump-start the CERF back into operation, and more importantly, help the CERF maintain a more sustainable system of funding distribution.

One of the most frequently-cited barriers to establishing campus RLFs is a lack of communication between key university offices that would make such a funding model possible. In particular, there are often discrepancies between “the individuals who are best positioned to identify potential savings” and those who control college assets in a way that could actualize those savings -- in Macalester’s case, the Facilities office and the Administration & Finance office, respectively (Bornstein). This was especially true given the makeup of Macalester’s
CERF administrative board. In the three years that the CERF was operational, the board consisted of two students appointed by MCSG and the Campus Environmental Issues committee, one college administrator appointed by the President, one faculty member appointed by a faculty committee, and one alumnus chosen by the rest of the board (DenHerder-Thomas 6). This committee was responsible for choosing which project applications in which to invest CERF money. However, despite these project proposals almost uniformly suggesting that changes be made to existing campus facilities and buildings, not a single employee from the Facilities office was included in these decisionmaking processes. The board would effectively “approve projects that then had to go on the to-do list for Facilities” without any input from Facilities itself (Hansen). This lack of communication was one of the primary sources of conflict between CERF administration and Facilities throughout the length of the fund’s operation.

This tension was further exacerbated by a lack of a uniform accounting strategy for keeping track of project repayments. The student leaders of the CERF initiative had little to no accounting background, leaving it up to Facilities to make accurate payments back into the CERF as successful projects generated energy savings (Hansen). However, the process of tracking these savings and reporting them accurately proved a time-consuming and ultimately inefficient endeavor for Facilities. The projects that required quarterly assessment of returns on investment only ever amounted to several thousand dollars at a time; by contrast, other pressing maintenance needs on campus often costed tens of thousands of dollars, making it difficult for Facilities to prioritize managing CERF investment returns.

These accounting dilemmas were compounded by the lack of an efficient way to assess energy consumption uniformly on Macalester’s campus. A key component of a successful RLF is the ability to accurately measure project savings. Front-end savings assessments, such using
prior utilities bills to estimate average energy use, are cost-effective and good at approximating returns on investment, but “will not capture any deviations in the event that a project performs better or worse than expected” (Indvik 16). This is the case at Macalester, where energy use estimates could vary in their accuracy depending on a great many factors such as faculty research projects, variable energy needs for different events throughout the year, and others (Hansen). This increases the difficulty of consistently tracking project performance and holding projects accountable to their efficiency goals.

These three challenges must be carefully considered and mitigated if Macalester’s CERF is to work effectively in the future. Changing the administrative structure of the CERF is certainly key. Despite DenHerder-Thomas’ insistence that “relevant campus bodies [must] have an opportunity to appoint board members and remain representative,” the first iteration of the CERF did not include proper representation from Facilities (DenHerder-Thomas 6). Amending the language of the CERF charter to include a full-time Facilities staff representative on the board is essential to maintaining an effective fund allocation process.

The second two concerns (adequate financial accounting methods and more effective metering) could both potentially be tasked to Facilities’ new Energy Efficiency Consultant, a full-time staff position that will be filled in June 2015. For example, this Consultant has several new RLF accounting tools at their disposal that were not available until very recently. The Green Revolving Investment Tracking System (GRITS 1.1) was released by the Billion Dollar Green Challenge in late April 2015 and boasts a simple, streamlined method for institutions to input and process RLF financial data (“Green Revolving Investment Tracking System 1.1”). While GRITS must be purchased and adapted for use at each individual institution, it provides a more uniform system of financial tracking that would prevent any one office (such as Facilities) from being
solely responsible for tracking and processing the CERF’s financial information. Finally, the Consultant also has several means of addressing the energy measurement problem. While comprehensive back-end saving assessments (in Hansen’s words, “metering every outlet”) may not be a realistic goal for the college, there are ways of measuring certain anomalies that occur with some frequency (such as energy-intensive faculty research projects). With this information, the Consultant could help establish a system by which any planned anomalies may be registered with Facilities so that drastic changes in projected energy consumption may be factored into the school’s front-end savings assessments. Accounting for these changes would help the school provide more accurate energy consumption data that would better inform CERF lending practices.

Regardless of what specific measures are taken to improve CERF operations at Macalester, reintroducing the RLF model into the campus sustainability infrastructure requires deliberate work from all invested parties: students, administration, and especially staff in Facilities and the Sustainability Office. Hansen suggests that a reintroduction of the CERF would require smarter integration of the fund management administration into structures and offices at Macalester, thereby ensuring that the new CERF is not just a student-driven “add-on” to an already established institution (Hansen). Effective collaboration between relevant parties at Macalester to this end will help ensure that the college can continue expanding environmentally sustainable projects and practices using the RLF model.
Figure 1

Diagram showing the flow of funds:
- Grant Funding Sources
- Debt Funding Sources (if applicable)
  - Repayments to RLF Debt Sources (if applicable)
  - Loans made by RLF
  - Loan repayments from RLF borrowers
- Revolving Loan Fund
- Borrowers (campus departments, facilities, other project initiators)
Works Cited


Interview with Suzanne Hansen – Sustainability Manager, Macalester Sustainability Officer. 22 April 2015.