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# **Revolving Green Loan Funds and Implementation at SIUC**

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In recent years there has been a great shift towards sustainability in people's minds and actions. In fact, in a survey conducted in May 2009 of Americans under 30, the cultural position, "American's should adopt a more sustainable lifestyle by conserving energy and consuming fewer goods" was the only position that received majority support. The people in the survey who responded this way could be classified as being in Generation E. The term "Generation E" has recently been coined by Andy Revkin, an environmental writer for the New York Times, to refer to the current generation who are working towards society wide sustainability acceptance. The "E" in "Generation E" stands for the values that are uniting the generation like ecology, economy, energy, and equity. This generation has been incredibly vocal in trying to get society to adopt sustainability and these young people have taken some huge measures. In 2009, they had the largest convening in US history. At the second Power Shift Conference, 12,000 student environmental leaders met to work towards a transition to clean energy and the creation of green jobs. Then, in the presidential election in fall 2008, Generation E took their concerns to the ballot box and more people between the ages of 18 and 29 voted than in any federal election since 1972, with more than one-third of a million of these votes coming from college students aligned with Power Vote who pledged to vote in state and federal elections for clean energy and green jobs. Many people in Generation E are at universities across the country, and universities in general are a huge part of our country. Michael Crow, President of Arizona State University, explained at the June 2009 American College and University President's Climate Commitment (ACUPCC) conference in Chicago that, "As colleges and universities, collectively we are more than 2% of the US carbon footprint and we

are 100% of the student footprint.” In 2008 there were 4,300 US colleges and universities attended by 18 million students (44% of undergraduates attended two year schools). These post secondary institutions annual expenditures totaled \$386 billion (Erickson, Eagan). Because there are so many universities with so many students, they have the opportunity and power to make a huge impact and bring about change.

One measure students from Generation E have aided in implementing at universities are green revolving loan funds. Over the past few years green revolving loan funds have been started at about 50 schools all across the country. As stated in the report, “Greening the Bottom Line” green revolving loan funds (GRFs), “invest in energy efficiency upgrades and projects that decrease resource use, thereby lowering operating expenses. These operational savings are returned to the fund and then reinvested in additional projects.” Universities often come across many road blocks in campus greening because there are high initial costs in financing sustainability measures, but a GRF helps solve this problem by providing upfront financing that has the power to infinitely continue to fund new projects. The oldest GRF was founded at Western Michigan University in 1980, and it was one of only about 10 formed before 2008. But, since 2008 GRFs have exploded, with 37 new funds established. These loan funds have been incredibly helpful in furthering the sustainability goals of colleges, while also helping to save the universities money. Overall, these institutions together have over \$66 million invested in their loan funds (Greening the Bottom Line).

Sustainable Endowments Institute (SEI) conducted a survey of the schools with GRFs and found they were almost equally represented by public and private institutions. These schools also have a wide student population range from 42,000 at the University

of Illinois to only 1,381 students at Kalamazoo College in Michigan. The median fund size at these institutions was \$170,000, with the average size being \$1.4 million. Though the fund size does range from the smallest fund of \$5,000 at the College of Wooster in Ohio to the largest fund at Stanford University who has a fund of \$25.45 million. These institutions have annual returns ranging from 29% at Iowa State University to 63% at University of Denver, with the median return being about 32%. The SEI survey also found that a school does not need to be affluent to create a successful GRF. In fact, one third of the schools surveyed have less than \$250 million in endowment assets with range of \$7.6 million at Lane Community College all the way to \$27.6 billion at Harvard (Greening the Bottom Line). In 2010, SIU's endowment was \$83 million (Rodriguez) which puts SIU towards the lower end of this range, but it is not a concern because many other institutions have smaller endowments and have successful funds.

As defined by the Greening the Bottom Line report, there are three different general kinds of GRFs. First, there are efficiency funds which give capital to energy or water efficiency measures. They help the institution save money and reduce resources and they generally have a short payback, but they are not used to get the campus community more involved. Then, there are innovation and engagement GRFs which involve a lot more community and student participation and don't have payback requirements, like our current Green Fund grants. Finally, there are hybrid funds that are like a combination of the aforementioned funds. Most schools follow this format (Greening the Bottom Line). SIU would also follow this hybrid format. Efficiency funds can also be accomplished two different ways. First, there is the loan model which is

used when people involved in the project control their own budget or can independently repay the loan fund. This is used when budgets are managed centrally instead of by each individual department. The project proponents will sign a loan agreement with the funding sponsors. University of Colorado at Boulder's loan fund is set up this way and it was of the most successful loan models. A key advantage to this type of fund is that there is frequent recapitalization which allows capital to be reinvested into other projects more quickly. Then, there is the accounting model. With this model, recapitalization happens less frequently, only semiannually or possibly annually, and it happens through accounting transfers made by a central finance office. Weber State has a fund set up like this where a portion of the savings from the project go back into the GRF and the rest is realized in the operational budget (Hubbell).

My goal in this thesis is to educate others on what GRFs are, how they have been implemented at other schools, and how they can be implemented at SIU. I also really wanted to show the positive effects it can have on a university, as it is my ultimate goal to start, or assist in starting, a GRF on SIU's campus. I believe that a GRF will help SIU to keep sustainability at top of mind and improve the campus overall. In order to determine how to set up a fund at SIU it is important to focus on how other schools have their loan funds set up, while focusing on the universities that have the most commonalities with SIU. These universities are SIU's peers, aspirational peers, and other Illinois state schools.

First, there is Iowa State University who has 23,500 students ((Billingsley) and is one of SIU's peer universities (Crosby). They have the Live Green Revolving Loan Fund (LGRLF) which is a \$3 million fund started in 2008, led by the university President. They

received their startup money from interest on previous university investments. To date, the LGRLF has funded 11 projects. Originally, individual buildings were not metered to track resource consumption so building occupants had no understanding of their building's impact on the campus wide utility budget or how it complied with sustainability goals. Upon implementation of the LGRLF the university changed the set up so that each building would be responsible for paying it's own bills and each building was metered. This decentralization gave each building the incentive to propose projects and the university believes this decentralization was the catalyst of the fund's success (Billingsley).

The LGRLF is managed by an advisory committee who reviews applications on a rolling basis and recommends projects once a month. The committee is made up of four administrators, one faculty member, one staff member, and one student representative. The paper work is then handled by the director of sustainability and then the project is given final approval by the president (Billingsley).

Payments on the loan start one year after the completion of the project on an annual basis until the loan is repaid, not to exceed five years, no matter the cost savings. The recipient of the loan must also provide a yearly progress report until repayment is complete. The fund does not charge interest, but can grow through university donors. There is no maximum loan amount or maximum construction time. And, a department can apply for project funding as often as it wishes, however, it can not have two projects being implemented at the same time (Billingsley).

Because the implementation of Iowa's fund was driven by the administration, their fund did not encounter many obstacles in its early stages. However, at first they did

have some difficulty in getting proposals because of the extra time staff would have to dedicate to developing a proposal. But, it has since become more successful. Some projects they have funded include: lighting retrofits, air exchange systems updates, energy efficiency upgrades, heating efficiency upgrades, occupancy sensor installations, dining compost project, and installing energy conservation software on computers. (Billingsley)

Next there is University of Colorado at Boulder, SIU's aspirational peer (Crosby), that has a student population of about 30,000. They have a student run Environmental Center that implemented their loan fund in 2007 called the Energy and Climate Revolving Fund (ECRF). The ECRF has financed over 80 efficiency that will decrease greenhouse gas emissions measures since 2010. Additionally, when the fund was created the university hired a professional engineering firm to perform an energy audit on all student run buildings at a cost of \$21,186 to determine where they were starting out at and where they had the most room to improve (Caine, Herz).

The 80 smaller projects they funded were bundled into six separately financed bundles. The fund normally requires that any projects it funds must have a payback of under five years, but multiple projects with different paybacks may be funded as long as the average payback is under five years. Projects may also have a payback of over five years if other funding sources are specified in the proposal to cover that part of the project's costs. The largest project that has been financed thus far is a bundle of multiple projects in the student union that totaled \$395,600. \$131,000 of this came from the ECRF loan fund, \$90,000 came from the building's budget, and \$174,000 was granted from the Energy Efficiency Fund (like our Green Fund) to be paid over 2 years.

The ECRF is used mostly by buildings that have their own facilities manager and budget. On the projects they have financed so far, their average ROI is 37.81% (Caine, Herz).

The ECRF was started by a contribution of \$521,186 from the school's student government operating reserves budget. Project ideas are proposed by facility managers in student-run buildings and by the heads of facilities for other buildings on campus. Proposals are then reviewed by a student government board. The board is chaired by the student government finance board chairs, the student government CFO, the head of engineering, the Environmental Center director, and a faculty member. For a project to receive funding, the board must unanimously vote on it (Caine, Herz).

Once a project has been funded, regardless of the actual cost savings, the loan must be paid back according to the payment plan. Because the actual payback may not be exactly the same as the projected payback, UC Boulder structures the loan payments to be less than the projected savings by the time the payment is to be made. This way there can be a net savings to the facilities budget, even while paying off the loan. The loans also carry an interest rate between 1% and 2%, which is what the money would be making if held in a bank. They believe that having such a low interest rate is critical in order for the facilities to choose to use the ECRF over a bank loan (Caine, Herz).

In addition to the loan fund, UC Boulder also has the Energy Efficiency Fund which is a green fund that can give grants that do not need to be paid back to help cover costs of the proposed project. But, these grants are only available to student run buildings and in non-student run buildings if the facilities managers also make a

significant investment of their own, though no amount has yet been specified (Caine, Herz).

Implementing their fund was not without difficulties. At first it was hard for them to get people to use the fund, because facility managers were worried about going into debt for projects. Facility managers also worried that once the loan is repaid and they have surplus money in their budgets, their budgets will be reduced to leave them with no savings. Nevertheless, the fund has been successful. It has helped that UC-Boulder's administration is on board with the movement towards sustainability by including it in their strategic plans. They have made a commitment to reduce carbon emissions 20% by 2020, 50% by 2030, and 80% by 2040. Since 2005, the total energy use for the university has gone down 23% and they would attribute most of the success to the projects financed by the loan fund (Caine, Herz).

There is also one Illinois state school, University of Illinois (U of I), that has a GRF. U of I launched their pilot program in June 2009. So far they have funded about \$600,000 over 4 projects. Previously, the Student Sustainability Committee was in charge of allocating funds. Currently, the responsibility for the loan fund is being moved to the campus administration and the fund is being scaled up. To start the fund, the office of the Chancellor gave \$1 million, the Student Sustainability Committee (SSC) contributed \$500,000 from the Sustainable Campus Environment and Cleaner Energy Technologies student fees, and an additional \$500,000 was requested from the Office of the President (Student Sustainability Committee).

U of I tries to find projects that have a payback of less than four years. The projects to be funded are selected by the Academic Facilities Maintenance Fund

Assessment Board, which includes the SSC chair, for a total of five student members. The projects are funded (in preferential order) by: 1) Payback Period, 2) Reduction of Coal, 3) Fund Size Impact, 4) Visibility, 5) Project Coordination. The four projects they have funded so far are: \$125,000 towards the Plant Sciences Laboratory Greenhouse for energy/shade curtains, \$180,000 to the Illini Union for retro-commission to the bookstore and for occupancy sensors in the entire building, \$75,000 for the installation of occupancy sensors and lighting retrofit in the racquetball and squash courts, and \$450,000 for the installation of programmable LED lighting in the lobby area of the Krannert Center for the Performing Arts (Student Sustainability Committee).

After looking at how other universities started and have run their loan funds, it is important to next look at how SIU operates. First, we have a Green Fee of \$10 per student per semester which started in fall 2009 due to a student led initiative. There is a Green Fund committee that is a part of the Sustainability Council which gives the Green Fee money out in grants for sustainability projects. So far the green fund has granted more than \$486,000 to 37 diverse projects (Mathis). Justin Harrell, a mechanical engineer for SIU, further explained how things are set up at SIU. Currently all academic buildings are part of one utility budget which is controlled through the budget office. In the past the utility budget had been controlled by the Physical Plant. Auxiliary buildings like the Student Rec Center, the Student Center, the Student Health Center, and Student Housing have their own budgets and they are paid for through student fees. SIU also owns its own system to distribute electricity across campus. It is dispersed through a sub station on east campus. There are meters at the substation that meter almost every building or group of buildings. SIU produces its own heat to send to about

80 buildings. Twenty two locations also get central chilled water. All the auxiliaries receive this chilled water and pay the physical plant for what they use. Although implementing a loan fund could offer more work for physical plant workers in helping to work out the payback on a project or making project proposals, Justin believes that his co-workers will be willing to do this (Harrell).

Something great SIU will soon be implementing is the new full time position of Sustainability Coordinator. The Sustainability Coordinator will work with the Sustainability Council, work with the entire university, be in contact with the community and region, and report to the Chancellor. Their duties will include things like: implementing sustainability goals for the campus, serve as central information source about campus sustainability issues, work with faculty to get sustainability incorporated into the curriculum, and document and report on all university efforts and plans for long term development related to sustainability. Adding this position is important is because it is something that many other schools already have, especially schools with GRFs. The addition of this position will be crucial to the success of a loan fund at SIU and creating and furthering sustainability goals.

Before a loan fund is implemented at SIU, it is very important for sustainability goals to be outlined and accepted by the administration. The loan fund will only work successfully in the long run if the administration makes a commitment to become more environmentally responsible. To do this there must be a connection between the Sustainability Council and university's long term strategies. Setting up goals also gives the university something to strive for and a benchmark to measure its success. These goals can outlined by the new Sustainability Coordinator position. Additionally, before

the fund is implemented an energy audit should be performed in order to make sure all possible energy savings are identified. The energy audit will consider any possible conservation activities, installation of energy efficient equipment, and on-site generation capacity. An energy audit would also help SIU to prioritize projects by payback period in order to ensure initial success by doing the shortest and most easily estimable projects first. Doing this can help the fund build momentum and savings can be maximized because of the time value of money (Hubbell). Once both these measures have occurred the loan fund can be implemented with success.

After looking at how GRFs work at other schools and how SIU operates, it was possible to draft a proposal of how a loan fund could work at SIU. The loan fund could be called the Campus Sustainability Revolving Fund (CSRf). The money to start the fund will come from the Green Fee. The Green Fund Committee is willing to give \$238,605.84 at first to start the fund (Appendix A). This money was originally set aside for a wind turbine project that did not go through. The Green Fund will also continue to make small yearly contributions to help grow the fund. They will give 10% of annual fees collected to the fund until the fund reaches \$750,000. It would also be beneficial to ask the undergraduate student government to give funds because the use of the loan funds will benefit the entire university and therefore all the students of SIU. Additionally, with the Green Fund grants, matching funds are required, whereas they would not be required with the loan fund.

Fortunately, setting up a GRF should be made easier due to the fact there is already a system in place for internal loans which lays out the interest rates (See Appendix B). Each loan would have a 2 to 3% interest rate depending on the length of

the loan. This interest will help slowly grow the fund and also make sure that the size of the fund is not affected by inflation. It is important to have interest, but it is also important to keep it low so that people do not have incentive to find funding from another source. Harvard does something unique by adding an administration fee of 3% to help support the administration who overlook projects and who are responsible for making the fund successful (Greening the Bottom Line Webinar). It would be beneficial if SIU added a 1% administration fee to each loan from the fund. This would help cover the costs of the new Sustainability Coordinator position that SIU will be adding soon. Presently, the first year and half of the Sustainability Coordinator's salary is going to be covered by the green fee. Adding an administration fee to the loans would help free up this green fee money to be used for grants for other projects.

For any proposed project there must be a payback of less than five years or a bundle of projects with an average payback of under five years will also be allowed, just like at University of Colorado Boulder. It is important to take notice that when bundling of projects is allowed, each time an unbundled project with a quick payback is funded, the opportunity to finance a project with a longer payback is foregone (Diebolt, Herder-Thomas). There will be no maximum loan amount, but construction on any projects must be completed within one year of funding. Also, any building can only have one project being implemented at a time, but it can apply for funding as often as it wishes. As outlined in SIU's internal loan system, loans will need to be paid back semiannually (See Appendix B). Once a loan is made, it must be paid back in the agreed upon time frame, no matter what the actual cost savings are. University of Colorado at Boulder structures their loan payments to be less than the projected savings by the time the

payment is to be made. This way there can be a net savings to the facilities budget, even while the loan is being paid off (Caine, Herz). This is something SIU should consider doing because people may be more interested in taking out a loan if it is possible to realize some savings in their budgets right away. Just like University of Colorado Boulder, the CSRF will be mostly used in auxiliary buildings because the loan fund tends to work better with buildings that have their own budgets. Like previously mentioned, Iowa State University also found this to be true which caused them to decentralize their utility billing. A complete decentralization in utility billing is something SIU should consider a few years down the road once the loan fund has taken off and proven its success.

Project ideas can be proposed by physical plant workers or facility directors at any of the auxiliary units. Project proposals will then be sent to the Campus Sustainability Revolving Fund Committee. The committee will be comprised of three students, one faculty, one staff, and the Sustainability Coordinator. It is important to have a good ratio of students, faculty, and staff in the advisory committee. In the guide called *Creating a Campus Sustainability Revolving Loan Fund*, they state that the board or committee should be designed to make sure that students can maintain their voice in the fund's management (Diebolt, Herder-Thomas). The CSRF committee will meet monthly to discuss proposals and progress of any projects that have been funded. If an idea receives a majority vote, it will then need to be approved by the treasury office who will prepare the loan schedule. The project will then be funded. After the project is funded, recipients of the loan must submit yearly progress reports to the CSRF

committee so the committee can make sure the project is on track for its projected savings (this is an idea borrowed from Iowa State University).

There have been a few initial project ideas already proposed by Justin Harrell. First, SIU could install variable speed drivers on all the cold water pumps so they would use less electricity. This project is already eligible for a \$25,000 grant from the Green Fund, but in total the project is going to cost around \$300,000, so they would be interested in getting a loan for the remainder of the cost. SIU could also implement better building scheduling. A system could be installed in a building like Lawson for only \$40,000 to \$50,000 which would make sure all lights and air/heat is off when no one is occupying the building (Harrell). Finally, Matthew Therrell, an assistant professor in the Department of Geography and Environmental Resources at SIU, mentioned that the Student Rec Center could consider a solar thermal heating system for the pool.

Upon the implementation of the CSRF, the Green Fund would also sponsor a educational and marketing campaign to raise awareness of the loan program. It will be promoted to students but, more importantly, a vast amount of knowledge will be made available to the people who are able to propose projects. This way they know what the possibilities are and what is expected of their proposal. This campaign will showcase what SIU is doing to become more sustainable and will educate students on how they can get involved to make SIU more environmentally responsible. Marketing and getting the word out will help foster support for the loan fund, keep sustainability at top of mind, and make the fund more successful overall.

As with all worthy undertakings, there are usually some concerns to be addressed before taking action. Speaking with Kevin Bame, the Vice Chancellor for

Administration and Finance at SIU, he was diplomatic but, it was obvious he had some concerns about the possibility of a GRF at SIU. First, he is concerned that there would not be many projects that would have a payback of less than five years. He has seen a few projects before that did not have as short of payback as they had originally planned for, so it will be important to show many project ideas that have had a payback of less than five years at other schools to show what may work at SIU. He also does not feel that the students who voted to pass the green fee would be happy to see any of it being used for loans instead of grants. He believes students envisioned it differently when they voted to pass it. Additionally, he is worried that the Green Fund has been and will accumulate too much money if loans are given out in addition to the grants.

Furthermore, Mr. Bame cannot see the need for a separate loan fund, as he believes it is something the administration would be able to handle on its own by financing the project itself or by securing outside financing for the project. Finally, he believes that departments would be hesitant to propose any projects and take on a loan, if they could get a grant instead. He does not know why they would risk taking a loan that they may not be able to pay back, when a grant is kind of like “free money” (Bame).

There were also a few issues Justin Harrell mentioned that he thought would need to be addressed. First, there may be some issues to work out when there are projects proposed for non-auxiliary buildings because the utility account would bear the problem if savings were not as expected. He also thinks there could be issues with getting the people in charge of the utility account to commit to the repayment plan. Finally, estimating the project payback could create a burden of more work for university engineers and for some projects it would be hard to track actual savings.

Though there are issues to overcome in implementing a loan fund, it is worth it. If loan funds weren't successful they would not be implemented at about 50 schools across the US. GRFs can save colleges and universities thousands, if not millions of dollars over the long-term by significantly improving their operational efficiency. Consistently, schools have been reporting an annual return on investment (ROI) of over 30% for clean-tech projects. This is massive if you compare it to the average annualized stock market return, which was 11.4% from 1980-2010 and -3% from 2008 to 2010 (Hubbell) (See Appendix C). The way loan funds are seen by the administration needs to change. They need to stop seeing it as an expense and start seeing it as an investment. A GRF will save the university so much more money than it will cost. For example, Western Michigan University has invested \$5.85 million dollars since the inception of their fund, even though their fund is only \$365,000. With this investment they have created a total cost avoidance, they have been able to avoid spending \$16.7 million on utilities. Mark Orlowski, the founder and executive director of Sustainable Endowments Institute, also made a statement that counters one of Bame's concerns by saying. "Thankfully we haven't come across any sub-prime investments by green revolving funds and I don't think we will...from everything we can tell from our research we haven't been able to find examples of green revolving funds actually losing money or defaulting on loans" (Greening the Bottom Line Webinar). Having a GRF implemented is a good idea, it has a high return on investment and there have been no examples of any projects defaulting on their loans.

Joe Indvik, a consultant in the Climate Change and Sustainability Division of ICF International in Washington, DC has found many reasons to chose to implement a GRF

over just having the university fund projects on their own as they come up. Among them, he listed “bringing the ivory tower down to the community”. Having a GRF allows the university to engage the community and bring a wide variety of stakeholders to the table. Once the loan fund is very established on campus it may also be able to help fund projects in the community and the university would benefit through still receiving interest and helping its surrounding community. Additionally GRFs have “infinite scalability” in that they can be effective with any amount of starting capital and can be scaled up infinitely once they have proven themselves useful and effective (Indvik). By having the money in a separate fund, it would not be susceptible to budget cuts or funding issues. Heather Henrikson, of the office of sustainability of Harvard University, remarked that having a loan fund can free up capital to be used for other purposes like other projects or research and teaching. Most importantly the fund would have “predictability and staying power” (Greening the Bottom Line Webinar). Because it’s not just a one time investment made by the administration the money will keep being spent according to the criteria the founders set up and projects are more likely to be funded on a continual basis (Indvik).

Indvik also listed “the sizzle factor” as another benefit. Having a GRF shows that the university has made a commitment to sustainability which will help attract positive attention (Indvik). Being more sustainable will get SIU in, and to the forefront of, more publications. For example, each year The Princeton Review makes a list of green schools. In 2011, SIU made it on the list for the first time (Mathis). But, they were unable to make it onto the list in 2012, while nine other Illinois Universities made it including: Eastern Illinois University, Illinois State University, and University of Illinois at Urbana-

Champaign (Green Guide Full List of Schools by State). Schools that make it on the list are chosen based on a scoring system from data from a fifty question survey given to administrators at hundreds of colleges. The survey asks about their school's sustainability and environmental efforts. The answers from the survey determines the university's numerical score. Any school in the 80th percentile or higher get a spot on the list (Mathis). The fact that Princeton Review even takes the time to make a list of green schools shows that this is something prospective students are looking for. In fact Robert Franek, the Senior VP of Publishing for the Princeton Review said, "College-bound students are increasingly interested in sustainability issues...Among 8,200 college applicants who participated in our spring 2011 'College Hopes & Worries Survey,' nearly 7 out of 10 (69%) told us that having information about a school's commitment to the environment would influence their decision to apply to or attend the school" (The Princeton Review). Having a GRF will make SIU more sustainable, which will make it look more attractive to potential students, which could increase enrollment, which helps the university in countless ways.

Having a GRF would also be a positive decision because it could be used as an opportunity and platform to more widely integrate sustainability into the curriculum. SIU should not overlook the educational opportunities that will be created when students help to establish and manage a new GRF. Ryan Hubbell said, "Students, after all, learn by doing; and it is they who will be tasked with creating the innovative solutions of tomorrow" (Hubbell). According to the Campus Environment 2008, a study by the National Wildlife Federation on environmental education in America, we are largely failing to educate and prepare college students and young people for the world they are

inheriting. Colleges and universities exist with their sole purpose being to educate people. College students are the leaders of tomorrow so they need to be surrounded by and learning about concepts and skills that will allow them to thrive in an economy and society that, by necessity, has been quickly changing to a cleaner, greener way of thought and action (Erickson, Eagan). University of Illinois has integrated sustainability education into much of its curriculum with the goal being that each and every Illinois graduate is informed about sustainability. They offer more than 250 courses from 43 different departments across campus. Each year the Office of Sustainability organizes a curriculum workshop, and they have had a total of 35 instructors from different disciplines participating so far. These instructors work with the Office of Sustainability to figure out ways to incorporate sustainability into their classes. 6,500 students per year are reached by the modifications the teachers make to their courses (University of Illinois at Urbana-Champaign). Having a workshop like this is something SIU should definitely consider doing in the future as well. SIU could also help incorporate sustainability into the curriculum and reduce extra workload that could go to campus engineering staff by having research assistants, senior undergraduate students, or graduate engineering students help figure out the payback for projects. Engineering students could also be given the opportunity to work on a proposed project or to propose their own project during their senior design class. Illinois State University has also done a lot to integrate sustainability into their curriculum. They have a Green Team that works with classes and have done sustainability related projects including waste audits and sustainability campaigns. They also recently added a new major, renewable energy, in order to help students learn about issues they may face once they enter the

renewable energy field. In addition they also added the Center for Renewable Energy in order to reach out to the community about sustainability, while supporting the newly added major (Illinois State University). These are all positive examples for SIU to look to when trying to incorporate sustainability into their curriculum.

Implementing a GRF and incorporating sustainability into the curriculum will also help SIU support Generation E which in turn can help not only the university and its enrollment, but the world environment overall. Every generation will play a crucial role making sure current citizens and future generations reach a renewable energy future that is safe and clean but, Generation E has been tasked with taking an unprecedented leadership challenge, dealing with the consequences of our past and present collective choices. And, they are rising to that challenge. Julian Keniry, Senior Director of Campus and Community Leadership at the National Wildlife Federation and co-founder of NWF's Campus Ecology program, stated, "We owe it to them to facilitate their efforts in every way possible". As a university, SIU needs to do everything possible to help make these Generation E students successful in their efforts to move towards sustainability as it will result in positive changes for the university and everyone's collective futures. This includes being on board with and helping to implement the loan fund. In the guide, Generation E: Student Leading for a Sustainable, Clean Energy Future, it says,

Today's college and university students will be the leaders in most areas of the U.S. economy in years to come. They will strongly influence the values and priorities in the country's future use of energy, resources and political power. Although the years spent in college are just one of many forces shaping a young person, they can have a big impact not only on a student's understanding of issues like sustainability and climate change, but also on development of the skills and habits of mind needed to successfully tackle them (Erikson, Eagan).

Students at SIU university are going to be the movers and shakers of tomorrow. By implementing a GRF not only is SIU making a choice that will help improve the university overall, but it will help create people that will make positive changes to the world's environment, making it a better place for future generations.

To conclude, green revolving funds have been implemented at about fifty universities across the United States, including at our peer university, our aspirational peer, and at another Illinois state university. It is a chance to improve the university and make great strides in sustainability. Henrikson said, "We've seen it as a real innovation opportunity to get people to try stuff and then once it works everyone starts doing it" (Greening the Bottom Line Webinar). If given a chance a GRF can really take off at SIU and improve the university and the students. And though some stakeholders have a few concerns, the benefits of implementing a fund far outweigh any concerns there may be. Schools are most successful at implementing a GRF when administration leads the way and is on board. SIU needs to get on board. Nothing but positive changes will come from the implementation of a green revolving loan fund at SIU.

## Appendix A:

Below is an excel spread sheet of the green fee finances. It was received in an email from Susannah Bunny Lebaron, a graduate student in speech communication and Green Fund committee chair

<b>Green Fee - FY12</b>			
<b>For the year ended June 30, 2012</b>			
<b>Revenues:</b>			
	Fee paid by students (as of Dec, 2011)		\$ 278,422.84
	Interest Income		<u>1,761.34</u>
	<b>Total Revenues</b>		<b>280,184.18</b>
<b>Expenses:</b>			
	Commitments - Fall semester 2011		28,763.00
	Commitments - Spring semester 2012		
	Other Expenses (see page 2)		<u>1,008.72</u>
	<b>Total expenses</b>		<b><u>29,771.72</u></b>
	Uncommitted balance, June 30, 2012		<u>\$ 250,412.46</u>
	<b>Wind Turbine</b>		238,605.84
	<b>Total available</b>		<b><u>489,018.30</u></b>
	Less amount for Grad Assistant, Coordinator, other misc. exp.		(35,000.00)
			<u>454,018.30</u>
	Available for Spring 2012 Projects	250,412.46	
	Availabe for Loan Fund / Large Project	238,605.84	

## Appendix B:

### SIU's Internal Loan Program



## SOUTHERN ILLINOIS UNIVERSITY Internal Financing Program

### **Purpose:**

From time to time it is appropriate to finance certain projects from University funds (pooled investments or reserves) when alternate arrangements are not viable, such as through the capital budget process or revenue bonds. Since internal financing represents a reduction of funds available for investment, it should only be used after considering the cost in lost interest on investments and with the involvement of appropriate University officers.

### **Guidelines:**

The following guidelines apply to internal financing of University projects:

1. Internal financing will be used only when it is more practical and economically feasible than external financing.
2. The Treasurer will determine an appropriate interest rate, which typically would be based on the current investment rate and duration of the loan.
3. The duration of the loan will not exceed the useful life of the asset financed.
4. Interest charged under the financing arrangement will be credited to the units providing the funds for financing.
5. Internal financing proposals require the approval of the respective Chancellor and the Board Treasurer.

### **Loan Approval Process:**

1. Review & articulate a need within the context of the Department's budget. A proforma financial statement may be required.
2. Complete the form entitled "Internal Loan Information Request Form" and e-mail to Tina Galik, Assistant Treasurer, at [tgalik@siu.edu](mailto:tgalik@siu.edu).
3. If approved, the Treasurer's Office will prepare an amortization schedule and a Loan Contract for the Department's review.
4. Once the Treasurer's Office receives the signed Loan Contract, funding will be transferred to the Department on a schedule appropriate for the project.
5. Repayment terms. The Treasurer's Office will transfer funds semi-annually on June 30th and December 31st from the agreed upon payee account for repayment of the loan per the amortization schedule. It may be necessary for your Department to request a new AIS account for debt repayment.

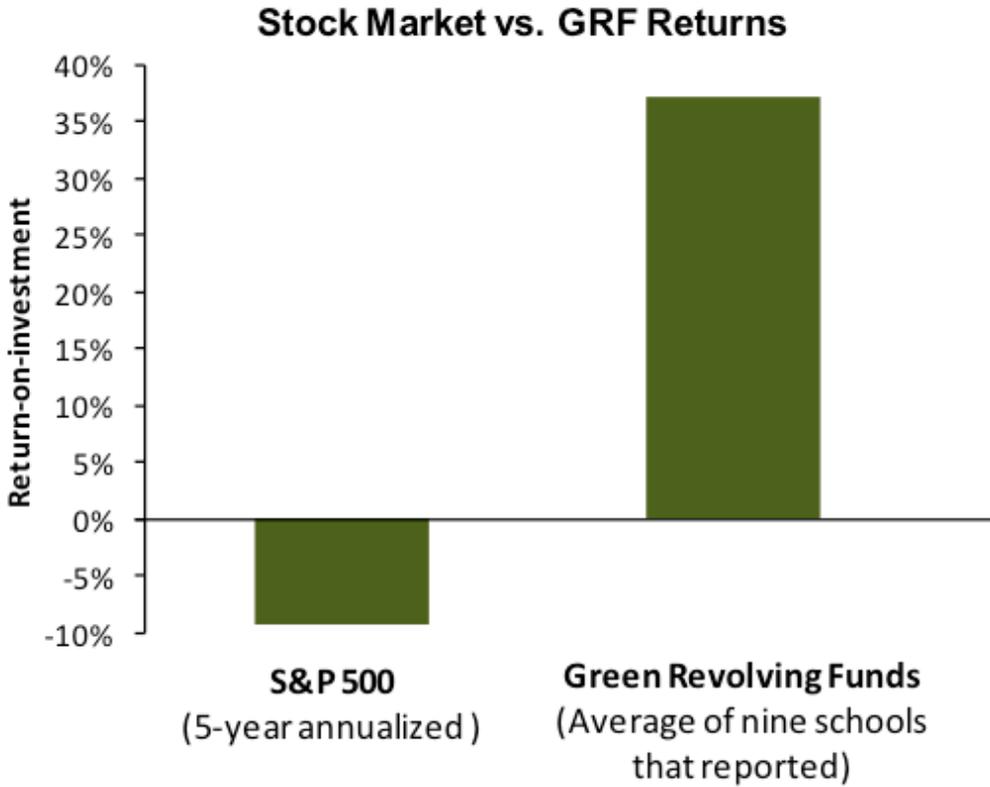
### **FY12 Internal Loan Rates:**

Short Term (3 Years or less):	<input type="text" value="2.00%"/>
Intermediate Term (Over 3 Years):	<input type="text" value="3.00%"/>

Both short and intermediate term interest rates will be recalculated annually. If the rate changes by 1% or more from the contract loan rate, the debt service schedule may be adjusted to reflect the revised interest rate. The minimum interest rate for loans 3 years or less shall never be less than 2.0%. The minimum interest rate for loans more than 3 years shall never be less than 3.0%. There will be no penalty for pre-payment of the balance due. Interest charges will be adjusted accordingly if the payment schedule is altered.

### Appendix C:

The graph below depicts the high return on investment that exists with GRF versus the stock market (Indvik).



## Appendix D:

Some projects that have been funded at other universities with a success include:

<b>Project</b>	<b>Payback Period</b>	<b>Cost w/o Incentives</b>	<b>Annual \$ Savings</b>	<b>School</b>
Energy saving software on 500 computers	23 days	\$3,039	\$49,000 projected	Iowa State University
Replaced 30 shower heads at 2.35 gpm with low flow 1.5 gpm	1 year	\$900	\$866	Oberlin College
Trading 7,450 students' incandescent bulbs with fluorescents in dorm rooms	1 year	\$17,600	\$20,000	University of Notre Dame
Converting one grounds tractor to run on vegetable oil	1 to 2 years	\$4,117	\$1,286 - \$2,572 (depending on fuel prices)	Oberlin College
Insulating pipes for new water heater in one building	2 years	\$3,200	\$1,600	University of Colorado at Boulder
Replacing T12 fluorescent bulbs with T8 in fixtures across campus	2 years	\$10,000	\$5,000	Swathmore College
Lighting retrofits in 10 parking structures: metal halide fixtures replaced with T8; installation of motion sensors	3 years	\$1,200,000	\$400,000	Harvard University
Ceiling insulation in two conference rooms	4 years	\$12,000	\$3,000	University of Colorado at Boulder
Lighting retrofit in academic building: installation of Super T8 bulbs, daylighting controls, and motion sensors	5 years	\$293,100	\$37,092 (projected)	Iowa State University
Pre and post consumer composting equipment in one dining hall	5 years	\$45,000	\$9,000 (projected)	Iowa State University

## Appendix E:

Of the 47 US colleges who have implemented GRFs, 34 (shown in yellow) are on the Princeton's Review of Green Colleges. And, of the 16 schools this year who received a green rating of 99, the highest score, 4 of them have revolving funds (shown in blue) (The Princeton Review).

Institution	Location	Established	Fund Size
Allegheny College	PA	2008	\$100,000
American University	DC	2010	\$100,000
Boston University	MA	2008	\$1,000,000
Bucknell University	PA	2010	\$10,000
California Institute of Technology	CA	2009	\$8,000,000
California State University, Monterey Bay	CA	2006	
Carleton College	MN	2007	\$71,101
College of Saint Benedict	MN	2010	\$100,000
College of Wooster	OH		\$5,000
Furman University	SC	2009	\$43,000
George Mason University	VA	2008	
Georgia Institute of Technology	GA		
Grand Valley State University	MI	2010	\$35,000
Harvard University	MA	2001	\$12,000,000
Iowa State University	IA	2008	\$3,000,000
Kalamazoo College	MI	2008	\$100,000
Lane Community College	OR	2006	\$122,000
Massachusetts Institute of Technology	MA	2007	\$2,000,000
Miami University of Ohio	OH	2009	\$50,000
Oberlin College	OH	2008	\$40,000
Oregon State University	OR	2009	\$160,000

Institution	Location	Established	Fund Size
Saint John's University	MN	2010	\$100,000
Seattle University	WA	2009	\$21,000
Skidmore College	NY	2008	\$50,000
Smith College	MA		\$250,000
St. Mary's College of Maryland	MD	2010	\$72,740
Stanford University	CA	1993	\$25,450,000
Swarthmore College	PA	2009	\$43,000
The George Washington University	DC	2010	\$2,000,000
Tufts University	MA	1991	\$1,700,000
University of Colorado at Boulder	CO	2008	\$581,995
University of Denver	CO	2009	\$1,900,000
University of Illinois at Urbana-Champaign	IL	2009	\$1,825,000
University of Kansas	KS	2010	\$40,000
University of Montana - Missoula	MT	2009	\$90,000
University of New Hampshire	NH	2009	\$650,000
University of Notre Dame	IN	2008	\$2,000,000
University of Pennsylvania	PA	2009	
University of Texas at Dallas	TX	2010	\$20,000
University of Utah	UT	2007	\$220,000
University of Vermont	VT	1992	\$180,000
University of Virginia	VA	2010	\$1,000,000
Vanderbilt University	TN	2010	
Weber State University	UT	2010	\$9,000,000
Western Michigan University	MI	1980	\$365,000
Whitman College	WA	2008	\$50,000

Institution	Location	Established	Fund Size
Yale University	CT	2010	\$100,000

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