



**SIRF**

**Sustainability Initiatives Revolving Fund**

FY 2015 – FY 2016 Report



## SIRF provides energy-saving opportunities, makes good business sense

The Arizona State University Sustainability Initiatives Revolving Fund invests in large energy conservation and small campus-oriented projects across the university. These projects keep ASU at the forefront of sustainability initiatives in higher education.

SIRF invests in projects that expand campus sustainability, energy conservation and renewable-resource development.

SIRF strives to:

- **Accelerate sustainable campus culture**
- **Invest wisely in projects that promote sustainability**
- **Reinvest savings in future energy-savings projects**

SIRF seeks projects that address the four goals of the ASU Strategic Plan for Sustainability Practices and Operations:

- **Active engagement**
- **Climate neutrality**
- **Principled practice**
- **Zero solid and water waste**

Sustainability is good business. SIRF funded 12 energy-related conservation projects and 14 student and campus-oriented projects between FY 2015 and FY 2016. SIRF matched funds with Sun Devil Fitness for two additional energy-related conservation projects.

- **The upfront investment in the 12 energy-related projects totaled \$11 million, and the projected annual benefits total \$1.1 million.**
- **Arizona Public Service rebates supported four of the energy-related projects for a total of \$114,920. It is anticipated that two other energy-related projects will receive APS rebates for an additional \$341,300.**

Since SIRF was launched in FY 2010:

- **Rebates have increased the average internal rate of return and contributed more than \$600,000 to the fund.**
- **The FY 2017 SIRF budget includes utility savings of \$1.4 million for reinvestment in future SIRF-funded projects.**
- **Through June 30, 2016, SIRF project investments total \$17 million. Most projects repay the fund within three-to-five years.**

**For more information, visit [sirf.asu.edu](http://sirf.asu.edu).**



# Arizona State University

## Sustainability Initiatives Revolving Fund

The SIRF revolving fund structure is based on the premise that large investments will result in cash-flow savings to repay the fund within a reasonable time period.

### Fund Structure

The SIRF funding structure differentiates proposed projects by investment size:

- **Tier 1 – University Community Sustainability Grants** (maximum \$50,000 in grants annually)  
Small project investments promote engagement and expand a sustainable campus culture. The maximum individual award is \$5,000. No tangible return on investment is required.
- **Tier 2 – Fund Matching and Efficiency Loans** (maximum \$500,000 funded annually)  
Medium-scale, capital improvements for space and equipment upgrades or renovations to improve energy efficiency. A partnering ASU department finances a percentage of the project cost. In return, the department shares in an equivalent portion of the benefits for up to five years; the remaining portion of the net savings returns to the fund.
- **Tier 3 – Capital Expansion Loans** (no maximum amount; limited only by available funds)  
Investments have a significant and measurable impact on ASU's sustainability profile and provide a return on investment. All investment savings are returned to the fund. Investments may involve strategic partnerships to reduce carbon emissions.

### Oversight

SIRF funds are available to all ASU students, faculty and staff through an application process. The Office of Planning and Budget within Business and Finance manages SIRF with oversight from a multidisciplinary review committee. Projects requiring funds more than \$100,000 require the Chief Financial Officer's approval.

SIRF investments are thoroughly vetted and the results are integrated into the university's annual planning process. The Facilities Development and Management Business Operations office validates the Tier 2 and Tier 3 project utility commitments for all ASU campuses. The University Sustainability Practices director approves all Tier 1 submissions.

The SIRF committee includes representatives from:

- **Facilities Development and Management**
- **Financial Services**
- **Planning and Budget**
- **University Business Services**
- **University Sustainability Practices**

As of June 30, 2016, the SIRF committee approved \$17 million in investments.

## ARIZONA STATE UNIVERSITY Sustainability Initiatives Revolving Fund

*As of June 30, 2016*

	Year Approved	Total Investment	Expected FY17 Investment Returns to Fund	Expected Investment Returns through FY17
<b>TIER 1 Grants</b>				
Call-to-Action on Food Waste   WC	FY16	5,000		
Harvest Kitchen on the Go   DPC	FY16	4,953		
School of Sustainability Student Engagement Space   TC	FY16	5,000		
Sustainability House at Barrett Rooftop Garden Remodel   TC	FY16	5,000		
Ugly Food Fest and Film   DPC	FY16	1,194		
Water Fountain and Bottle Refill Stations   WC	FY16	5,000		
Academic Center Water Fountain and Bottle Refill Station   PC	FY15	2,338		
Century Hall Vertical Gardening Program   PC	FY15	4,504		
Community Garden Enhancement   PC	FY15	3,231		
Las Casas Grows   WC	FY15	5,000		
Memorial Union Low-Water-Use Urinals   TC	FY15	4,966		
Movies in the Park   DPC	FY15	883		
New College Electric Vehicle Wrap Promotion   WC	FY15	5,000		
Recycling Myth Buster Event   WC	FY15	3,798		
Previous Tier 1 grants	FY11-FY14	62,890		
<b>TIER 2 Grants and Improvements</b>				
Band Practice Field LED Lighting   TC	FY16	118,950	20,591	20,951
Sun Devil Fitness Complex Field LED Lighting   TC	FY16	250,599	34,251	34,251
Irrigation Master Plan   TC	FY10	96,191		
<b>TIER 3 Investments</b>				
Central Plant Chilled Water Optimization   TC	FY16	8,940,298	scheduled to come online July 2017	
Central Plant LED Lighting   TC	FY16	80,582	15,301	15,301
Music Hall LED Lighting   TC	FY16	11,506	3,731	3,731
University Center Building C LED Lighting   TC	FY16	13,842	3,093	3,093
University Center Building LED Lighting   WC	FY16	209,831	16,788	16,788
Wells Fargo Arena Air Handler   TC	FY16	40,347	16,912	16,912
Analytics and Fault Detection Platform   TC	FY15	106,920	27,068	27,068
Campus Energy Managers   TC	FY15	749,938	244,916	244,916
Deer Valley Petroglyph Preserve LED Lighting	FY15	11,556	2,472	2,472
Lattie F. Coor Hall LED Lighting   TC	FY15	28,990	8,057	8,057
Mercado HVAC Replacements   DPC	FY15	419,579	70,000	70,000
Noble Science Library LED Lighting   TC	FY15	339,831	57,212	57,212
Previous Tier 3 investments	FY11-FY14	5,454,087	990,193	4,762,956
<b>Total Investments</b>		<b>\$ 16,991,804</b>	<b>\$ 1,510,585</b>	<b>\$ 5,283,348</b>

Legend: DPC, Downtown Phoenix campus; PC, Polytechnic campus; TC, Tempe campus; WC, West campus.



## Project Highlight

### Tier 1: Century Hall Vertical Garden | PC

Susan Norton | Program Coordinator | University Sustainability Practices



The Century Hall Vertical Garden project at the Polytechnic campus promotes ASU's sustainability initiatives to first- and second-year students at the Polytechnic campus and teaches the benefits of growing organic food. Students learn gardening basics and work collaboratively to grow fresh vegetables. Students experience the ease and affordability of small-space gardening through a seasonal, semester-by-semester experience. They learn that the same gardening principles can be used at other locations such as apartments, condominiums and single-family homes.

In addition to forming new friendships, working as part of a team, and enjoying the satisfaction of growing their own food, students learn to lower their carbon footprint by growing their own food and eating seasonally. Eating locally grown food eliminates the carbon emissions associated with commercial harvesting and shipping. Students also learn that more than half of Phoenix-area residential water use is for landscaping and see first-hand how drip irrigation systems conserve water.





## ASU SIRF FY 2015 and FY 2016 Project Details

May these simple, straight-forward projects inspire you to seek SIRF funds to boost energy-conservation efforts in departments and schools. SIRF also can enable opportunities for grassroots conservation efforts.

### TIER 1 PROJECTS: University Community Sustainability Grants

#### Academic Center Water Fountain and Bottle Refill Station

**Total Investment** **\$2,338**

This project enabled the purchase and installation of a water bottle filling station in the Academic Center building on the Polytechnic campus. The project goals:

1. Promote a reusable bottle culture on the Polytechnic campus
2. Reduce plastic water bottle use
3. Support ASU Zero Waste goal

The new water fountain and bottle filling station helps students, faculty and staff to meet personal sustainability goals.

#### Call-to-Action on Food Waste

**Total Investment** **\$5,000**

This project funded a March 2016 educational event on local and regional food waste that also tied into a Borderlands Food Bank event at the West campus. The funds purchased eco-friendly T-shirts that highlighted food waste and hunger statistics. Students analyzed dining hall food waste and provided a call-to-action on food waste for campus residents.

#### Century Hall Vertical Gardening Program

**Total Investment** **\$4,504**

The Vertical Garden Project goal is to provide a sustainable engagement opportunity for Century Hall residents on the Polytechnic campus. Students may grow vegetables, herbs and seasonal flowers in the community's courtyard area. This project helps promote ASU's sustainability initiatives to first- and second-year students. The project also educates students about the features and benefits of growing local organic food.

#### Community Garden Enhancement

**Total Investment** **\$3,231**

The project goal was to make the garden at the Polytechnic campus more attractive, functional and sustainable. SIRF funds enabled the project team to create a pollinator garden, plant trees, paint a garden shed, install a shade sail and construct a fence and benches with repurposed pallets. This project supplied the much-needed infrastructure to use this area more effectively for teaching and community involvement.

#### Harvest Kitchen on the Go

**Total Investment** **\$4,953**

The goal of Harvest Kitchen on the Go at the Downtown Phoenix campus is to increase interest in locally grown, seasonal vegetables among Arizona residents. ASU nutrition students use portable kitchens to showcase and increase awareness of the health benefits of local, seasonal produce at gardens, farmers' markets, schools and food banks. Students and consumers are also introduced to solar cooking.

#### Las Casas Grows

**Total Investment** **\$5,000**

During this daylong West campus event, volunteer students and staff cleaned up the Las Casas Residence Hall courtyards, spread decomposed granite and planted low-water-use plants. Representatives from the Residence Hall Association West, the School of Sustainability, Grounds for Grounds, ASU Wellness and other West campus departments and organizations staffed informational tables. These organizations educated participants about sustainable living and demonstrated what various campus groups do to promote sustainability.

#### Memorial Union Low-Water-Use Urinals

**Total Investment** **\$4,966**

The Campus Student Sustainability Initiatives student organization partnered with University Sustainability Practices to brainstorm ideas to conserve water at ASU. CSSI members proposed the replacement of eight, 1-gallon flush urinals in the Memorial Union on the Tempe campus with 0.25-gallon-flush urinals. This project is expected to save more than 120,000 gallons of water per year in these high-use facilities.

#### Movies in the Park

**Total Investment** **\$883**

The ASU Programming and Activities Board hosts movies in the Civic Space Park at the Downtown Phoenix campus six times each year. To make these events more sustainable, PAB used SIRF Tier 1 funds to purchase 1,000 reusable popcorn buckets. The reusable popcorn buckets replaced single-use paper bags. PAB also displayed sustainability fun facts and trivia questions on the movie screen before each movie.



New College Electric Vehicle Wrap Promotion | WC





# Total SIRF funded TIER 1 university community sustainability grants by campus:

Downtown Phoenix	\$ 17,030
Polytechnic	\$ 10,581
Tempe	\$ 57,348
West	\$ 33,798
<b>Total</b>	<b>\$ 118,757</b>

School of Sustainability student engagement space | TC





## TIER 1 PROJECTS: University Community Sustainability Grants

### New College Electric Vehicle Wrap Promotion

**Total Investment** **\$5,000**

The project's primary purpose was to purchase a vehicle wrap to promote and showcase ASU's multidisciplinary commitment to sustainability at the West campus. The New College of Interdisciplinary Arts and Sciences' electric van primarily is used to transport ASU students and staff to and from recruitment events at local high schools. Participants speak to more than 11,000 students annually at about 100 schools across the Valley. Part of the funding was used to purchase materials and signage to educate and promote the sustainable outcomes and benefits of using electric vehicles.

### Recycling Myth Buster Event

**Total Investment** **\$3,798**

This week-long West campus event raised sustainability awareness, debunked recycling myths and educated about ASU sustainability initiatives like Grounds for Grounds; water bottle filling stations; Weigh the Waste and Zero Waste. Event organizers distributed T-shirts made with sustainable resources, recycling messages, reusable water bottles and QR code stickers linked to ASU recycling guidelines.

### School of Sustainability Student Engagement Space

**Total Investment** **\$5,000**

The project revitalizes Wrigley Hall gathering space on the Tempe campus. A variety of student organizations use this space.

- The Campus Student Sustainability Initiatives club stresses sustainability education and advocacy on the ASU campus at large, providing information and hands-on activities for both students and administrators
- The College Council focuses on building social relationships while planning large-scale, educational field trips for students
- GreenLight Solutions works with local and regional businesses on sustainability-focused initiatives to provide students with practical, hands-on professional experience while advancing sustainable practices in the workplace
- The Honor Society for Sustainability emphasizes pre-professional development, networking and sustainability-focused community service
- The Sustainabilitybuddy Peer Mentor program organizes a number of individual and group events to aid a first-year student's successful transition to college

### Sustainability House at Barrett Rooftop Garden Remodel

**Total Investment** **\$5,000**

The Sustainability House at Barrett rooftop garden on the Tempe campus provides a meeting space for resident students and Barrett Sustainability Club members. Students work with Barrett deans, faculty and staff to engage students in sustainability enrichment initiatives. The redesigned, dual-purpose space provides an area for community engagement, meetings and experiential learning alongside gardening activities.

### Ugly Food Fest and Film

**Total Investment** **\$1,194**

This project funded an educational film and food demonstration event during Earth Week at the Downtown Phoenix campus. Faculty members and student volunteers prepared healthy, budget-friendly recipes using nutrient-dense, accessible ingredients that might otherwise be thrown away. Participants viewed the film "Just Eat It: A Food Waste Story."

### Water Fountain and Bottle Refill Stations

**Total Investment** **\$5,000**

Two additional Elkay water stations were added to the Social and Behavioral Science wing of the Faculty/Office Administration Building and the Lecture Hall on the West campus. Water filtration stations are located in high-traffic areas on campus and divert about 50,000 plastic bottles from the landfill per year. The water fountain and bottle filling stations help students, faculty and staff to meet personal sustainability goals.

**See page 14 to get started on your SIRF project**



# Total SIRF funded TIER 2 Fund Matching and Efficiency Loans projects by campus:

<b>Tempe</b>	<b>\$ 465,740</b>
<b>Total</b>	<b>\$ 465,740</b>

## Project Highlight

### Tier 2: Sun Devil Fitness Complex Field LED Lighting | TC

Robert Vandling | Manager of Energy Efficiency | ASU Energy Innovations  
Dustin Soderman | Associate Director | Sun Devil Fitness Complex - Tempe

Throughout his career in facility management with various university recreation departments, Dustin Soderman has been committed to maximizing sustainability efforts. Partnerships with campus clubs, departments and vendors have resulted in many cost-saving endeavors and have helped to shed light on the university's sustainability commitment. In his ASU Energy Innovations team role, Robert Vandling develops and manages sustainability projects and measures their energy savings. When approached by Vandling with the potential of partnering with SIRF, Soderman immediately jumped at the opportunity.

The Sun Devil Fitness Fields on the Tempe campus are used seven days a week and field lighting is a big part of that programming. After evaluating several different options, ASU installed 172 600-watt

LED fixtures that will use 100.8 kilowatts of power at most. ASU now saves more than \$45,000 per year in energy costs. Not only do the LED lights light up the field with a pleasant light, they are so much more energy efficient than the previous metal halide lights. The energy saved is about the amount of electricity used by 14 Arizona homes in a year. The LED technology should last more than 30 years without replacement, thus reducing maintenance costs by \$6,000 per year and saving employee time.

Using a Tier 2 funding structure, the SIRF fund contributed 50 percent and Sun Devil Fitness financed 50 percent. Sun Devil Fitness shares in the energy and cost savings.





**TIER 2 PROJECTS: Fund Matching and Efficiency Loans**

**Band Practice Field LED Lighting**

<b>SIRF Investment</b>		<b>\$118,950</b>
<b>Sun Devil Fitness Investment</b>		<b>\$118,950</b>
<b>Rebate</b>		<b>\$24,964</b>
<b>Net Project Cost</b>		<b>\$212,936</b>
<b>Net Present Value</b>		<b>\$43,190</b>
<b>Internal Rate of Return</b>		<b>9.34%</b>
<b>Annual Energy Savings</b>	<b>284,344 kWh</b>	<b>\$20,591</b>

Sun Devil Fitness uses the band practice field lights on the Tempe campus for intramural and athletic activities. This project replaced 156 HID lights with 60 LED fixtures. The upgraded lighting provides the same level of light to the field while saving 284,544-kilowatt hours and \$20,591 per year.

**Sun Devil Fitness Complex Field LED Lighting**

<b>SIRF Investment</b>		<b>\$250,599</b>
<b>Sun Devil Fitness Investment</b>		<b>\$250,599</b>
<b>Total Investment</b>		<b>\$501,198</b>
<b>Net Present Value</b>		<b>\$95,795</b>
<b>Internal Rate of Return</b>		<b>8.87%</b>
<b>Annual Energy Savings</b>	<b>169,620 kWh</b>	<b>\$45,668</b>

Sun Devil Fitness uses the lights on the Sun Devil Fitness Complex field on the Tempe campus for a variety of intramural and athletic activities. This project replaces 212 HID lights with 172 lower-wattage LED fixtures, saving 169,620-kilowatt hours and \$45,688 per year.



### TIER 3 PROJECTS: Capital Expansion Loans

#### Analytics and Fault Detection Platform

<b>Total Investment</b>		<b>\$106,920</b>
<b>Net Present Value</b>		<b>\$13,942</b>
<b>Internal Rate of Return</b>		<b>13.4%</b>
<b>Annual Energy Savings</b>	<b>318,448 kWh</b>	<b>\$27,068</b>

SIRF funds paid for a Fault Detection and Diagnostic system in five buildings on the Tempe campus. The FDD integrates information from multiple data sources, alerts to potential problems within a building and sends alerts about potential unnecessary energy and utility use after analyzing building and energy data. Early detection allows for timely repairs to avoid excess energy use.

#### Campus Energy Managers

<b>Total Investment</b>		<b>\$749,938</b>
<b>Annual Energy Savings</b>		<b>\$244,916</b>

This three-year project funds two campus energy-efficiency managers who develop and facilitate ASU energy-saving projects. The resulting energy savings offset the cost of these positions. See page nine for a project example.

#### Central Plant Chilled Water Optimization

<b>SIRF Investment</b>		<b>\$8,940,298</b>
<b>Anticipated Rebate</b>		<b>\$300,000</b>
<b>Net Project Cost</b>		<b>\$8,640,298</b>
<b>Net Present Value</b>		<b>\$652,699</b>
<b>Internal Rate of Return</b>		<b>7.27%</b>
<b>Annual Energy Savings</b>	<b>8,598,116 kWh</b>	<b>\$673,873</b>

Upgraded equipment and control software for ASU's chilled water system on the Tempe campus saves about 8,598,116-kilowatt hours and \$673,873 in FY18. This project reduces ASU's carbon footprint by about 4,500 metric tons per year.

#### Central Plant LED Lighting

<b>Total Investment</b>		<b>\$80,582</b>
<b>Rebate</b>		<b>\$18,745</b>
<b>Net Project Cost</b>		<b>\$61,837</b>
<b>Net Present Value</b>		<b>\$28,703</b>
<b>Internal Rate of Return</b>		<b>23.70%</b>
<b>Annual Energy Savings</b>	<b>180,494 kWh</b>	<b>\$15,301</b>

Upgraded interior lighting at the Central Plant on the Tempe campus saves 180,494 kilowatt hours and \$15,301 per year.

#### Deer Valley Petroglyph Preserve LED Lighting

<b>Total Investment</b>		<b>\$11,556</b>
<b>Net Present Value</b>		<b>\$7,727</b>
<b>Internal Rate of Return</b>		<b>22.98%</b>
<b>Annual Energy Savings</b>	<b>22,469 kWh</b>	<b>\$2,472</b>

This project replaced 150 40-watt fluorescent lamps with 12-watt LED lamps and 44 bulbs of various wattage with lower-wattage LED bulbs at the Deer Valley Petroglyph Preserve. The LED lighting is expected to save 22,469 kilowatt hours per year.

#### Lattie F. Coor Hall LED Lighting

<b>Total Investment</b>		<b>\$28,972</b>
<b>Rebate</b>		<b>\$16,899</b>
<b>Net Project Cost</b>		<b>\$12,073</b>
<b>Net Present Value</b>		<b>\$40,958</b>
<b>Internal Rate of Return</b>		<b>200.5%</b>
<b>Annual Energy Savings</b>	<b>97,302 kWh</b>	<b>\$8,057</b>

Lattie F. Coor Hall on the Tempe campus had metal halide lamps in two locations on the lower level and first floor, which were energy intensive and hard to maintain. The 83 new LED lamps are expected to save 97,300 kilowatt hours per year.

#### Mercado HVAC Replacement

<b>Total Investment</b>		<b>\$448,848</b>
<b>Net Present Value</b>		<b>\$72,308</b>
<b>Internal Rate of Return</b>		<b>10.57%</b>
<b>Annual Energy Savings</b>	<b>540,958-586,340 kWh</b>	<b>\$69,675-75,520</b>

This project replaced 54 heating, ventilation and air conditioning units located in the Mercado complex on the Downtown Phoenix campus with 56 new units. All units improved at least seven Seasonal Energy Efficiency Ratio ratings. Two of the existing 7.5-ton HVAC units were replaced with two 4-ton units to keep the 15 SEER rating, resulting in a total installation of 56 units. The new, high-efficiency HVAC units are expected to save nearly 541,000 kilowatt hours in the first year and more than 2.76 megawatt hours during the first five years of operation.



## Total SIRF funded TIER 3 capital expansion loans by campus:

Downtown Phoenix	\$ 981,975
Tempe	\$ 15,154,749
West	\$ 270,573
<b>Total</b>	<b>\$ 16,407,307</b>

Mercado HVAC replacement | DPC





### TIER 3 PROJECTS: Capital Expansion Loans

#### Music Hall LED Lighting

<b>Total Investment</b>		<b>\$11,506</b>
<b>Rebate</b>		<b>\$2,542</b>
<b>Net Project Cost</b>		<b>\$8,964</b>
<b>Net Present Value</b>		<b>\$13,112</b>
<b>Internal Rate of Return</b>		<b>68.14%</b>
<b>Annual Energy Savings</b>	<b>44,010 kWh</b>	<b>\$3,731</b>

This project replaced 157 40-watt light fixtures in the Music Hall on the Tempe campus with 8-watt LED fixtures and new diffusers. The new LED lighting saves ASU 44,010 kilowatt hours and \$3,731 per year.

#### Noble Science Library LED Lighting

<b>Total Investment</b>		<b>\$340,562</b>
<b>Rebate</b>		<b>\$76,734</b>
<b>Net Project Cost</b>		<b>\$263,828</b>
<b>Net Present Value</b>		<b>\$74,715</b>
<b>Internal Rate of Return</b>		<b>16.76%</b>
<b>Annual Energy Savings</b>	<b>674,897 kWh</b>	<b>\$57,212</b>

Noble Science Library on the Tempe campus was remodeled after a spring 2015 sprinkler malfunction. During the renovation, SIRF funds upgraded all library lighting from fluorescent to LED lamps and fixtures. The new, energy-efficient LED lighting is expected to save 674,897 kilowatt hours per year.

#### University Center Building C LED Lighting

<b>Total Investment</b>		<b>\$13,842</b>
<b>Net Present Value</b>		<b>\$4,485</b>
<b>Internal Rate of Return</b>		<b>18.24%</b>
<b>Annual Energy Savings</b>	<b>25,771 kWh</b>	<b>\$3,093</b>

This project replaced 570 32-watt lamps in building C of the University Center on the Tempe campus with 16.5-watt and 8.5-watt LED lamps. This LED lighting upgrade saves 25,771 kilowatt hours; a 49.4-percent reduction in energy use. The new fixtures save \$3,093 per year.

#### University Center Building LED Lighting

<b>Total Investment</b>		<b>\$209,831</b>
<b>Anticipated Rebate</b>		<b>\$41,308</b>
<b>Net Project Cost</b>		<b>\$168,523</b>
<b>Net Present Value</b>		<b>\$72,770</b>
<b>Internal Rate of Return</b>		<b>15.83%</b>
<b>Annual Energy Savings</b>	<b>375,529 kWh</b>	<b>\$33,576</b>

The upgraded lighting for the West campus University Center Building saves 375,529 kilowatt hours, a 72.5-percent reduction in energy use. This saves \$33,576 per year.

#### Wells Fargo Arena Air Handler

<b>Total Investment</b>		<b>\$40,347</b>
<b>Net Present Value</b>		<b>\$59,725</b>
<b>Internal Rate of Return</b>		<b>69.07%</b>
<b>Annual Energy Savings</b>		<b>\$16,912</b>

A new 0.5 horsepower fan-coil unit cools room 302 in Wells Fargo Arena on the Tempe campus without using the central air handling unit for the entire arena. This reduces energy consumption by 98.6 percent.



## How can SIRF make my sustainability project idea a reality?

### Tier 1 – University Community Sustainability Micro Grants

Smaller projects that are designed to build campus sustainability culture and promote student engagement. Examples include, but are not limited to:

- Community gardens
- Recycling collection bins
- Small-scale solar lighting
- Water bottle filling stations

ASU students interested in sustainability should partner with their college and school and University Sustainability Practices to develop their ideas into SIRF Tier 1 projects. Email [sustainabilitypractices@asu.edu](mailto:sustainabilitypractices@asu.edu) to get started.

### Tier 2 – Fund Matching and Efficiency Loans

Medium-scale, capital improvement initiatives that return a project's costs within six years or less.

- Replace existing windows with energy-efficient, low-emissivity windows
- Retrofit shades or window film on existing buildings to reduce air conditioner demands
- Upgrade appliances to more energy-efficient models: freezers, refrigerators or air conditioner units
- Use LED bulbs and energy-efficient ballasts

ASU colleges, schools and administrative units should visit [sirf.asu.edu](http://sirf.asu.edu) to download a form to begin a Tier 2 project.

### Tier 3 – Capital Expansion Loans

#### Tier 1 – University Community Sustainability Micro Grants

All large-scale initiatives that make a significant and measurable sustainability impact, and projects that return the investment within 10 years or less.

- Campus smart metering
- Central plant optimization
- Chilled water system demand control
- Parking garage lighting retrofits

These loans target internal and external partnerships that reduce carbon emissions. Tier 3 projects typically are initiated through Facilities Development and Management. If you have a proposal for a Tier 3 project, email [SIRF@asu.edu](mailto:SIRF@asu.edu).

### What is a revolving fund?

Tier 2- and Tier 3-funded SIRF projects must generate enough energy cost savings for ASU to recoup the investment so that further sustainability investments can be made. Tier 2 and Tier 3 projects are funded by loans repaid by the energy savings. The SIRF committee reviews project proposals to ensure the following minimum financial thresholds:

**Net Present Value NPV:** NPV is a measure of the current value of a project, netting present and future costs and benefits discounted for a time at a given rate. SIRF requires an NPV greater than \$10,000.

**Internal Rate of Return IRR:** IRR is the rate derived from setting the NPV to zero and solving for the discount rate, i.e., the rate at which the project would break even. SIRF requires an IRR greater than eight percent.

**Payback:** Payback is the time it takes for benefits to equal costs, i.e., the time it takes to break even. SIRF requires a payback of less than five years for projects that cost less than \$500,000, and less than 10 years for projects that cost more than \$500,000.

For more SIRF project examples, visit [cfo.asu.edu/sirf-current-projects](http://cfo.asu.edu/sirf-current-projects).



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### **ASU's Sustainability Commitment**

ASU is a Founding Circle member of the Billion Dollar Green Challenge hosted by the Sustainable Endowments Institute, a special project of Rockefeller Philanthropy Advisors. In collaboration with 15 partner organizations, the institute launched the challenge in October 2011 to drive energy savings with green revolving funds. [greenbillion.org](http://greenbillion.org)

In 2006, President Crow joined with 11 visionary college and university executives to establish the American College and University Presidents' Climate Commitment, and went on to serve as founding Chairman of the ACUPCC Steering Committee. [presidentsclimatecommitment.org](http://presidentsclimatecommitment.org)

ASU is a member of the Association for the Advancement of Sustainability in Higher Education. [aashe.org](http://aashe.org)

ASU is recognized as a Pioneer University in the Ellen MacArthur Foundation's Circular Economy 100. ASU is one of six universities honored worldwide. [ellenmacarthurfoundation.org/ce100](http://ellenmacarthurfoundation.org/ce100)

ASU is a member of the Green Sports Alliance. [greensportsalliance.org](http://greensportsalliance.org)

ASU is a co-founder and co-administrator of The Sustainability Consortium. [sustainabilityconsortium.org](http://sustainabilityconsortium.org)

ASU is a member of the U.S. Green Building Council. [usgbc.org](http://usgbc.org)

