SRU Long Range Strategic Plan 2025 Update –
Trend Five: The world is reaching a point of diminishing returns regarding resource utilization.

Editorial Note: This is a progress update of the original Trend Five document developed by the SRU Natural Resources Committee and used in creating the SRU Long Range Strategic Plan 2025. Its primary intent is to help measure SRU's progress in achieving the sustainability goals and objectives laid out in the Strategic Plan. Another document is also available that tracks SRU's sustainability progress in an even more comprehensive manner – the AASHE STARS Report, which is viewable at https://stars.aashe.org/institutions/slippery-rock-university-pa/report/2038/

Progress updates to this document are created "on the fly," and are not all-inclusive of the many sustainability-related activities at SRU – please email paul.scanlon@sru.edu with any updates or corrections!

A. Overview: General Accomplishments Update, January 2019:

1. SRU has reduced its energy usage by 18% since our base year of 2005, despite the campus footprint increasing by 35% over the same time period. Our energy utilization index (EUI, a measure of building energy efficiency) has improved 40% since our base year (2005), from 190,925 to 115,067 Btu/GSF-year.

Despite increasing energy prices, our annual energy cost increases have averaged of only 1.9% per year since 2005, saving the university hundreds of thousands of dollars and making a college education more affordable.

In 2017, SRU entered into a Guaranteed Energy Savings Agreement that will avoid an additional $1,084,454 in utility costs per year over the life of the 20 year agreement. Compared to a "business as usual" scenario, this GESA program will also significantly reduce our cumulative greenhouse gas emissions, since $18.5 million of deferred maintenance and energy conservation projects were implemented in 2 years, rather than being spread out over the next 20 years.

Beginning in 2016, SRU also began purchasing renewable energy credits (RECs) to support the alternative energy industry and reduce our net GHG emissions. With 15 million KWH of RECs purchased for 2018, 54% of our electricity is now sourced as renewable energy and our annual GHG emissions have been reduced by over 40%, from approximately 48,000 to 28,000 MTeCO2 (metric tons equivalent CO2).

2. In August 2012 the University's Campus Climate Action Plan was approved by President Norton in keeping with the American College & University Presidents Climate Commitment initiative. The plan will help guide the University in its efforts to become climate neutral within 25 years. This plan will be reviewed annually and updated as new technologies and strategies emerge that provide additional opportunities to quicken the pace of achieving carbon neutrality and/or to achieve it in a more economical manner.

3. SRU avoided approximately $395,000 in electricity costs in 2013 by teaming with the Penn State Facilities Engineering Institute and other PASSHE schools to conduct one large electrical RFQ. This savings is based upon purchasing our power from a 3rd party rather than accepting power at market rates from West Penn Power, and this approach to saving money through a rigorous bidding procurement process continues today.

4. The SRU Energy Conservation Policy was approved for implementation; it is now in the process of being expanded and renamed the "SRU Resource Conservation Policy" to reflect its new, more comprehensive nature.

5. A campus "Sustainable Features" map was created in 2013 for use in admissions tours to help attract students interested in environmental and sustainable studies programs. This has now been supplemented by a "Sustainability Programs" brochure developed in 2019. A second campus map showing all Audubon Sanctuaries, wetlands, and Biology Department Outdoor Classroom areas was created in 2017 and is used to educate the campus community and protect environmentally sensitive areas.

6. SRU is regularly recognized for its high rankings in the international University of Indonesia GreenMetric Ranking of World Universities, the Sierra Club "Cool Schools List" and "The Princeton Review's Guide to Green Colleges.

7. The University's sustainability efforts have also been recognized by receiving a Silver certification for its STARS (Sustainability Tracking, Assessment, and Rating) Report submitted to the Association for Advancement of Sustainability in Higher Education (AASHE); an improvement from the Bronze ranking achieved in 2010-11.

8. Slippery Rock University began reducing waste and saving money in energy costs through "Trayless Tuesdays" years ago. The program eliminated the use of food trays every Tuesday in Boozel Dining Hall during breakfast, lunch and dinner. On the first Tuesday, going trayless reduced food waste 425 pounds, water consumption 700 gallons and detergent use five pounds. Boozel's energy usage dropped 317 KWH and food waste by 20-25 percent. This program has now become a permanent practice and dining hall trays are no longer used in any of SRU's dining halls.

9. The SRU Green Fund Grant continues to support proposed sustainability projects at a maximum of $40,000 per semester; among many other projects, the water filling stations funded by Green Fund Grants had already avoided the use of over 250,000 disposable plastic water bottles in the first year of the program.

B. Long Range Strategic Plan 2025 Goals, Objectives and Metrics Tracking:

Trend Five: The world is reaching a point of diminishing returns regarding resource utilization.

Food, water, and energy. These are among the defining elements of survival on our planet. How well we manage these resources as well as their distribution to needed areas will determine our fate. Yet the world's rapidly growing population is outrunning the supply of these critical resources, while our use of fossil fuels threatens to change our climate and put millions at risk. Trends to consider as SRU prepares for this challenge include:

- Poor land management and the overuse of fertilizers are causing land degradation, soil erosion and desertification on a massive scale in agricultural areas from the Amazon Basin to the Yangtze River.
- By 2025, an estimated 3.5 billion people, or nearly half of the world's population, will face serious constraints on their capacity to meet water demands. Water scarcity and quality will be a prime determinant of expanding current food production. By 2020, India's demand for water will exceed all sources of supply.
- By 2025, OPEC will account for up to 50 percent of the world supply of oil. Skyrocketing demand - primarily in Asia - will drive this trend. The number of cars in China could rise from 12 million in 2004 to 500 million by 2050. In India, the number of cars could increase even faster, from 5 million to 600 million. The impact of this rise in consumption is startling in terms of potential geopolitical conflict and environmental consequences. [(1)]
- Aggregate increases in other sources of energy will be overshadowed by the exponential consumption of coal, oil, and natural gas in the decades ahead.
- Current trends are not sustainable and resource availability and demand will impact political stability throughout the world.

These trends suggest that students graduating from SRU will face a very different world within the next few decades as our resources dwindle. As cultural anthropologist Catherine Bateson has noted, "Teaching students today is like teaching them to live on a planet we have never seen." To meet these challenges, we must prepare our graduates to be engaged citizens and problem solvers.

SRU is not alone in recognizing the need for better engaging its students, faculty and staff in efforts to reduce their ecological footprint. Universities across North America are switching to renewable energy sources, developing sustainability courses and programs, opening sustainability offices, conducting greenhouse gas emissions inventories, and initiating sustainability audits. Membership in the Association for the Advancement of Higher Education (AASHE) has grown to more than 830 colleges and universities

since 2001. Students are leading many of these efforts to increase sustainability on their campuses, and also looking at potential universities with a critical eye when making admission decisions.

In addition to the environmental and educational benefits of initiating more sustainable practices, universities are also witnessing significant financial gains. In a 2005 survey of universities with sustainability programs conducted by Cornell University, annual savings ranged from $750,000 to several million dollars, easily covering the expenses of sustainability offices and staff members hired to coordinate efforts on those campuses. For SRU, the sustainability measures detailed below would also help the university achieve state system accountability measures, including efforts to reduce *institutional cost*, increase *private support*, and increase *student internships*.

Engaging our Students

To produce graduates with the skills needed to excel in a world of diminishing resources, SRU must lead by example, making a commitment to sustainable practices throughout every level of its operations, and becoming a leader in sustainability within the region. By the time they graduate our students will:

- Recognize how their day-to-day activities impact both global society and the natural environment.
- Use natural resources efficiently and understand methods to reduce their ecological footprint.
- Identify environmental problems and work within their professions and communities to find creative and equitable solutions.
- Understand the energy-environment connection, as well as underlying economic and political considerations, so they can be more effective agents of change for practical, long-term sustainability.

Our goal is that sustainable practices will eventually become ingrained in our campus culture. We will assess our progress through a number of different efforts noted below, including student surveys, tracking of student involvement in campus events, annual sustainability audits, and monitoring our success in balancing our desire to reduce campus energy use and greenhouse gas emissions while still providing our students with affordable education opportunities. To achieve this goal we have divided campus sustainability efforts into the categories of *Education and Research*, *Administration and Finance*, and *Operations*, and we have developed objectives and action steps for each. These categories were chosen because they are used by the Sustainability Tracking, Assessment & Ratings System (STARS), an assessment instrument that allows universities to benchmark their sustainability progress over time.

A. Education and Research

Ongoing Activities

SRU made a commitment to sustainability long before the current ground swell of support we witnessed in 2010. In 1990 the university founded two groundbreaking initiatives, which continue to evolve and be successful. The first was the 83-acre Robert A. Macoskey Center for Sustainable Systems Education and Research, created to promote sustainability leadership through demonstration, education and research. The second was the development of the Masters of Science in Sustainable Systems (MS3) masters degree, a unique graduate program designed to prepare students to face the pressing environmental challenges of the future by considering sustainability as the underlying framework for action. At the undergraduate level, students have the opportunity to encounter issues of sustainability in a number of different courses offered within biology, chemistry, business, environmental science, geography and geology, and parks and resource management departments.

Challenge

Although there are currently opportunities for students to engage in sustainability, there is no mechanism for introducing concepts of sustainable practices to a broad cross-section of SRU students. There needs to be a sustainability component within SRU's core curriculum. Charting a sustainable future is also something that cannot be accomplished in a vacuum, and this means increasing students' interaction with

surrounding communities and building new partnerships. These efforts will require that we first build greater awareness on campus through demonstration projects and issue-driven, experiential learning.

Goal

To increase the opportunities for students to learn about sustainability and get involved in sustainability efforts on campus and in the surrounding communities.

ACTION A.1: Increase the number of sustainability components within goal courses in the Liberal Studies Program
MEASURE: Review of components added to goal courses
BASELINE: Annual ASSHE STARS Report – Curriculum score 9.24/55.00
UPDATE: 2011 AASHE STARS Report v1.0 – Curriculum score 15.69/55.00 (July 2011)
UPDATE: 2012 AASHE STARS Report v1.2 – Curriculum score 31.12/55.00 (August 2012)
UPDATE: 2013 AASHE STARS Report v1.3 – Curriculum score 49.81/55.00 (August 2013)
UPDATE: 2014 AASHE STARS Report v2.0 – Curriculum score (new scoring system) = 19.41/40 (February 2014)
UPDATE: 2018 ASSHE STARS Report v2.o - Curriculum score (revised scoring system) = 6.63/14, a major improvement in the number of sustainability courses offered.

ACTION A.2: Develop Sustainable Living Learning communities within the residential halls.
MEASURE: Review of learning communities
BASELINE: No Sustainable Living Learning communities exist as of 2012
UPDATE: Residence Life conducted student survey on desirability of a Sustainable Living Learning communities (Fall 2013)
UPDATE: Sustainability Living Learning Community started up Fall Semester 2014 - L.E.A.F. LLC (Living in an Environmentally Acceptable Fashion)
UPDATE: As of Fall 2018, a Sustainability Living Learning Community is still active in one of the Residence Halls.

ACTION A.3: Make sustainable education a part of the "Week of Welcome"
MEASURE: Implementation
BASELINE: Energy Action Campaign's "Energy Pledge" Drive conducted in visible locations during Week of Welcome activities.
UPDATE: Energy Pledge Drive continued Fall 2012; 600 to 700 energy conservation bracelets distributed; 130 faculty/staff and 1,791 students have taken the pledge as of year-end 2012; sustainability flyer updated and included in Successful Learning: A Guide to First Year Studies (FYRST) for 2012.
UPDATE: Fall 2013 - Sustainability flyer for FYRST Guide updated to include contact info for Students for Sustainability club, Sustainable Enterprise Accelerator; Energy Pledge signups increased to over 2,000; Energy Pledge magnets distributed to each Residence Hall; Sustainability poster "Preparing Our Students for a Green Economy" placed on each Residence Hall floor bulletin board.
UPDATE: Fall 2014 – Budget concerns delayed hiring of G.A., reduction of Sustainability Office staff to part-time status resulted in inadequate resources to staff a "pledge sign-up" table during WOW. However, a more robust energy pledge database was developed and is now in use during our Fall energy pledge drive; the new database allows us to automatically send emails to each pledge-taker thanking them and reminding them of the action steps they committed to. Additional customized emails can also be sent to all pledge-takers, and their major/year/college/departments are automatically documented to enable future competitions between departments, majors, etc.
UPDATE: Fall 2014 – Office of Sustainability and CSIL began cross-promoting events, particularly events such as blood drives where a large group of people must wait their turn to participate; CSIL volunteers now hand out energy pledge postcards that individuals can fill out while they wait, with CSIL volunteers subsequently entering the data electronically (this enables more students to take the pledge than trying to have each one sign in on a slow-moving laptop).
UPDATE: Fall 2017 - Volunteers from groups such as the Sustainable Enterprise Accelerator, the Environment, Geology and Geography Department, and the Macoskey Center continue to make sustainable education a part of the Week of Welcome and other major activities.

ACTION A.4: Incorporate sustainability talking points into campus tours
MEASURE: Implementation
BASELINE: Natural resources/environmental features signage exists, but specific sustainability signage/talking points not incorporated in campus tours as of 2012
UPDATE: Campus Sustainable Features Map created Summer 2013 and is available for use on Admissions Walking Tours.
UPDATE: 2014 – Trailhead kiosks were installed for the campus hiking/biking trail, and wetlands along the trail were delineated to provide the information needed to finalize the new trail with DEP-approved causeways, footbridges, etc. that protect the streams and wetlands along the trail. Wetlands delineation completed for on-campus hiking trails.
UPDATE: 2017 - Additional GIS mapping was completed for use in the current Facilities Master Planning program; this map illustrates the Audubon Sanctuary sites on campus, wetlands/streams/ponds, and Biology Department outdoor classroom areas.
UPDATE: 2019 - A "Sustainability Programs" brochure was created for use by the Admissions Office.

ACTION A.5: Engage students in sustainability projects on campus and in the surrounding communities (note: Green Fund Grant projects summarized separately in Administration & Finance section)
MEASURE: Participation tracked using CSIL volunteers and computerized co-curricular experience transcript
BASELINE: Sustainability projects or programs intended to engage students and the community included: Movies Series, Polish the Rock, Campus Clean-up, Jennings/Moraine Clean-up, Trail Maintenance, Sustainability Fest, CareBreaks (2), Mini CARE (3), Habitat, and Tulip Planting (2) activities.
UPDATE: During the 11-12 Academic Year these programs attracted **865 student participants**. However, the computerized co-curricular tracking mechanism needs to be de-bugged for greater ease of use and accuracy.
UPDATE: 2013 Earth Week activities included **1,034 student participants in thirty-three individual activities**: Earth Day carnival on the Quad, EarthFest at Macoskey Center, six food/clothing donation events for the poor/homeless, three community service events (Campus/Community Clean-up, Jennings Environmental Education "Take Back the Woods: Battling Invasive Species clean-up, "Polish the Rock" clean-up day), a week-long RecycleMania competition, nine educational films, seven guest speakers on energy, sustainable education, and environmental topics. May 2013 community "Dump'N'Run" recycled 3.38 tons of used furniture/furnishings to Goodwill.
UPDATE: Macoskey Center**'s** organic community garden program featured in July 2013 video clip "Garden is Model for Area" on Youngstown TV station WKBN, Channel 27 (http://www.wkbn.com/2013/06/22/garden-is-model-for-area/)
- 10 Student interns at Sustainable Enterprise Accelerator completed projects Summer 2013. Two SEA student interns participated in the joint Office of Sustainability/Sustainable Enterprise Accelerator presentation "Preparing Our Students for a Green Economy" at a day-long, regional (Butler, PA) Fossil-Free Energy Fair July 2013 attended by over 100 community members.
- Two SEA summer interns were also taught how to complete a lighting energy audit for a local business.
- CSIL and Macoskey Center student volunteers collected a pickup truck load of cardboard and 15 bags of plastic bottles/metal cans at the Slippery Rock VillageFest held on Sept. 14, 2103.
- UPDATE: Office of Sustainability organizes Earth Week and AASHE Sustainability Day activities each year starting 2012
- UPDATE: Green Fund Grant projects continue; student-run TerraCycling program started in Residence Halls in Spring 2013

UPDATE: Green Fund Grants awarded Green Bike Initiative funds ($1,000) for repairing bikes and for installing a bike repair station ($1,250) in front of Bailey Library.
UPDATE: The Sustainable Enterprise Accelerator engaged 13 student interns in summer 2014 in teams supporting a variety of sustainability projects for local businesses/community organizations.
- Bat condominium research project to be carried out by Paulette Viola grad student Fall Semester 2014

- Student volunteers under the direction of Professor Christine Glenn continue to maintain/improve on-campus hiking trails and to protect the wetlands.

UPDATE: 2017 **-** SEA student-led sustainability projects continue (see www.srusea.com for list of current projects), as do Green Fund Grant projects and various Macoskey Center projects.

ACTION A.6: Increase faculty and staff awareness and participation in sustainability projects through various dissemination efforts, including web pages, informational pieces, etc.
MEASURE: Tracked through poll
BASELINE: Sustainability Office Website located at:
http://www.sru.edu/president/Sustainability/Pages/Index.aspx
Energy Pledge: www.sru.edu/energypledge
Sustainable campus projects featured in daily "Good News" Emails. Sustainability news articles in RockPride online, and The Rock (print).
UPDATE: Climate Action Plan, GHG Emissions Inventory added to website in 2011.
UPDATE: In 2013, Sustainability website URL simplified to www.sru.edu/sustainability and Sustainability Office email account Sustainability@sru.edu established; significant additions to website resource content made; Facebook site www.facebook.com/SRUsustainability launched.
UPDATE: Sustainability Office presentations provided to Provost's Executive Administrative Task Committee, Dean of College of Education, SEA Summer Interns, Dean and administrative staff of the College of Humanities, Fine & Performing Arts. Article on water bottle filling stations saving over 250,000 disposable plastic water bottles published in RockPride Online Sept. 2013. RockPride Online article 10/03/2013 "Bookstore coupons promote greening".
UPDATE: Office of Sustainability interviewed by SRU radio and TV stations Fall 2013; 125th Anniversary "Sustainability" videotape being produced Spring semester 2014
UPDATE:

- The Office of Sustainability provided presentations on sustainability/energy efficient design to various groups, including Sustainable Slippery Rock, the SEA Ambassadors, a sustainable planning class, and others. Previous outreach programs continuing.
- Created sustainability/energy conservation awareness flyers for use in new faculty and staff orientation training; flyers updated annually

UPDATE: A professional development seminar providing an overview of the latest climate change science and observations, as well as an update on SRU's carbon commitment progress, was developed and made available to all SRU staff as of February 2018. A similar presentation was presented to the President's Council of senior administration officials.

ACTION A.7: Develop sustainability workshops as a service to the surrounding communities.
MEASURE: Review of workshops offered and number of attendees
BASELINE: 32 RAMC private tours conducted, FY 2011-2012;
UPDATES:
Robert A. Macoskey Center for Sustainable Research & Education FY 2012 – 2013 summary:
11 tours for 71 college students (incl. Pymatuning program presentation by Sustainability Office)
13 FYRST Seminars for 260 college students
2 Pre-school programs for 78 children
220 students, Earth Day Quad carnival
125 community members, EarthFest
McKeever Environmental Education Center FY 2012-2013 summary:

- Day Use Programs served 1,085 school students, 158 adults from 16 schools
- McKeever Multi-Day Programs served 131 students, 43 adults
- 10th Annual Nature Art Show served estimated 1,500 community members
- Earthkeepers Multi-Day Program served 796 students, 201 adults from 14 schools
- Sunship Earth week-long programs served 287 students, 33 adults from 5 schools

Office of Sustainability & Sustainable Enterprise Accelerator teamed up to:

- Presented a "Preparing Our Students for a Green Economy" presentation at a regional (Butler, PA) Fossil-Free Energy Fair July 2013.
- Cosponsor Patricia Demarco sustainability speaker 9/23/13 http://rockpride.sru.edu/2013/RP092013/story.php?id=5

Sustainable Enterprise Accelerator and School of Business-sponsored speakers series:

9/23/2013: Dr Patricia Demarco, Ph.D. will present a lecture on Renewable and Sustainable Energy. She is the past director of the Rachel Carson Institute at Chatham University and presently Adjunct at University of Pittsburgh Environmental Program.

- Fall semester 2014 – SEA, Office of Sustainability participated in Green Investment panel discussion with 80 students in attendance;
- Mary Burke, founder and director of the Project to End Human Trafficking, presented a documentary and lecture "In Plain Sight: Human Trafficking in Western Pennsylvania." on October 1. Sponsored by the SRU Women's Center.

Robert A. Macoskey Center for Sustainable Research & Education FY 2013 – 2014 summary:

- 8 FYRST seminars presented Fall semester 2013

General: As of 2018, sustainability tours and workshops open to the public continue to be offered at the Macoskey Center, which is now used heavily for FYRST seminars and Parks & Rec classes.

ACTION A.8: Conduct pre-and-post assessment of student attitudes on sustainability
MEASURE: Assessment results
BASELINE None – No student attitudes on sustainability surveys conducted prior to 2013
UPDATE: First pre-assessment of student attitudes on sustainability developed and conducted March 2013.
UPDATE: Sustainability questions included in SGA survey in 2013 to avoid "survey fatigue".
UPDATE: Fall 2014 – Christine Glenn volunteered to develop a sustainability comprehension survey in the hope we can track progress made from freshman year to senior year.
UPDATE: Fall 2017 - Sustainabilty questions continue to be included in the annual SGA survey, and Professor Rebecca Thomas has committed to developing a more comprehensive survey that may be administered manually to a cohort of Residence Hall students that can be tracked to show year-to-year changes in student sustainability knowledge and commitment.

ACTION A.9: Document the results of campus sustainability efforts and share those results locally, regionally, and nationally
MEASURE Public relations materials produced
BASELINE Articles published in AASHE Bulletin and off-campus publications
UPDATE: 2011 - Articles published in the Rocket newspaper, on website; sustainability brochure published
UPDATE: 2012 - Rock Apartments energy audit article published in The Rocket campus newspaper November 2012; TerraCycling article published in The Rocket Dec. 2012; Green Power Reduces SRU Carbon Footprint article published in RockPrideOnline Dec. 2012; "Wind Power Reduces Carbon Footprint" article published in The Rock Winter 2013 SRU magazine; SRU Presidents Climate Commitment, Climate Action Plan, STARS report, SRU Energy Conservation Policy, summary of Rock Apartments Energy Audit all made available to the general public via SRU sustainability website.
UPDATE: 2013
- In 2013, the content of the SRU Office of Sustainability website (www.sru.edu/sustainability) was significantly increased, and a Facebook page social media initiative was launched (www.facebook.com/SRUsustainability).

- Green fund project descriptions and Campus Sustainable Features Map added to website.
- Website sustainability page unique page views increased from 209 in March 2013 to 368 in Nov. 2013; total page views increased from 390 in March 2013 to 425 in the same time period; Sustainability Facebook "likes" increased from 58 in March 2013 to 220 in Nov. 2013.
- A joint Office of Sustainability/Sustainable Enterprise Accelerator presentation "Preparing Our Students for a Green Economy" was conducted at a day-long, regional (Butler, PA) Fossil-Free Energy Fair July 2013 attended by over 100 community members; the presentation included a summary of SRU's sustainability achievements and received front-page publicity in the July 29 edition of the Butler Eagle newspaper.
- SRU recognized in August 2013 Sierra Club magazine as in the "Top 100 Green Universities"; related story featured in SRU "Good News" online communication.
- 9/20/13 Rock Pride article – 250,000+ disposable water bottles avoided http://rockpride.sru.edu/2013/RP092013/story.php?id=8

- 9/20/13 Rock Pride article reports on SRU highlighted in Sept. issue of Pittsburgh Magazine "Thinking Green" article. http://rockpride.sru.edu/2013/RP092013/story.php?id=11 and http://www.pittsburghmagazine.com/Pittsburgh-Magazine/September-2013/Thinking-Green/
- October 2013 – SRU participated in International Sustainability Survey (Universitas Indonesia Green Metric World University Sustainability Ranking 2013)

UPDATE: 2014

- SRU Greenhouse gas inventories for FY 2011-2012 and 2012-2013 completed in January 2014 and posted at AASHE website
- SRU Climate Commitment progress report completed and posted to AASHE website in Jan. 2014
- AASHE STARS Report completed and posted 2/28/14, Silver ranking maintained.
- SRU ranked 43rd internationally by the Universitas Indonesia Green Metric World University Sustainability survey.

UPDATE: 2017

- Campus sustainability efforts continue to be shared locally, regionally, and nationally through a variety of newsletters (SEA and Macoskey Center monthly newsletters) and articles in campus publications. Additional articles in regional media outlets continue to be placed (some describing progress on high school projects from the "Healthy People, Healthy Planet Environmental Summer Camp and Community Project Incubator" summer camp hosted by the SRU Office of Sustainability). Nationally-placed articles include the "SRU Pays It Forward with Strategic Renewal Financial Planning: Innovative GESA Program Puts GHG Emissions and Energy Cost Reductions on a Fast Track, while Catching Up with Deferred Maintenance" article, to be published in the National Association of College and University Business Officers magazine.

B. Administration and Finance

Ongoing Activities

SRU's administration has demonstrated a long history of supporting efforts to promote sustainable practices. The most recent example was President Robert Smith signing the American College and University Presidents Climate Commitment in November of 2009. By signing the agreement, the university has committed to neutralize greenhouse gas emissions as soon as possible, and to accelerate its research and educational efforts in an effort to equip society to re-stabilize the earth's climate. Existing administrative programs and committees on campus also demonstrate SRU's efforts to promote sustainable practices. Foremost among these have been the student-initiated Green Fund Advisory Board, which has awarded $75,000 each year in sustainability grants, and the Green Bike Initiative, which provides free bike checkouts to reduce automobile use. Two additional committees on campus promoting sustainability are the Energy Conservation Committee, and the Environmental Zoning Committee.

Challenge

While various departments, committees, and individuals on campus have been making progress toward adopting sustainable practices, there is a lack of campus wide coordination and communication that would make these efforts more successful. Much of the sustainability work currently being accomplished is not the direct responsibility of any one individual or group, and so does not get the priority that these issues demand. What is needed is a commitment to fund and staff an Office of Sustainability that would drive these efforts and engage the entire campus community. As mentioned above, the savings from reduced energy use, reduced paper and other supplies, and reductions in both landfill and water fees have the potential to more than offset the additional costs of establishing a sustainability office. Responding to the 2005 Cornell survey, the University of British Columbia reported total annual savings of $2.6 million due to its sustainability programs, and that energy savings alone fund that school's sustainability office. Other schools reported similar savings. Although SRU does not operate at the same scale as UBC, there remains a strong potential for the sustainability office to be self-supportive through energy savings and obtaining grants.

Goal

SRU will shift toward a more sustainable model by using a systems approach that coordinates and engages all aspects of campus operations.

ACTION B.1: SRU will continue to fully support the Green Fund to encourage participation by students, faculty and staff
MEASURE: Number of grants and projects completed
BASELINE: 2009 Green Fund supported 9 projects totaling $73,598
UPDATE: 2010 Green Fund supported 11 projects totaling $48,786
UPDATE: 2011 Green Fund supported 9 projects totaling $34,622
UPDATE: April 2012 Green Fund supported 10 projects totaling $67,012
UPDATE: Nov. 2012 Green Fund grants supported 3 projects totaling $70,240
UPDATE: April 2013 Green Fund Spring grants supported 2 projects totaling $3,531
UPDATE: Nov. 2013 Green Fund Spring grants supported 2 projects totaling $2,200
UPDATE: Dec. 2017 **-** The Green Fund Grant program continues to be fully supported, with $26,534 funding provided for tree plantings and a special events portable recycling system.

ACTION B.2: Create incentives for students, faculty, and staff to reduce automobile use
MEASURE: Automobile use on campus and Happy Bus usage
BASELINE: No incentives exist as of 2012
UPDATE: Green Bike Initiative re-launched Fall semester 2013, two Green Fund Grants received to support loaner bike program in 2014.
UPDATE: 2017 - Transportation commuter alternatives and methods to make the SRU campus more bicycle and pedestrian friendly are being studied as part of the ongoing Facilities Master Planning effort. Several student-led research projects are also examining ways to increase participation in the green bike initiative.

ACTION B.3: SRU will create a new Office of Sustainability in a highly visible location as space becomes available by Fall 2012.
MEASURE: Implementation
BASELINE: No physical office space provided for Sustainability Office prior to 2012
UPDATE: Temporary Office located in Maintenance Building with Facilities and Planning Fall 2012; permanent office anticipated to be located in Student Success Center when the old University Union building is renovated.
UPDATE: Office of Sustainability has been relocated to our highly visible "sustainability flagship", the Harmony House, on the grounds of the Robert A. Macoskey Center for Sustainable Systems Education & Research.

ACTION B.4: The University will create the position of Campus Sustainability Officer – a full-time position reporting to the President, with adequate office support staff, including a full-time graduate assistant position.
MEASURE: Appointment of position and staffing
BASELINE: Senior Officer for Sustainability appointed Fall 2011, Full-time GA position created Fall 2011
UPDATE: 2012 Full-time GA position continued for 2012 Academic Year
UPDATE: 2012 Full-time Sustainability Coordinator appointed Fall 2012. Responsibilities of the Office of Sustainability include:

- Work in concert with and coordinate the existing environmentally related SRU committees, including the President's Commission on Sustainability, the Environmental Zoning Committee; the Institute for Community Service-Learning and Nonprofit Leadership; the Green Fund, the Macoskey Center, and the Energy Conservation Committee.
- Produce the annual SRU Sustainability Report – published online and otherwise.
- Collect and coordinate the data and reporting necessary to meet the American College & University Presidents Climate Commitment.
- Oversee environmental conservation efforts of "natural and educationally relevant" areas on SRU campus. Design and manage development of access to these areas: educational/curricular access; public access; and natural resource management.
- Work with SRU stakeholders to manage and provide oversight for campus ecology projects.
- Oversee the development of a series of educational components that can be presented by a variety of staff, faculty and graduate students to ensure that incoming students have

multiple opportunities to learn about campus sustainability. This might include student competitions to increase recycling or reduce energy use, events to check automobile tire pressure, or complete bicycle maintenance, etc.
- Create a sustainability awards program.
- Oversee the expansion and management of sustainability-themed workshops and programs through the Macoskey Center and the Pennsylvania Center for Environmental Education (i.e. workshops for local contractors and engineers, Organic Certification Workshops, Sustainability Education Teacher Training Workshops, etc…)
- Act as the SRU clearinghouse for campus sustainability resources to help administration, academics, athletics, campus recreation, facilities, custodians, food services and other departments' transition to more sustainable practices.
- Provide interpretation of campus sustainability projects to the campus community and beyond through media coverage, demonstration projects, and web-based publications.

UPDATE:

- Two student workers engaged for Summer 2013 to develop GIS mapping of environmentally sensitive areas of campus and sustainability walking tour maps.
- Full-time G.A. hired for Fall 2013 semester and succeeding semesters.
- 2013-2104 Budget issues resulted in staff position reduced to ½ time; student worker hired in lieu of G.A.
- 2017 - Director of Sustainability position increased to 4/5 time, with five student workers hired.
- 2018 - Director of Sustainability position was returned to a full-time position with 5 student workers budgeted.

C. Operations

Ongoing Activities

SRU has been steadily reducing its use of energy and natural resources, despite the addition of new buildings. While the campus square footage has increased from 1.9 million in 2003-04 to 2.26 million in 2008-09, total energy use has decreased primarily through the replacement of older, less efficient buildings at the end of their useful service lives with new, energy efficient buildings, increases in the efficiency of mechanical, electrical, and controls systems, and improved building shells (better insulated roofs and walls, and energy-efficient windows) in an aggressive building renovation program, and the use of ESCO (Energy Service Company) contracts to improve lighting systems in existing buildings. The six new residence halls are LEED (Leadership in Energy and Environmental Design) certified and the University has declared that all future construction and renovation projects must meet LEED standards. The new halls include motion detectors that provide lighting on demand, as well as computer-controlled heating and cooling systems that monitor outside air temperature and optimize systems operations in order to more efficiently provide the heating or cooling as needed within the halls. One of the environmental benefits of these decreases in energy consumption, coupled with the installation of a flexible fuel system provided in the central heating plant, was a reduction of almost 50% in the amount of coal burned in the last five years without a significant increase in energy costs. The installation of a $4 million baghouse and flue gas heat recovery system at the central heating plant, to be completed by 2011, will provide further opportunities to both increase plant efficiency and greatly decrease local emissions.

Water-conserving sink faucets and automatic flush toilets have been installed where feasible and are helping the University conserve water and money. A massive office and classroom lighting retrofit was completed in 2002 and is showing considerable electrical energy saving for the campus. The University has an active recycling program and annually recycles more than 200 tons of material that would have been sent to landfills. In addition, 16 tons of pre-consumer food scraps are taken from campus dining halls and combined with leaves collected on campus and from the community to make compost that is then used for campus beautification projects. SRU also recycles its electronics (computers and televisions) through the state prison system, which dismantles the units and makes parts and other components available for reuse, and has implemented a green cleaning program.

Challenge

With more than 600 acres, and more than 8,600 students supported by more than 1,000 faculty and staff, the SRU campus is the size of a small city and has a similar environmental impact. As with cities, universities across the country have the responsibility to find ways to help reduce their impact on the environment. To that end, we must continue to explore and implement opportunities to reduce greenhouse gasses, reduce and recycle waste and improve efficiencies that lead to a reduction in the University's overall environmental impact.

Goal

Slippery Rock University will strive to become a living laboratory where sustainability is knit into the fabric of the institution. The operation of the entire campus becomes a classroom in this model.

ACTION C.1: Conduct a sustainability assessment to document SRU's efforts, and pursue STARS (an evaluation created by the Association for the Advancement of Sustainability in Higher Education) certification
MEASURE: STARS evaluation
BASELINE: STARS evaluation began in Spring 2010
UPDATE: STARS draft report completed February 2011, final report due August 2011
UPDATE: 2011 STARS Report v1.0 submitted July 2011 – Bronze Rating (44.33 points)
UPDATE: 2012 STARS Report v1.2 submitted August 2012 – Silver Rating (49.81 points)
UPDATE: 2013 STARS Report v2.0 completed and posted 2/28/2104 – Silver Rating (49% score under new scoring system).
UPDATE: STARS Report in process of being updated/submitted for re-certification in 2017/2018.

ACTION C.2: Implement a campus energy policy designed to achieve carbon neutrality as soon as possible to meet the American College & University Presidents Climate Commitment
MEASURE: Compliance with Climate Commitment
BASELINE: Energy Conservation Policy approved August 2011
UPDATE: Climate Action Plan approved August 2012
UPDATE: Energy Conservation Policy revised in March 2013 to add personal appliance policy, reduce standard temperature setpoints to 75F summer occupied, 67F winter occupied mode, and to include vehicle "no idling" policy.
UPDATE: Conservation Policy updated 2013; FY 2012, 2013 GHG Inventories & Climate Action Plan updated Jan. 2014.
UPDATE: The official "SRU Energy Conservation Policy" was approved by the University Cabinet April 8, 2013; in 2017, the policy is being renamed the "SRU Resource Conservation Policy" to reflect a broader mandate to incorporate additional policies/departmental directives pertaining to non-energy resources such as paper and computer equipment procurement.

ACTION C.3: Reduce campus waste and increase campus recycling to ultimately become a zero-waste community
MEASURE: Recycling and waste volume
BASELINE: In-house recycling efforts have resulted in savings of $6,200 annually (2006-2007)
UPDATE: In-house recycling efforts have resulted in savings of $6,600 annually (2007-2008)
UPDATE: Campus recycling efforts resulted in 690.85 tons of campus waste, a 9.67% decrease in landfill waste from '07-'08; and a 15.8% decrease in landfill waste from base year, '02-'03. (2008-2009)
UPDATE: Campus recycling efforts resulted in savings of $9,618.75 and resulted in 710.76 tons of campus waste, a 2.88% increase in landfill waste from '08-'09; and a 13.39% decrease in landfill waste from base year, '02-'03. (2009-2010)
UPDATE: Campus recycling efforts resulted in 523.61 tons of campus waste (through 6/3/11), a 26.33% decrease in landfill waste from '09-'10; and a 35.34% decrease in landfill waste from base year, '02-'03. (2010-2011)
UPDATE: Campus recycling efforts resulted in 546.25 tons of campus waste which was a 1% increase in landfill waste from '10-'11 and a 32.55% decrease in landfill waste from base year, '02-'03. (2011-2012)
UPDATE: Addtl. 32.65 tons scrap recycled by Facilities in 2011 - 2012; EH&S recycling 2011-2012 included additional an additional 9.72 tons electronic waste, 76.73 tons non-confidential paper, 40.24 tons confidential paper, 46.03 tons cardboard, 52.00 tons cans/bottles/glass, 20 lbs.

batteries, 836 lbs. scrap metal (wire), 206 lbs. ballasts, 85 tires, 240 wood pallets, 331 toner cartridges, 182 hard drives.
UPDATE: Study of single stream recycling costs/benefits initiated in Feb. 2013; TerraCycle recycling program for cosmetic products initiated in March 2013; May 2013 community "Dump'N'Run" collected 3.38 tons of furniture/furnishings to be recycled.
UPDATE: 2012 – 2013 recycling efforts included ___ tons scrap recycled by Facilities and an additional 9.72 tons electronic waste, 76.73 tons non-confidential paper, 40.24 tons confidential paper, 46.03 tons cardboard, 52.00 tons cans/bottles/glass, 20 lbs. batteries, 836 lbs. scrap metal (wire), 206 lbs. ballasts, 85 tires, 240 wood pallets, 331 toner cartridges, 182 hard drives by EHS. Use of water stations for reusable water bottles surpasses 250,000 in avoided single-use plastic water bottles on campus.

- Terracycling program in Residence Halls instituted Fall semester 2013

UPDATE: Single Stream Recycling investigated Spring 2013 but tabled due to increased cost, aesthetic concerns.
UPDATE: First Community "universal waste" recycling days held April 25 and April 26, 2014.
UPDATE: Terracycling program leadership transition in limbo; Macoskey Center student volunteers handling the Boozel Dining Hall pre-consumer food scraps collection and composting.
UPDATE: 2017 - SRU recycling program purchased a new cardboard baler to increase the capacity/efficiency of recycling cardboard; recycling efforts in general continue to improve, and the free Community e-Waste Collection and recycling program has become a permanent part of our annual Earth Days celebration. A Green Fund Grant also funded the purchase of 25 smaller portable recycling stations to be set up during major public events such as SRU football games and the annual VillageFest.

ACTION C.4: Ensure that by 2015 the entire campus meets the requirements of Leadership in Energy and Environmental Design (LEED)
MEASURE: Review of campus buildings and grounds
BASELINE: New Residence Halls LEED certified, 2009; no LEED certification for existing buildings/grounds prior to 2011
UPDATE: LEED Existing Building O&M Silver awarded in 2011 to Harmony House at Robert A. Macosky Center for Sustainable Systems Educational and Research.
UPDATE: Student Center LEED Silver certification effort still in process; Performing Arts Center being designed to LEED certification standards.
UPDATE: LEED Silver certification obtained for new Smith Student Center (but lighting, control issues remain ongoing).
UPDATE: 2017 - Current policy calling for SRU to meet the requirements of LEED building design continues, but the high cost and extremely long process for achieving LEED certification may lead to designing to LEED standards but not applying for actual certification, making more funding available for energy-efficient construction.

ACTION C.5: Increase purchase of green/renewable energy and pursue renewable energy demonstration projects whenever possible
MEASURE: Energy purchases and number of demonstration projects
BASELINE: Solar Array and Wind Turbine @ RAMC
UPDATE: 5,018,000 KWH Green Power REC purchased 2009 vs. 7,528,000 KWH green power purchased 2011
UPDATE: Wind mill used to power West Lake water pond system, 2011
UPDATE: Solar photovoltaic power used for pumping water feature at Robert M. Smith Student Center, 2012**;** 7,500,000 KWH renewable (wind energy) RECs purchased 2012
UPDATE: Biodiesel production commenced 2013; three electric utility vehicles purchased Feb. 2013 to replace grounds crew gasoline-fired pickup trucks.
UPDATE: 7,500,000 KWH green power RECs purchased 2012
UPDATE: 7,500,000 KWH green power RECs purchased 2013
UPDATE: 7,500,000 KWH green power RECs in process of being purchased 2014; Macoskey Center wind turbine has been inoperable much of 2014 and in need of major repair.
UPDATE: 2016/2017/2018 - SRU increased its purchase of green power RECs to 10 million KWH/year support the alternative energy industry.

ACTION C.6: Implement maximum and minimum temperature set points for heating and cooling within all buildings and educate building occupants about those set points
MEASURE: Implementation
BASELINE: Set points established during Summer 2010
UPDATE: 74F summer occupied setpoint, 70F winter occupied setpoint implemented in 2011 as part of approved SRU Energy Conservation Policy.
UPDATE: Energy Conservation Policy revised March 2013 to reflect 75F summer occupied setpoint, 67F winter occupied setpoint per July 25, 2008 PA Governor's Management Directive 720.5 Amended regarding Energy Conservation and Electrical Devices in Commonwealth-Owned or Leased Buildings.
UPDATE: "Flaunt Your Fleece" campaign - 64F winter setback temps started Thursdays instead of Fridays, Feb. 2013; campaign continuing through winter 2014.
UPDATE: Temperature setpoints remain a permanent part of the official SRU Resource Conservation Policy.

ACTION C.7: Consolidate use of classrooms to fewer buildings at night and in the summer.
MEASURE: Classroom use
BASELINE: Consolidation began during the summer 2010
UPDATE: 2012 "Smart Scheduling" program implemented and expanded since 2010
UPDATE: "Smart Scheduling" program continues through FY 2017.

ACTION C.8: Move toward a 4-day workweek to reduce the use of energy and the environmental impact of commuter transportation
MEASURE: Work schedules
BASELINE: N/A
UPDATE: N/A

ACTION C.9: Revise the Facilities Master Plan to better define responsible growth and include:

- A campus grounds component that incorporates sustainability concepts and practices, and identifies permanent green spaces, wetlands, environmentally sensitive areas, and areas of academic interest/training.
- An updated campus transportation component that when implemented will optimize the use of the Happy Bus, and encourage bicycles, walking, and other alternative modes of transportation.

MEASURE: Revised Master Plan
BASELINE: 2006 Master Facilities Plan
UPDATE: Facilities Master Planning contract to be let Spring 2013, Grounds Mapping to be provided via GA Intern Project Spring 2013 **(**GPS mapping of environmentally-sensitive areas undertaken, including mapping of Audubon Society Sanctuaries, old growth forest areas, streams and wetlands areas).
UPDATE: 2013 - GIS environmental, grounds/sustainability component layers created for Campus Sustainable Features map to be used for master Plan integration.
UPDATE: 2014 – Wetlands at hiking trails west of Harmony Road delineated and available for GIS mapping; signage for environmental education and demonstration projects along the hiking trail in planning by Trails Committee.
UPDATE: Consulting firm DumontJanks was hired to conduct a new Facilities Master Plan for the university, with sustainability and transportation components to be addressed. Director of Sustainability is assigned to the Master Planning Committee.

ACTION C.10 Meter and display utility usage in campus buildings and connect all buildings to an automated energy monitoring system so that educated choices can be made about building utilizations
MEASURE Implementation
BASELINE Electric meters installed at Physical Therapy Building and Swope Music Hall in 2011; Visual display of energy usage planned for Student Center.
UPDATE 2012 SRU uses the VYKON energy suite as part of its Building Automation System (Niagara Tridium Framework). The energy suite monitors and trends all meter data. Over 67% of all campus buildings have an individual electric meter that is tied into the VYKON energy. Twelve campus buildings are completely monitored for all campus utilities. Electric meters installed in

Maltby, East/West Gym, and the Old Student Union in 2012. "Building Dashboards" placed in Residence Halls in 2013 to educate students on how the choices they make can have a direct impact on the environment and SRU's carbon footprint.
UPDATE: as of March 2013, 96% of major buildings have an electric meter, with 87% tied into VYKON system (Art III, Gail Rose Lodge, Jack Critchfield Park, and Vincent are not).
UPDATE: Residence Halls A - F energy dashboards installed, to be used Spring 2014 for Res. Hall energy competitions.

- Energy conservation seminar by Macoskey Center G.A. presented to 10 Residence Hall CAs 9/17/2013

UPDATE: Additional metering and improved software capabilities incorporated into the Honeywell ESCO Guaranteed Energy Savings Agreement (GESA) scope; GESA construction projects started in Fall 2017.

SRU Goal: Increase energy savings through innovative programs

ACTION C.11: Develop ESCO process to decrease Btu/sq. ft. consumption of energy on campus by 1.5%/year.
MEASURE: Annual Btu/sq. ft. energy consumption.
BASELINE: Slippery Rock University consumed 185,714 Btu/sq. ft. in FY 2003-2004. The University is currently pursuing an ESCO contractor to accomplish its goal of reducing energy consumption.
UPDATE: The ESCO project started construction in May 2009. Ten of the eleven energy conservation measures will be completed by October 2009. The controls upgrade measure will continue through the fall of 2010. The ESCO project is guaranteed to provide $3,657,085 over the 15 year service life of the project and save 549,482 KWH per year. For FY '07-'08, BTU/sq. ft. consumption decreased 33.13% versus the base year FY '04-'05 and decreased 8.70% versus FY '03-'04. 2009 (provided 2007-2008 data)
UPDATE: The ESCO project will be completed in August 2010. The ESCO project is guaranteed to provide $3,657,085 over the 15-year service life of the project and save 549,482 KWH per year. For FY '08-'09, BTU/sq. ft. consumption decreased by 32.97% versus the base year FY '03-'04, by 34.28% versus FY '04-'05 by 11.51% from the previous year, FY'07-'08. 2010 (provided 2008-2009 data)
UPDATE: FY '09-'10, BTU/sq. ft. consumption decreased by 37.48% versus the base year FY'03-'04; by 38.71% versus FY '04-'05; by 6.74% from the previous year
UPDATE: FY'10-'11 BTU/sq. ft. consumption decreased by 38.55% versus the base year FY'03-'04 and by 3.95% from previous year FY '09-'10
UPDATE: FY'11 – '12 BTU/sq. ft. consumption decreased by 11.3% from previous year, to 103,724 Btu/sq. ft. – year.
UPDATE: FY'12-'13 BTU/sq. ft. consumption increased by 11% from previous year, to 114,859 Btu/sq. ft. year, due to opening of Smith Student Center and harsh weather conditions.
UPDATE: FY 2016/2017 - Btu/GSF-year energy consumption continues to decrease; current EUI is down to 107,200 Btu/GSF-year and will improve even further as implementation of the new Honeywell ESCO GESA continues through 2018.

ACTION C.12: Encourage food vendors to utilize certified products, such as fair trade coffee, seafood certified by the Marine Stewardship Council, and locally grown products
MEASURE: Vendor compliance
BASELINE: AVI has sustainability policies located at this website:
http://sru.avifoodweb.com/sustainability.html
UPDATE: In 2012, SRU food vendor AVI committed to the construction of high tunnels to expand the growing season for a local farm. AVI has recently partnered with Lengels Farm Market to purchase and install two high tunnels to grow vegetables solely for SRU. Weisenfluh Dining Hall renovated in 2012 using many green building practices.
UPDATE: Tin can recycling program at Boozel Hall under evaluation; potential grant opportunity in Spring 2014 to obtain tin can compactor to improve efficiency of collection/recycling.
UPDATE: Rock Roast free trade coffee program initiated Fall 2014 and is in full operation as of 2017. AVI Express (dining hall takeout service) eliminated the use of plastic bags.

ACTION C.13: Implement a purchasing policy that stimulates purchasing of environmentally friendly, cost-competitive products and services. This would require recycled content and minimal packaging.
MEASURE: Review of policy
BASELINE: Commonwealth of PA guidelines requires that copy paper have 30% Recycled Content. Our Bid Specifications reflect the required 30% recycled content requirement and we require paper mill certification of such.
UPDATE: New Print Management firm selected in 2014, consolidating and replacing departmental printers/copiers on campus.
UPDATE: Commonwealth of PA purchasing policy shared with Staples in 2017 to determine means/methods of reminding faculty/staff as to the recycled content requirements across all categories of office supplies. In addition, the "Green Leaves" sustainable department self-certification program was piloted in the Parks and Recreation Management Department; this program encourages a wide variety of sustainable strategies and behaviors, including sustainable purchasing tips and credits.

ACTION C.14: Encourage reduction of fossil fuels used in the motor pool by moving to alternative energy sources as they develop
MEASURE: Vehicle energy use
BASELINE: N/A
UPDATE: No idling policy instituted Dec. 2012; Biodiesel production from Food Service grease began Jan. 2013, to be used in grounds mowing equipment; three electric utility vehicles purchased in March 2013 to replace grounds crew gasoline-powered pickup trucks.
UPDATE: 2017 Facilities Master Plan program to investigate methods of improving transportation alternatives and efficiency.