

Student Sustainability Advisory Council

Spring 2019 Recommendations



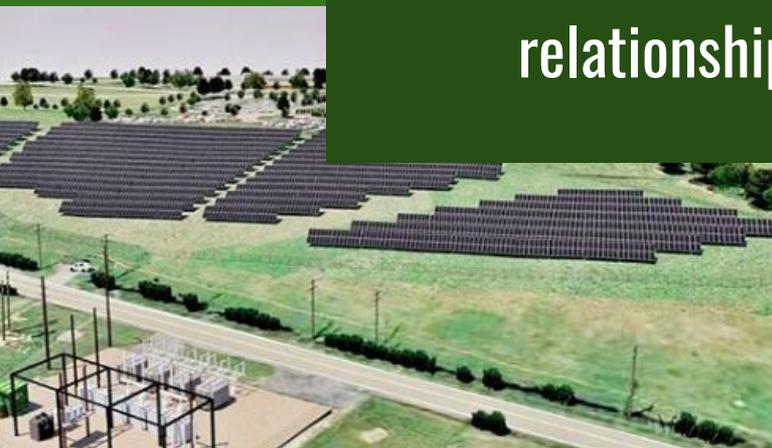
PennState

Food & Waste: Mission

“To make sustainable food and waste management more relevant and easily accessible to the student body through policy and physical changes at Penn State.”



Recommendation:
Increase awareness and intentionality behind existing operational, co-curricular and curricular infrastructure to change student behaviors and relationships with climate change.



There are Successes



Operational

- Penn State is currently making significant strides to a more sustainable and climate conscious future
 - Power Purchase Agreement
 - LeanPath Investments
 - New Paid Positions for Sustainability Focused Staff
 - Sustainability Experience Center & Student Farm Investments



WHY

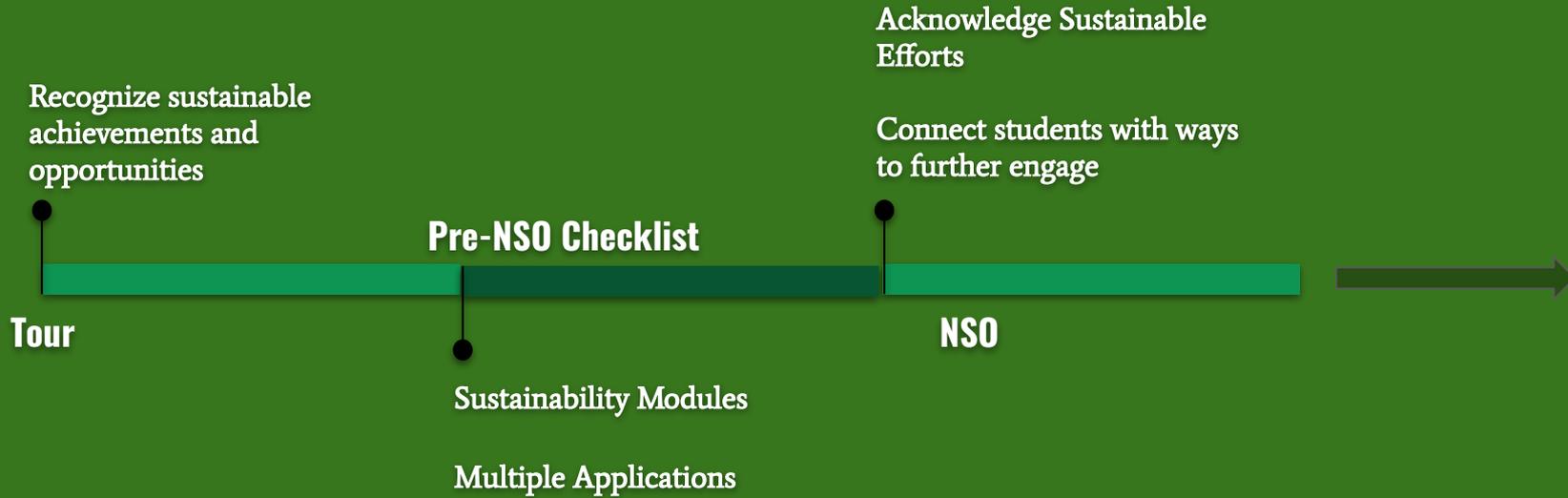


New Student Experience

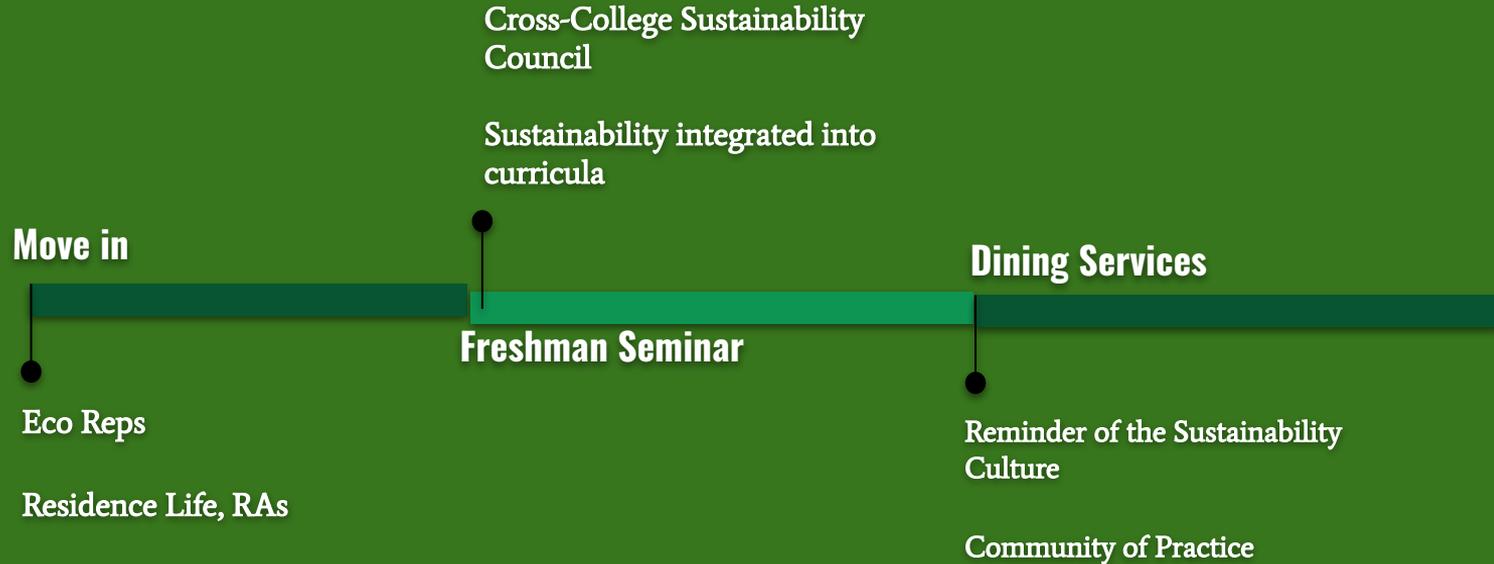
Co - Curricular

Curricular

New Student Experience: Points of Entry



New Student Experience: Points of Entry



New Student Experience

Curricular

Co - Curricular

Curricular

- Cross-College Sustainability Council
 - One appointed representative per university College
 - Interdisciplinary Solutions
 - Eric Foley - Smeal
 - Rachel Brennan - Engineering
 - Carter Hunt - HHD
 - Mihyun Kim - Arts and Architecture
 - Need to assemble all other colleges onto this list
 - First Project: Freshman Seminars
 - Collaborate on programming and events related to sustainability

New Student Experience

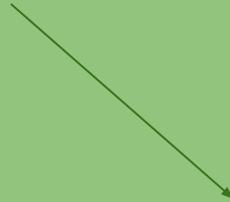
Curricular

Co - Curricular

Co-Curricular Collaboration



Program Coordinator



- Goals
- How to get there

Next Steps

Next Steps

Operational

- Housing & Residence Life - Enhance Eco Reps Programming
- Communicate success and learning opportunities with other sectors

Curricular

- Contact Deans of each college to appoint sustainability representative
- Mandate first year seminar curriculum

Co-Curricular

- Continued support
- Investment in Pre-Student Orientation modules
- Student opportunities to oversee the success of this recommendation in its infancy

Co-Curricular Collaboration



Program Coordinator



TEXAS STATE STUDENT GOVERNMENT



UNIVERSITY OF PORTLAND

- Goals
- How to get there

Next Steps

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Operational

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Thank You

Food Waste at Penn State is a management concern and reducing our GHG emissions by 2030+ requires strategic planning



Food Recovery Hierarchy

Most Preferred

Source Reduction

Reduce the volume of surplus food generated

Feed Hungry People

Donate extra food to food banks, soup kitchens and shelters

Feed Animals

Divert food scraps to animal feed

Industrial Uses

Provide waste oils for rendering and fuel conversion and food scraps for digestion to recover energy

Composting

Create a nutrient-rich soil amendment

Landfill/

Incineration

Last resort to disposal

Least Preferred



We Can Do Better: Food waste to energy recommendation

Biogas from Anaerobic Digestion of Organic Waste at wastewater treatment plant (WWTP) to be addressed in the 2020-2028 Strategic Plan



Feasibility of Biogas sourced from food waste at University Park

Issue: Food waste comprises 1/3 of the entire compostable waste stream and ~15% of entire refuse at University Park as per the Fall 2018 Waste Stream Audit

Current State: Three anaerobic digesters at the WWTP currently generate 36,000 ft³ of biogas/ yr

Opportunity: University Park could generate increased biogas by co-digesting food waste in the current WWTP's system.



Investment and Timeline

The WWTP plant is undergoing a remodeling for Fall 2019

- prime opportunity to explore how they can increase their current biogas production

Proposal: Invest in a *depackager machine* to process packaged food and generate a liquid slurry to be added to their current digesters

- contract Reinford Farms in Mifflintown PA to take our packaged food waste to power their de-packager



Key Stakeholders

Rob Cooper, Senior Director of Energy and Engineering, OPP

David Swisher, Operations Engineer, OPP

Dr. Tom Richard, Professor in Agricultural and Biological Engineering

Jeff Spackman, Facilities Project Manager, OPP

Brett Reinford, owner of Reinford Farms

Waste Stream Task Force Committee

Summary of Recommendations

- 1.) Increased Operational, Curricular, and Co-curricular infrastructure and student awareness
- 2.) Food Waste to Energy System at University Park

Energy: Mission

“To support Penn State policy that develops a culture of energy awareness and resource conservation to the populous and University leadership through commitment to greenhouse gas reduction goals and the STARS energy rating system .”

Energy: Spring 2019 Recommendations

- Emissions Reduction Incentive Programs
- Solar Credits Sale (SRECS)

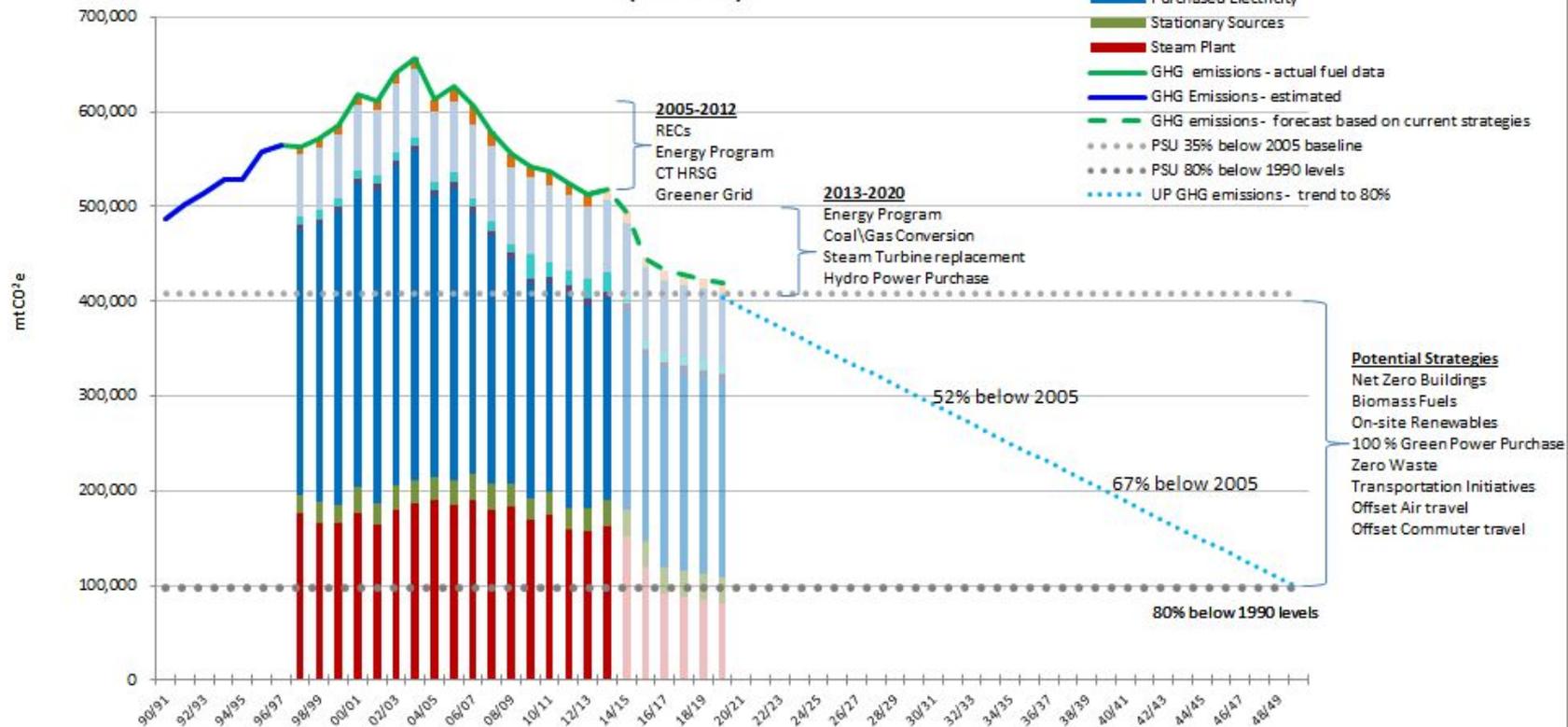
Updates

- Energy Dashboard

GHG Emissions

Penn State University (1990-2050)

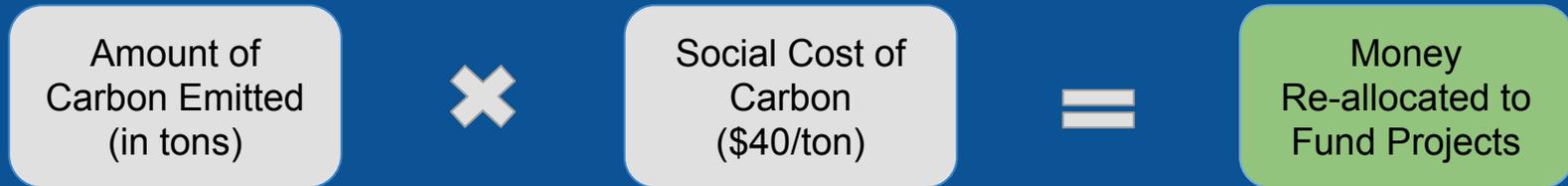
- Other
- Commuters
- Air Travel
- PSU Vehicles
- Purchased Electricity
- Stationary Sources
- Steam Plant
- GHG emissions - actual fuel data
- GHG Emissions - estimated
- GHG emissions - forecast based on current strategies
- PSU 35% below 2005 baseline
- PSU 80% below 1990 levels
- UP GHG emissions - trend to 80%



Penn State GHG Emissions include stationary sources, purchased electricity, OPP & Fleet vehicles and estimated commuter miles, air travel, waste, refrigerants and animal management.

Emissions Reduction Incentive Programs

- **472,506** Metric Tons Carbon Dioxide Emitted in 2015-2016 year
- Penn State has a goal of a 80% reduction in GHG emissions from 1990 levels by 2050
- **\$40/ton** allows 10% larger budget on sustainable projects - Matt Leah (OPP)



- Possible sources of income
 - Department level, student tuition, state grants

'ERI' Programs: University Developments



Emissions Reduction Incentive Programs: Recommendation

- Construct a plan for the implementation of an Emissions Reduction Incentive Program at Penn State University
 - Cooperation between OPP, faculty, staff, and students
 - Formation of committee
 - Small-scale pilot studies, air travel, building or department level
- “Green Fund”
 - The money generated can be utilized in future University projects, especially those related to sustainability
 - Overseen by created committee
 - Will demonstrate Penn State’s commitment to sustainable practices



SRECS

Meet goals, exceed expectations



SRECS: How it Works

	Bought	Sell	Buy	Net
# Renewable Recs	100,000/year	100,000	100,000	100,000 (meet 2020 goals)
Price / Rec	\$7	\$30 - 40	\$4-6	
Net free cash	- 700,000	+ 2.5 - 4 million	- 4-600k	1 - 3 million

SRECS: Guiding Principles- Start to Finish

- *“Penn State will confront directly and assertively the global challenges of climate change and sustainability in all their complexity—from feeding a growing population to preserving Earth’s resources to ensuring energy security... Penn State must lead by example and help our students—who are tomorrow’s leaders—to promote sustainability and become advocates for change. Penn State already has vast interdisciplinary talent in areas relating to climate change, sustainability, and environmental stewardship, and we have the scale and reach to effect meaningful, measurable change.”*

-PSU Strategic Plan

- **In order to maintain our principles, there must be stipulations on this generated profit. The money must be spent to lower carbon emissions and allow us to become a leader in sustainable energy at a global level.**

Energy Dashboard (IMMERSE)

- Informative Multi-campus Monitoring for Energy Reduction and Student Engagement (IMMERSE)
- Goals:
 - Students gain access to energy consumption of building in East Halls
 - Educate and engage students on sustainability
 - Involvement of student group
 - Eco Reps will run challenges and events centered around sustainability
 - Reduce Penn State's electric bill
- University Strategic Initiative grant proposal sent in Mid-February and waiting back on response

Energy: Spring 2019 Recommendations Review

- Emissions Reduction Incentive Programs
 - Committee formation, creation of plan, green fund
- Solar Credits (SRECS)
 - Use funds generated from sale of credits to purchase additional energy independence projects
- Energy Dashboard (IMMERSE)

Energy: Key Stakeholders Contacted

- **Somayeh Asadi**, Architectural Engineering Professor, College of Engineering
- **Robert Cooper**, Senior Director of Energy & Engineering, OPP
- **Meghan Hoskins**, Director of Operations and Partnerships, Sustainability Institute
- **Robert Berghage Jr.**, Associate Professor of Agriculture, College of Agriculture
- **Larry Fennessey**, Utility Systems Engineer, OPP

Community Development: Mission

“To determine areas of improvement within the campus community, to further develop sustainability by providing suggestions to refine daily routines and practices, and to promote wellness, health, and inclusion in our campuses on an individual and collective scale.”

Spring 2019 Recommendations

Updated:

- Short-term and long-term goals for the Sustainability Leadership minor

New:

- Sustainability Institute and Student Engagement Network Partnership
- Truth and Reconciliation Commission on Environmental Justice

Short term: Adviser Awareness of Sustainability Leadership Minor

- The minor is incredibly flexible and can fit into most academic paths
 - Student participation has doubled in less than 3 years
- In order to expand the minor, academic advisers in relevant departments need to be aware of it
- Colleges of interest:
 - Smeal College of Business
 - College of Engineering
 - College of Liberal Arts
- ENTI minor as an example of structure
 - 9 academic tracks

Long-term: Strategic Plan Proposal

- E-SUST
 - Currently, funding support for SUS 200 instructors comes from SI
 - Goal: universal access to sustainability education at PSU
 - Expansion in enrollment, Commonwealth engagement, online courses, professional and faculty participation
- Renewed resources are necessary
 - Revisiting the Strategic Plan Proposal decision that outlined an extension and strengthened system to the current minor
 - University administration support
- Sustainability major
 - Cornell, University of Texas at Austin, Temple University, University of Pittsburgh, Oregon State University

Sustainability Institute and Student Engagement Network Partnership

- Student Engagement Network (SEN) launched in 2017 implemented to provide students transformative experiences
 - Help students discover engagement opportunities that match their goals and interests
- Sustainability Institute (SI)
 - Supports student-community projects, research, student and staff engagement, and more
- Goal: Create a partnership between SI and SEN and have an undergraduate intern in the engagement space to increase student awareness and make sustainability a focus with the SEN

Sustainability Institute and Student Engagement Network Partnership

- Currently SEN offers two internships
 - Communications and Engagement Space interns
- Create an internship to provide students the opportunity to work on education and outreach in the space involving sustainability
- Intern would work closely as a partner between SEN and SI to improve and enhance SEN sustainability
 - Also act as a resource for students interested in getting involved on campus



Sustainability Institute and Student Engagement Network Partnership

- Current steps:
 - Met with Mike Zemen SEN Director
 - Undergraduate intern in the engagement space to increase student awareness and make sustainability a bigger focus with the SEN
- Future Steps:
 - Funding for an intern to work during the fall and spring semesters
 - Student Engagement grants - possibility for a sustainability focused grant

find your *why*.
start your journey.

learn
live
lead

Truth and Reconciliation Commission History

- The South African Truth and Reconciliation Commission (TRC) was established by the Government of National Unity to help deal with the violence and human rights abuses during apartheid
- A court-like body assembled and victims of violence could come forward and be heard
 - Perpetrators of violence could also give testimony and request amnesty from prosecution
- The Commission remains a renowned model for seeking truth and healing transformation
 - Designed to examine and learn from divisive events



Truth and Reconciliation Commission Model

- Several governments were inspired by South Africa's (TRC) and replicated the process on a smaller scale
 - Maine Wabanaki- State Child Welfare TRC
 - Commission of Canada
- Greensboro
 - First US Commission established after the 1979 Greensboro Massacre
 - Addressed misconceptions around the incident that impacted the quality of life of the residents



Penn State TRC:

Establish/ Identify an Environmental Justice committee of experts

Invite students, staff, faculty and community members across the Commonwealth to come and share experiences

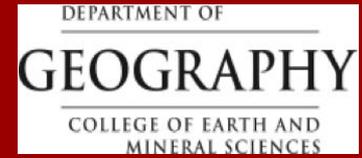
Hold community development workshops and invite speakers

Use the Commission's findings to guide future University initiatives

Curriculum and Outreach

Emphasis on restorative justice

Fracking, siting inequalities, access to affordable housing, food deserts, climate change



Summary

- Sustainability Leadership Minor
 - Adviser Awareness
 - Renewed Resources
- Environmental Justice Truth and Reconciliation Commission
- Sustainability Institute and Student Engagement Network Partnership

Key Stakeholders

Joshua Inwood, Professor of Geography, Earth and Mineral Sciences

Peter Buckland, Academic Programs Coordinator, Sustainability Institute

Carter Hunt, Professor of Health and Human Development

Mike Zeman, Student Engagement Network Director

Doug Goodstein, Director of Student Engagement, Sustainability Institute

Business: Mission

“To advise Penn State on how to use its purchasing power to foster sustainability by supporting businesses that produce sustainable goods in a socially responsible manner.”

State of Textile Industry

- More than 15 million tons of textile waste generated each year in the U.S.
 - 17% of this is recycled, and 71% is sent to landfills
 - Nearly 100% of textiles and clothing are recyclable
 - Costs, on average, about \$45 per ton to dispose of textiles, equating to \$479.25 million of textile waste reaching landfill annually
- Decomposing textiles release methane, one of the leading contributors to the greenhouse effect



Spring 2019 Recommendations

New:

- Join Sustainable Apparel Coalition
 - Use SAC resources to analyze and improve retail process at HUB Bookstore

What is the Sustainable Apparel Coalition?

- Apparel, footwear, and textile industry's leading alliance for sustainable production
- Developers of Higg Index
 - Suite of tools to measure environmental and social labor impacts across value chain
- Network of research, data, and best practices
- More than 200 global members
 - Brands and retailers
 - Manufacturers
 - Government and NGOs
 - Academic Institutions



Membership Benefits

- Provide framework for supplier evaluation, at the Barnes & Noble Bookstore and elsewhere in the future
- Exist as an asset going forward- for research and education in the space of sustainability on campus

Member Benefits	NGO, Academic, Government
Access to Higg.org, Higg Product Tools (Higg DDM & Higg MSI), best practice training, reports, analytics, and SAC Connect collaboration platform.	✓
Invitations to regular webinars, in-person regional/thematic, and full-membership meetings	✓
Access to SAC Task Teams, Committees, and Collaboration Projects	✓
Inclusion of logo on SAC website, PR, and other outreach materials	✓
Eligibility to sit on Board of Directors	✓
Eligibility to chair a Task Team	✓
Voting rights on critical SAC decisions	✓

Barriers to Implementation

- \$1,000 Annual Membership Fee for Academic Organizations
- To qualify for membership, affiliate, NGO, and academic organizations must be recommended by three current SAC corporate members.
 - Columbia Sportswear Company, Nike, & Under Armour are all current members.
- Faculty must be trained in order to properly utilize the information
 - SAC has created a [website](#), and provides services, dedicated to training all current SAC members

Business: Spring 2019 Recommendation Review

- Join Sustainable Apparel Coalition as an Academic Member
 - Gain access to key industry tools
 - Provide analysis of HUB apparel suppliers
 - Provide educational and research opportunities to faculty and students
 - Support and contribute to forward-thinking, industry-wide change and be a first-mover among leading universities

Contacts

- **Advisors**
 - Erik Foley-Defiore, Professor of Management and Organization Smeal College of Business, Sustainability Strategist
 - Karen Winterich, Professor of Marketing Smeal College of Business
- **Stakeholders**
 - Jennifer Guyer, HUB Student Bookstore Manager

Student Sustainability Advisory Council

Spring 2019 Recommendations



PennState