

SENATE COMMITTEE ON UNIVERSITY PLANNING

Penn State Sustainability Strategic Plan

(Informational)

VISION

Sustainability is the simultaneous pursuit of human health and happiness, environmental quality, and economic well being for current and future generations.

Penn State's vision is to embed sustainability as a fundamental value at the University through the development of sustainability literacy, solutions, and leadership.

This comprehensive integration of sustainability into the University's research, teaching, and service will prepare students, faculty, and staff to be sustainability leaders.

ANSWERING THE CALL

Sustainability and the Land-Grant Mission

Since its founding, Penn State has repeatedly answered the call to address national challenges by recognizing turning points in history and seizing the opportunity to run at the vanguard of innovation. Students learned how to ensure food security by increasing yields in the 19th century. University leadership ensured access to higher education through a System of Commonwealth Campuses in the 20th century. We continue to ensure the generation and dissemination of knowledge, skills, and values in the 21st century.

Today, we face the global challenge of sustainability and Penn State is again answering the call as its faculty and students race to solve some of the toughest problems in history, from feeding a growing population to protecting a threatened environment to ensuring energy security. The University's enduring solutions to these challenges will arise from three interconnected commitments:

Ethics

A commitment to the fundamental ethical right to meet basic needs such as healthy food, clean water, dependable healthcare, and affordable education

Environment

A commitment to the deep interconnections between ecological health and human resilience and prosperity and our obligation to support a sustainable relationship between humans and nature

Economics

A commitment to present and future generations—combined with the imperative of appropriate stewardship to promote human, ecosystem, and economic health—to address human needs and support human flourishing, while ensuring the long-term health of all ecosystems

These actions will improve the University’s operational efficiency (energy usage and waste diversion), enhance its resources (applications from top students; increased grant and philanthropic funding), produce superior graduates (students greatly valued by the public and private sector), and improve the overall performance of the University (creating knowledge and services for which business markets are developing all over the world).

Adhering to these three commitments and providing an education in sustainability will require new ways of teaching and new ways of learning. Sustainable solutions will not emerge from solitary silos of research. Indeed, they require new paradigms of interaction between individuals and disciplines, academics and operations, research and outreach. By bringing together researchers, educators, students, staff, and community members from multiple colleges, campuses, and frames of reference, all in pursuit of new ways of thinking, we will maximize the University’s existing strengths and tap the unlimited potential of collaboration.

In 1855, the Pennsylvania legislature chartered the Farmers’ High School that would one day become The Pennsylvania State University, a flagship of the land-grant mission. The original charter called for “an institution for the education of youth in the various branches of science [and] learning ... *as they are connected with each other.*” President Abraham Lincoln echoed this philosophy of interconnectedness in a charge he wrote to his Congress a mere seven months before creating land-grant colleges on July 2, 1862. “We can succeed only by concert. It is not ‘can *any* of us *imagine* better?’ but ‘can we *all* do better?’ The dogmas of the quiet past are inadequate to the stormy present. As our case is new, so we must think anew, and act anew.”

It is with this charge to do better, to think and act anew—a charge carried in the hearts of hundreds of thousands of graduates, nearly 500,000 living alumni, and our dynamic students—that the University now creates the Penn State Strategic Sustainability Plan. It is a roadmap and a toolbox that will enable succeeding generations of our graduates to realize their full potential as individuals to sustain their families, advance their professions, and contribute to our country’s strength. It is also a plan to enable Penn State to realize its full potential as an institution of truly higher learning.

CREATING GLOBAL CITIZENS

A Sustainable Path from Local Frescoes to a Global Future

In the grand foyer of Old Main, at the center of the University Park campus, is an enormous mural painted in true fresco by Henry Varnum Poor, illustrating the University’s history and the establishment of land-grant institutions. Under the watchful gaze of Lincoln and amid the coal miners, ironworkers, musicians, and scientists rendered on the plaster is a striking image of a farm family sending their child off to school on horseback. Over the last 150 years, we have provided hundreds of thousands of young men and women with the knowledge and skills to forge their destinies.

Today, a common destiny binds us together: the unprecedented call to move society towards a sustainable way of being. In the past, Penn State answered the call for agricultural advancements, engineering solutions, and health improvements. Today, to remain vibrant and true to our purpose, the University must again transform how it pursues its mission. Penn State is competing with other universities and colleges to provide not only the best classroom pedagogy, but also an atmosphere that encourages critical thinking and develops students' capacities to account for the ethical, environmental, and economic outcomes of their decisions—an immersive education in sustainability.

Sustainability knowledge is not confined to energy and the environment. It is a fundamentally different way of approaching our living, working, designing, and manufacturing. It is an ethos dedicated to reducing our dependence on nonrenewable resources by using fewer of them and using those more efficiently. Truly “sustainable” efforts require considerations for the ethical, environmental, and economic implications of decisions—the triple bottom line. Part of Penn State’s mission must be the development of global citizens who are savvy about the triple bottom line of sustainability and who will become agents of world change in their professional careers and individual lives.

Penn State students continue to be community leaders long after graduation, and they are increasingly defining their communities in global terms. More and more students are spending time abroad, taking internships with international companies, and working to overcome social and economic challenges around the world. As they graduate, they are putting their Penn State education to work in professions that bridge geographical and disciplinary boundaries, and they are serving as ambassadors for the University to their local communities and their world. What they desire, and what is increasingly expected of them from employers and society, are the tools for complex decision-making and problem solving. They are seeking University experiences that will prepare them for success in cutting-edge fields and a global economy.

LIVING LABORATORY FOR SUSTAINABILITY

Education Outside the Classroom

At Penn State, the development of sustainability literacy, solutions, and leadership will be a collective effort. An education in sustainability goes far beyond mastering the material in a textbook and requires hands-on experiences for the entire University community. Of paramount importance for ensuring the success of the Sustainability Strategic Plan will be to involve all campuses, research centers, and thirty million square feet of Penn State facilities in developing a living laboratory to pilot sustainable practices and pioneer sustainability education.

Penn State will become this living laboratory by integrating our own spaces and communities into the learning experience. Sustainability will be infused into all facets of life at Penn State, and the University will implement a framework and organization built around the three crosscutting goals of sustainability literacy, solutions, and leadership.

This Penn State education will transcend the boundaries of traditional learning by connecting our students, faculty, and staff to on-campus facilities, broader communities, and landscapes at every scale as a resource for learning. This will underscore the University’s commitment to creating a learning environment that includes all Penn State community members in lifelong experiences

that promote intellectual development as well as character, conscience, citizenship, and social responsibility.

The living laboratory extends far beyond the borders of our campuses to create local value in the context of our unique land-grant partnership. Our entrepreneurial partnerships with industrial, agricultural, educational, government, and community partners will advance sustainability literacy, solutions and leadership for organizations and communities at all levels. Each party will alternately act as inventor, adopter, advocate, and adviser, allowing us to mobilize together to address sustainability challenges.

ADAPTING TO A CHANGING ECONOMIC LANDSCAPE

Good Stewardship Is Good Business

Penn State's commitment to sustainability will yield benefits that far exceed its investment of time and resources. Many people will think first of increased operational efficiency and waste diversion, and there is ample evidence for that benefit. For example, Penn State reduced its electrical usage by about 7% since 2005 while its physical plant grew significantly, avoiding \$5 million annually in utility costs. Twenty-two thousand gallons of used-cooking oil are refined yearly into fuel for campus vehicles and pieces of equipment. More than 3,000 tons of food and landscaping waste are converted into 1,200 tons of compost. Penn State has a highly developed waste management program and is now recycling over 53% of its waste, avoiding half a million dollars annually in landfill tipping fees. These early successes and savings in operational efficiency are just the beginning of what is possible.

Penn State's commitment to sustainability will also enhance its access to critical resources, such as more students who apply for admission, which will enable selection of the best and brightest among them. According to The Chronicle of Higher Education, sustainability is rising in popularity among students, and sustainability programs are expected to increase at more universities. By pursuing sustainability, the University will also improve its prospects for recruiting high quality faculty to develop and teach sustainability courses and conduct sustainability-related research for which federal funding is growing significantly. Finally, Penn State's commitment to sustainability will inspire its stakeholders to pledge more gifts and endowments. For example, philanthropic alumni at other universities are rising to the challenge and establishing legacies such as the \$80 million David R. Atkinson Center for a Sustainable Future at Cornell and the \$5.5 million Graham Environmental Sustainability Institute at the University of Michigan.

Penn State's enhanced access to resources will increase the quality of its graduates, which, in turn, will further enhance its academic reputation. We expect our Baccalaureate graduates to be highly attractive to company recruiters and our Master's and Doctoral students to be productive in research positions in the public and private sector. Companies committed to sustainability will be particularly interested in our graduates, and the careers afforded them promise to be secure and successful as there is ample evidence that sustainability-focused companies have superior economic performance. Companies in GS SUSTAIN (Goldman Sachs's sustainability index) performed 25% better on return on investment between 2005 and 2007 when compared to a set of highly diverse companies, and outperformed peers in their respective industries 72% over the same period. Moreover, research tracking over ninety "sustainability focused" companies of the

Dow Jones Sustainability Index and GS SUSTAIN, found that they had superior performance over their counterparts.

The business case for sustainability is clear and compelling. It is indeed possible to "do well by doing good." Penn State's reputation for ethical leadership and academic excellence will soar by doing what is right in the present for the benefit of the future.

DEVELOPING SUSTAINABILITY LITERACY, SOLUTIONS, AND LEADERSHIP

A Vision for the Future

Building this vibrant living laboratory for sustainability at Penn State will foster generations of students and community members who appreciate the importance of sustainable practices in all aspects of their lives and who become our leaders and stewards, who value their connection to their physical and environmental surroundings, and who embrace their role as responsible citizens.

When longtime Penn State Professor of American Literature Fred Lewis Pattee sat down to write the lyrics of the Penn State Alma Mater in 1901, he was looking forward, anticipating but perhaps not even able to imagine what the institution would become—"For the future that we wait....".

With the Penn State Sustainability Strategic Plan, we stand poised to live out Pattee's immortal words: "When we stood at childhood's gate, shapeless in the hands of fate, thou didst mold us, dear old State." We stand at the gate of the sustainability challenge. We have the opportunity, the responsibility, and the great honor of molding a sustainable future. This is not a future we can afford to wait for but one we must actively forge by teaching our students, and ourselves, how to pursue human health and happiness, environmental quality, and economic well being for current and future generations.

For our students—for *the glory*—for *the future*.

GOAL 1—UNDERSTAND SUSTAINABILITY LITERACY

All members of the Penn State community will realize, advocate, and contribute to sustainability literacy.

Sustainability literacy is the deep understanding of the implications of living on a planet with finite resources and a growing population, the complex biological and physical systems within which humans interact with one another and the rest of the natural world, and that present decisions affect future generations' ability to survive and thrive. When sustainable practices are the everyday norm and are part of and complementary to formal education, and when people are recognized and rewarded for the development of and participation in sustainability curricular, co-curricular, and experiential programs, the community will be capable of true sustainability literacy. In this environment, students, faculty, staff, and alumni are able to articulate their own appropriate definitions of sustainability, which evolve over time and guide their behaviors in their personal and professional lives.

1.1 Incorporate sustainability practices and learning opportunities into daily life across the University, including in classrooms and research labs; service and program delivery; and within administrative and infrastructure support units.

Consistently demonstrate sustainability concepts in the design, delivery, and evaluation of University services and functions, whether physical or virtual (dining, healthcare, advising, application, etc.) and highlight visible demonstrations of sustainability as we create facilities and grounds that teach (e.g., LEED-certified buildings, use of recycled vegetable oil in vehicles, etc.).

Provide sustainability training for existing and incoming administrators, governing board members, faculty, and staff at all campus locations.

Integrate sustainability practices and learning opportunities into all University-associated events including those held on University property, alumni and development functions, and appropriate external events (e.g., ArtsFest, farmers' markets, student recruitment fairs, etc.).

1.2 Develop and promote coordinated academic and co-curricular programs that address sustainability, including online, residential, and global offerings.

Build and advance a network of sustainability courses and practitioners, coordinated through a formal center/institute devoted to sustainability pedagogy.

Regularly convene sustainability leaders (including potential employers) to provide input into the sustainability skill sets that Penn State should be cultivating in all students (residential and on-line).

Develop a Field Guide for Sustainability Curriculum that will provide resources and support for integrating sustainability into existing courses and for developing new courses.

1.3. Create programs to facilitate experiential learning opportunities and projects that involve students in the enhancement of sustainability.

Incorporate community-based experiential learning opportunities into coursework, research studies, and projects, utilizing existing networks (e.g., Outreach, Extension, Office of Physical Plant).

Create formal links among students, staff, administrators, and faculty to help identify opportunities for student engagement in and assessment of sustainable practices/programs.

Formalize and promote themed semesters or years in pursuit of sustainability and create sustainability projects for students.

1.4. Incentivize, support, and reward sustainability innovation.

Establish Sustainability Innovations Awards for staff, faculty, student, and **alumni** contributions to sustainability literacy, solutions, and leadership.

Incentivize units by returning a portion of demonstrated cost savings to reinvest into other sustainability initiatives.

Integrate sustainability metrics into the University's review process for faculty and staff and provide a reporting space for faculty to discuss how their research, teaching, and outreach are connected to sustainability.

GOAL 2—ACT
SUSTAINABILITY CHALLENGES AND SOLUTIONS

Penn State will actively develop and deploy the knowledge, science, and art of sustainability.

As a leading international research university with a land-grant mission, Penn State has a responsibility to identify sustainability challenges as well as develop innovative sustainability solutions for and with its communities, the Commonwealth, and the world. Innovations and solutions will originate everywhere (students, staff, faculty, administrators, alumni and other research partners) from those who understand the challenges of sustainability. In the context of a culture that values the recognition of and curiosity about sustainability challenges, Penn State is committed to supporting the internal and external partnerships that are necessary for the development and implementation of sustainability solutions on a local and global scale, and to broadly communicating information about the solutions that are developed.

2.1. Develop means to readily recognize and respond to sustainability challenges.

Create structures and processes for the identification of sustainability challenges, communicate activity related to these challenges internally and externally, and develop a process for advancing solution gaps when they are identified.

Utilize centers of strength to develop a portfolio of sustainability research and identify priority areas so that the creation of knowledge proceeds in an effective manner.

Design and deploy a process by which the individual and collective goals for sustainability solutions across units can be identified and periodically revisited.

2.2. Create strategies and programs to generate resources and recognition for sustainability solutions.

Recognize and reward the achievements of students, staff, faculty, administrators, and alumni in the generation, implementation, and advancement of sustainability solutions.

Create designated spaces that reflect our sustainability values that can be used for resource-generating meetings, conferences, and retreats that focus on sustainability challenges.

Establish and pursue resources (e.g., expertise, development funds, advice) that can be utilized for investment into sustainability projects.

2.3. Identify and develop strategic partnerships, both internal and external, to facilitate the advancement of sustainability solutions.

Utilize a bidirectional approach with our unique network of campuses to establish and assess scale-able pilot programs that provide sustainability research and living experiences.

Create and/or expand faculty exchange and scholar-in-residence programs to synergize collaboration of faculty across campuses and units and infuse expertise from external sources.

Enhance and convene external partnerships to identify sustainability challenges, collaborate on solutions, and communicate their broader applicability.

2.4. Utilize the University's research strengths and global reach to advance sustainability.

Strengthen the translational research process to generate solutions, provide proof-of-concept, and pilot test internally to further accelerate innovation and adoption.

Identify solutions that can be implemented within and across local campus communities and utilize existing networks to encourage widespread adoption throughout the Commonwealth.

Support the advancement of existing partnerships and relationships that seek to cultivate sustainability in global communities as a path to large-scale testing and validation of sustainability solutions.

2.5. Develop effective infrastructure for communicating sustainability solutions both to inspire leadership in others and enhance literacy.

Enhance existing platforms (e.g., the green.psu.edu web site) to create a comprehensive portal into both sustainability solutions developed and/or practiced at the University and the practitioners who can assist others in adopting them.

Identify communities/stakeholders that most need sustainability solutions, and target solution transfer (e.g., radio and video-based programming; volunteer opportunities) to them.

Integrate solutions into sustainability literacy efforts that are initiated inside and outside of the classroom as suggested in Goal 1.

GOAL 3—INSPIRE SUSTAINABILITY LEADERSHIP

Penn State will exercise leadership in the identification, application, and diffusion of innovations in sustainability technologies, policies, and practices.

Inspiring people to examine how their values and behaviors affect the quality of life on the planet, for current and future generations, may be the greatest challenge of sustainability. Since

many sustainability challenges extend—geographically and temporally—beyond our current capacity to address them, it is imperative to nurture sustainability leadership everywhere and to recognize that contributions can arise from anywhere. An institutional-level commitment to sustainability that includes transparency in establishing goals and priorities is needed to inspire widespread leadership. By modeling sustainable behaviors, recognizing and rewarding sustainability champions, and engaging external partners in creating a sustainable world, we will have effectively established a living laboratory for sustainability that is capable of inspiring local, regional, national, and international communities.

3.1. Demonstrate institutional leadership through an integrated and transparent approach to sustainability with priorities and goals at the University and unit levels.

Pursue transparency on institutional decision-making as a means of educating the University community and the public about how sustainability is implemented.

Make sustainability leadership a fifth Penn State principle and incorporate it into the University's mission statement.

Set goals and priorities for Penn State to inspire, develop confidence, and provide opportunity.

3.2. Model, recognize, and reward individual behaviors that promote human health and happiness, environmental quality, and economic well being in a variety of settings.

Provide opportunities for self-assessment of sustainable behaviors (e.g., Know-Your-Numbers, building dashboards)

Provide opportunities for individual advancement for all members of the Penn State community, across all units, and cultivate pockets of leadership.

Increase investment in place-based opportunities for local public education (e.g., Shaver's Creek, Millbrook Marsh, and Westmoreland County Extension Office).

3.3 Engage with external stakeholders – businesses, organizations, governments, and communities – to understand and address sustainability challenges, practices, policies, and solutions.

Develop tools, resources, techniques, and frameworks for use by and with external stakeholders to convene conversations and assess challenges associated with sustainability.

For industries targeted by external stakeholders, develop formal and informal programs (degrees, certificates, short courses, conferences, and workshops) to prepare, update, and retool the workforce with leading edge sustainability knowledge and competencies.

Partner with external stakeholders to cultivate entrepreneurial and best practices approaches to advancing sustainability solutions, policies, and practices.

Contribute substantively to national and international sustainability conversations and solutions through membership, leadership, and service in sustainability-related organizations and forums.

3.4. Facilitate the infusion of sustainability innovations between all Penn State units and campuses and between Penn State and its external stakeholders.

Develop and institute a structure that supports the continual growth and advancement of sustainability literacy, solutions and leadership in the context of an immersive living lab environment.

Define and establish the resources necessary to support the overall process and structure that allow for the continued growth and expansion of the overall plan.

Establish and maintain an expandable network of internal, local, regional, national and global partners to work collaboratively as we aggressively address the challenge of providing a sustainable world for future generations.

The slide presentation follows.

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Mission



Penn State strives to integrate sustainability into the University's functions in a manner that creates value for the University, the Commonwealth, and the nation and prepares students, faculty, and staff to contribute to the world as change agents and sustainability leaders.

Penn State will become a living laboratory by integrating our own spaces and communities into the learning experience. A Penn State education will dissolve the boundaries of traditional learning environments by connecting our students, faculty, and staff to operations, buildings, utilities, broader communities, and landscapes of every scale as a resource for learning. This underscores the University commitment to creating a learning community that includes all members of the Penn State community and to a life-long educational experience that promotes not only intellectual development, but also the development of character, conscience, citizenship and social responsibility.

Goal 1: Sustainability Literacy

All members of the Penn State community will realize, advocate, and contribute to sustainability literacy.

- *Sustainability literacy is a person's ability to comprehend and convey the implications of their living on a planet with finite resources and a growing population. It refers to an understanding of the complex biological and physical systems within which humans interact with one another and the rest of the natural world, as well as the recognition that our decisions affect present and future generations' ability to survive and thrive. When sustainable practices are the everyday norm and are part of and complementary to formal education, and when people are recognized and rewarded for the development of and participation in sustainability curricular, co-curricular, and experiential programs, the community will be capable of true sustainability literacy. In this environment, students, faculty, staff, and alumni are able to articulate their own appropriate definitions of sustainability, which evolve over time and guide their behaviors in their personal and professional lives.*


- **General Strategy 1: Practice.** *Incorporate sustainability practices and learning opportunities into daily life across the University, including in classrooms and research labs; service and program delivery; and within administrative and infrastructure support units.*
- **General Strategy 2: Educate.** *Develop and promote coordinated academic and co-curricular programs that address sustainability, including online, residential, and global offerings.*
- **General Strategy 3: Experience.** *Create programs to facilitate experiential learning opportunities and projects that involve students in the enhancement of sustainability.*
- **General Strategy 4: Reward.** *Incentivize, support, and reward commitment to and innovation in sustainability.*



Goal 2: Sustainability Solutions

Penn State will actively deploy the knowledge, science, and art of sustainability.


- As a leading international research university with a land-grant mission, Penn State has a responsibility to develop innovative sustainability solutions for and with its communities, the Commonwealth, and the world. Innovations and solutions will originate from students, staff, faculty, administrators, alumni and other research partners who understand the challenges of sustainability. In the context of a culture that values the recognition of and curiosity about sustainability challenges, Penn State is committed to supporting the internal and external partnerships that are necessary for the development and implementation of sustainability solutions on a local and global scale, and to broadly communicating information about the solutions that are developed.

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- General Strategy 1: Adapt.** Create a culture that readily recognizes and adapts to sustainability challenges.
 - General Strategy 2: Resource.** Create strategies and programs that generate resources and recognition for sustainability solutions.
 - General Strategy 3: Integrate.** Identify and develop strategic partnerships, both internal and external, to facilitate the advancement of sustainability solutions.
 - General Strategy 4: Include.** Utilize the University's research strengths and global reach to advance sustainability.
 - General Strategy 5: Share.** Develop an effective infrastructure for communicating sustainability solutions both to inspire leadership in others and enhance literacy.

Goal 3: Sustainability Leadership

Penn State will exercise leadership in the identification, application, and diffusion of innovations in sustainability technologies, policies, and practices.

Inspiring people to examine how their values and behaviors affect the quality of life on the planet, for current and future generations, may be the greatest challenge of sustainability. Since many sustainability challenges extend—geographically and temporally—beyond our current capacity to address them, it is imperative to nurture sustainability leadership everywhere and to recognize that contributions can arise from anywhere. An institutional-level commitment to sustainability that includes transparency in establishing goals and priorities is needed to inspire widespread leadership. By modeling sustainable behaviors, recognizing and rewarding sustainability champions, and engaging external partners in creating a sustainable world, we will have effectively established a living laboratory for sustainability that is capable of inspiring local, regional, national, and international communities.

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- GENERAL STRATEGY 1: Embrace.** Demonstrate institutional leadership through an integrated and transparent approach to sustainability with priorities and goals at the University and unit levels.
 - GENERAL STRATEGY 2: Model.** Prepare leaders to inspire others to examine their values and behavior, identify sustainability problems and develop solutions to them.
 - GENERAL STRATEGY 3: Engage.** Engage with external stakeholders – businesses, organizations, governments, and communities – to understand and address sustainability challenges, practices, policies, and solutions.
 - GENERAL STRATEGY 4: Infuse.** Facilitate the infusion of sustainability innovations between all Penn State units and campuses and between Penn State and its external stakeholders.