

Stewarding Our Planet's Resources and Institutes of Energy and the Environment

Additional Strategic Planning Community Input

Received May 14-31, 2020

Fostering Collaboration with WEF Nexus in Africa

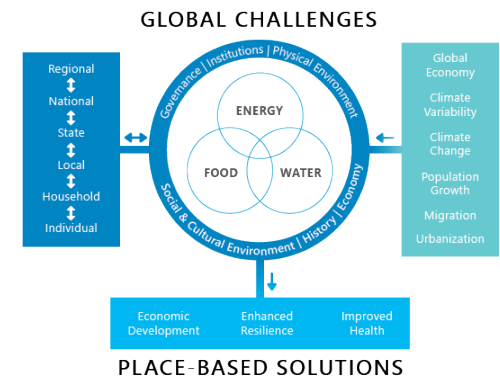
- Michael Jacobson (mgj2@psu.edu) and Rachel Brennan (rab44@psu.edu) Co-Directors, PSU WEF Nexus Initiative

- The water-energy-food nexus (WEF Nexus) is a critical framework for addressing complex transdisciplinary resource challenges in integrated, innovative ways
- A distributed center or network in Africa is necessary to make the most effective use of existing capacity, leverage local and regional expertise and resources and provide a mechanism for identifying and seeking resources for new capacity needs



Recommendations

- Support the WEF Nexus in Africa Initiative through membership and engagement with the collaborative platform - <https://wefnexus.org/>
- Create of a current database of Penn State individuals working in Africa on WEF-related issues
- Pair PSU teams with African counterparts to investigate recent interventions to promote sustainable communities in Africa



PennState

Ethical Decision Making in Life Cycle Analysis

Christine Costello, Assistant Professor, Agricultural and Biological Engineering and Research Associate, The Rock Ethics Institute
Jeffrey Catchmark, Professor, Agricultural and Biological Engineering and Affiliated Faculty, The Rock Ethics Institute

- Life cycle analysis (LCA) is establishing itself as a critically important decision making tool that will drive the design and development of virtually every product and system that will influence our society and environment including vehicles, electronics, buildings, agriculture and the materials and energy they consume.
- LCA standards and software continue to be developed and updated, but none to date integrate ethics and ethical decision making, despite decision making being the principle role of LCA.

Recommendations

- Partner with the Rock Ethics Institute and establish an initiative to formally integrate ethics and ethical decision making frameworks into LCA standards and software including ISO and platforms like ecoinvent.
- Invest into multidisciplinary teams who can conduct the research and industry/society outreach needed to update standards and software to aid designers to make better sustainable decisions when balancing social, environmental and economic factors.



INTERNATIONAL
STANDARD

ISO
14040

First edition
1997-06-15

**Environmental management — Life cycle
assessment — Principles and framework**

*Management environnemental — Analyse du cycle de vie —
Principes et cadre*



PennState

Transition our Investments and Mobilize in PA

- Raymond Friend, Eberly Sustainability Council & Student Sustainability Advisory Council

- Penn State has a massive environmental and economic impact on central PA. Penn State has the resources, expertise, and obligation to act as a steward in its sphere of influence.
- Penn State is capable of mobilizing its departments to form connections with local industries, pursue land acquisition, and construct a resilient, renewable energy grid.

Recommendations

- Fully decarbonize by 2030. Avoid purchasing carbon offsets as a permanent solution. Expand renewable energy projects.
- Divest from fossil fuels and from non-green companies.
- Invest in locally-sourced, plant-based foods: incentivize local farmers to transition to human-grade crops and soil revitalization techniques studied by our very own Agriculture school.
- Expand the Student Farm.
- Invest in carbon sequestration projects such as reforestation.



PennState

Environmental decision making

Janet Swim (Psychology Department)



There is much research on understanding and encouraging environmentally sensitive decision-making.

Topics include the effects of temporal and value-based frames, affect and social processes, & scientific literacy on decision making.



Many PSU faculty (e.g., in Business, Humanities, and Social Sciences) conduct research on these topics

However, many are ill-informed of other's work and/or lack sufficient opportunities to develop interdisciplinary collaborations.



Recommendation 1: Topical small-group Workshops to explore and develop connections across departments on topics such as those mentioned above.

Recommendation 2: Seed money for research and curriculum that would provide lasting commitment to connections developed at such workshops.



Pricing Carbon Emissions Internally

Divya Jain (Student, Chemistry) and Janet Swim (Prof. of Psychology)

- 435,465 MTCDE emitted across PSU campuses in the [2016-2017](#) school year
- Emissions are declining, but [not as quickly](#) as the [science indicates is necessary](#)
- [Financial institutions](#), [Nobel-winning economists](#), protesters, and [bipartisan coalitions](#) advocate for carbon pricing as an effective and efficient part of a carbon reduction program
- Increasing numbers of [state](#) and [federal](#) governments, [financial institutions](#), [fossil fuel companies](#), and colleges such as [Smith](#), [Yale](#), [Swarthmore](#), [Vassar](#) already have implemented carbon pricing
- Penn State should get ahead of state and federal carbon pricing systems

Recommendations

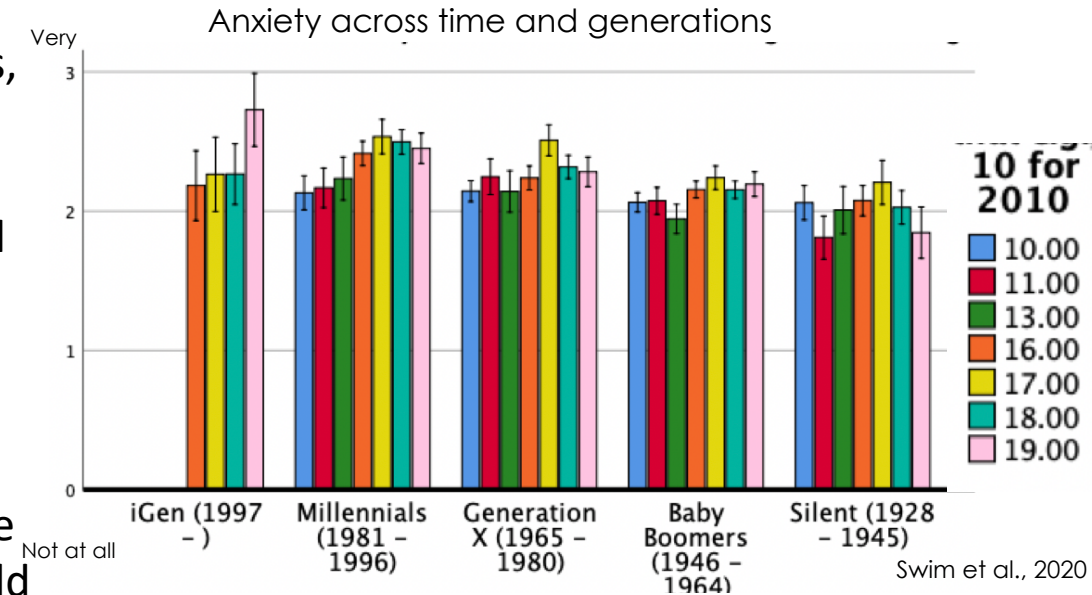
- Review different carbon pricing models in consultation with Yale's Carbon Charge program.
- Implement a internal carbon charge per ton emitted by each university unit
 - Ex. Increase the charge year over year, and tie it to the social cost of carbon
- Return the money back to each unit, for use only in sustainability projects, as defined by the commission that collects it



Integrating Sustainability within Curriculum

Divya Jain (Student, Chemistry) and Janet Swim (Prof. of Psychology)

- More so than other generations, across the nation, anxiety, stress, and anger about climate change has increased in younger generations.
- Similarly, a survey of 1584 PSU students found over 60% reported feeling anxious & powerless about climate change. Plus, few reported that PSU was preparing them for their future.
- Sustainability is an essential skill for the new workforce, so PSU must prepare our students for success.
- Learning about sustainability early in their education can facilitate their ability to integrate core sustainability concepts into their field of study.



Recommendations

- Create a General Sustainability requirement for all students, drawing on existing class models: SUST 200, BA 342, etc.
- Incorporate sustainability standards for key introductory classes, such as Freshman seminar, Engl 15, CAS 100.



Integrating Sustainability within Curriculum

Divya Jain (Student, Chemistry) and Janet Swim (Prof. of Psychology)

- The need for a more sustainable future is salient. Many are talking about health pandemics, climate change impacts intensify, and the economic costs of not preparing for these futures increase.
- In a survey of 1584 PSU students, 73% saw climate change as a threat to humanity, 65% felt powerless, 50% were angry, and only 10% thought that Penn State was preparing them well for the climate-changed future. Students who took classes on climate change were better informed and more hopeful.
- Sustainability is an essential skill for the new workforce, so PSU must prepare our students for success.
- Learning about sustainability early in their education can facilitate their ability to integrate core sustainability concepts into their field of study.

Recommendations

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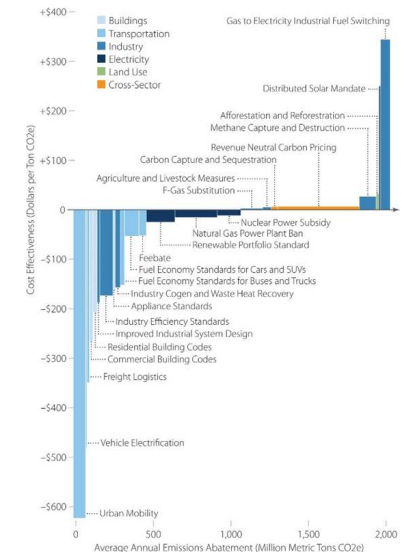
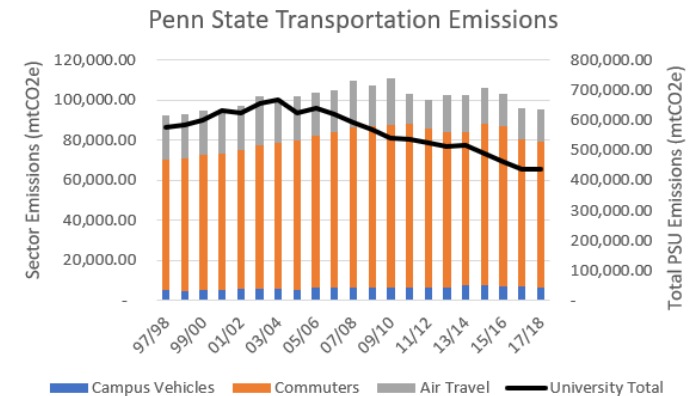
Transportation Emissions Reduction Incentization Program (T.R.I.P)

Gabriel Schaefer, Carbon Emission Reduction Strategy Intern, Sustainability Institute

- Though Penn State's overall carbon emissions have on the decline for the past 10-15 years, transportation-related emissions (campus vehicles, commuters, and air travel) have been close to stagnant
- T.R.I.P was started to develop programs that are aimed to **educate** and **encourage** faculty, staff, and students' about their transportation-related emissions and how they could reduce their emissions
- Transportation-related reduction programs have the highest **returns on investment** compared to other carbon reduction programs

Recommendations

- Establish a platform where faculty, staff, and students can track their transportation emissions and recommends how to reduce their emissions
- Create a **uniform** method for academic colleges and administrative units to choose how they can offset their transportation <https://tinyurl.com/Sltrip> where reduction cannot be met



Prospecting Microbes to Address Global Problems

- (PPEM + other Departments, Huck Institutes, CIDD, Microbiome Center)

- Microbes present both opportunities and challenges to global human health, food security/safety, and environmental sustainability.
- Multi-pronged and multi-disciplinary approaches are needed to explore and harness microbial diversity and functions to mitigate multi-faceted threats resulting from climate change, but our strengths in microbiology require better integration to maximize impact.

Recommendations

- Form a working group that will develop a whitepaper outlining short- and long-term actions needed to identify and build novel research and education programs via an enhanced integration of our strengths;
- Support the group through seed grant, faculty co-hires, strategic investment to infrastructures, and external partnerships.

