

Climate Mitigation Breakout Group

What efforts exist to prevent, reduce, or reverse the emission of greenhouse gases?

Remember convergent and cross-cutting themes: climate justice, policy, communication, arts, etc.

Moderator: Rachel Brennan
Note-taker: Jamie Peeler

Grand Challenge: Mitigation

- Convergent Research Opportunities (thematic)

Where do climate researchers have opportunities to align their efforts?

- Current Penn State Assets and What Makes Us Unique

What is available at Penn State? What are our unique strengths?

- Barriers to Action

What, if anything, hinders your ability to further your climate work?

- Exemplar “success stories”

Where have you seen climate work shine?

- Recommendations and Next Steps

What do you see as opportunities for climate work at Penn State?

Grand Challenge: Mitigation

Convergent Research Opportunities:

A few examples were listed during the discussion:

- Mitigation at multiple scales (local, regional, global) – where are the interactions occurring?
- PSU CAN is developing a plan and identifying potential solutions so that Penn State meet negative carbon emissions
- Interactions between technology and society

Grand Challenge: Mitigation

Assets/Unique:

Alumni network: Penn State alumni network includes people in high places in the fossil fuel industry (Shell Energy, etc).

Size and expertise: Penn State is very big and has experts that can connect science/ideas to application in our local/state/national communities.

- Expertise in agriculture: focus on carbon sinks and sequestration

- Expertise in engineering: focus on renewable energy in multiple Colleges (College of Earth and Mineral Sciences, College of Engineering)

- PSU Extension: Infrastructure in place to connect with the community. Noted that PSU Extension already has a biomass team with connections to the state and knowledge of where money is going.

A general theme that Penn State's assets also presents its greatest barriers!

Grand Challenge: Mitigation

Barriers:

Institutional inertia: How do we create change given the current culture at Penn State?

- Penn State has an interest in the fossil fuel industry. How do we balance this interest with a goal to achieve carbon negative emissions as an institution? Finding this balance is a challenge PSU CAN is currently facing.
- Institutional inertia can also occur with infrastructure, business models, and expertise.

Size and expertise: Penn State is very big. What are the best ways to find each other and bring together expertise?

Knowledge gaps: Could use more focus on biomass and sequestration!

- Can we enhance carbon capture and sequestration across natural systems associated with Penn State?
- PSU CAN mentioned that they are looking at biomass and sequestration.

Scale mismatches: How do we monitor whether mitigation efforts are actually working? Time scale to see results is quite long (~ 50 years), so what can we monitor in the short term?

A general theme that Penn State's assets also presents its greatest barriers!

Grand Challenge: Mitigation

Success Stories:

A few examples were listed during the discussion:

- Lightsource BP
- Buildings efforts at Penn State
- Leadership in wind, solar, and batteries are strengths at Penn State
- Strong research portfolio on mitigation at Penn State. A particular strength in understanding how ecosystems act as carbon sinks (shout out to Armen Kemanian)

Grand Challenge: Mitigation

Recommendations/Next Steps:

Creating community: How do we organize so that forums are not the only time we get together? Are there ways to solidify so that we have a more outward presence? What are tradeoffs between a centralized and decentralized approach?

Funding the needed work force: We need to mobilize a work force that scales up to a global-scale problem (climate change). How do we fund the work force and make it sustainable?

- Research groups require students; therefore, understanding the funding cycle is critical
- Funding options: Foundations and energy industries looking to make changes (especially at the state level)

Community engagement: A critical component is engaging with the surrounding community.

- Recognize context and what can be accomplished in a State College-like setting versus a city. Fewer barriers in State College might make actions easier to accomplish than in a large city. However, in a city setting, non-profits are great resources (shout out to green building initiative in Philly). Need to connect with these folks and regional planning folks to make changes in a city.
- Carbon reduction plan being announced for Centre region.
- Build a bridge between Penn State students and the community. Students have powerful voices!

Education: Another critical component is education and this needs to be a priority.

- Develop new general education courses that are cross-cutting.
- How do we address the barrier that making changes to required courses and curriculum can be very slow?
- Potential for collaboration between College of Earth and Mineral Sciences and College of Engineering?