The Next 150

Energy and Environment Goals from iSEE

BACKGROUND:

iSEE: A RESPONSE TO GRAND WORLD CHALLENGES

In 2012, former Chancellor Phyllis Wise led a campuswide visioning exercise among students, staff, and faculty to identify the challenges the world will face in the next half century and what unique strengths the University of Illinois could leverage to address them. Climate change, clean energy, food security, and other sustainability topics topped both lists.

In response, the University Board of Trustees launched the Institute for Sustainability, Energy, and Environment (iSEE) in December 2013 and commissioned it to act as a central hub for research and education on its namesake topics, as well as to guide Urbana-Champaign campus sustainability efforts.

SUCCESS SO FAR

Research. iSEE proved that it can have a game-changing effect at Illinois:

- In the past 36 months, the Institute has brought together more than 150 scholars from across campus to submit 56 interdisciplinary research proposals to federal granting agencies.
- Collaborating with the Carl R. Woese Institute for Genomic Biology (IGB) and 17 partner institutions, iSEE earned a $115 million, five-year grant for a U.S. Department of Energy Bioenergy Research Center.
- iSEE has brought together experts from across campus in specific areas, forming the Illinois Water Scholars, the Illinois Energy Scholars, and most recently the Illinois Global Change Scholars to answer major funding calls for interdisciplinary research project.

Campus Sustainability. As the publisher of the Illinois Climate Action Plan (iCAP), iSEE leads efforts to make the U of I a model of sustainability:

- Illinois has earned three consecutive STARS Gold designations from the Association for the Advancement of Sustainability in Higher Education.
- We worked with campus administration to implement a new Chancellor-approved Procedure for Formulating & Evaluating Campus Sustainability Policies & Initiatives.
- iSEE has taken a lead role in creatively funding iCAP efforts through the sale of verified carbon credits. More than $900,000 has been raised to reinvest in further emission reductions.

Education and Outreach. Partnering with academic units, we are developing vibrant programs and events to enrich the education of students on the Illinois campus and the surrounding community:

- In 2015, we launched a campuswide minor degree in sustainability (the Sustainability, Energy, and Environment Fellows Program). The program, which numbers more than 100 students from five colleges across campus, has already seen its first graduates — and added a new twist by bringing in corporate partners for future capstone research experiences.
- iSEE also started a new academic venture, partnering on an undergraduate Certificate in Environmental Writing program, and in the first year 86 students took CEW courses.
- The Institute continues to contribute to local and world grand challenge conversations with events on the Illinois campus; our fifth annual Congress topic will be sustainable cities.
- Finally, iSEE is embarking on a series of "Critical Conversations" to tackle "wicked" sustainability problems. By bringing together engineers, social and physical scientists, politicians, lawyers, industry leaders, and nongovernmental organizations together in a closed-door session, iSEE will facilitate frank but inclusive discourse to find solutions to our world's toughest energy and environment challenges.

iSEE STEERING COMMITTEE MEMBERS

- **Brian Allan** – College of LAS, School of Integrative Biology, Department of Entomology
- **German Bollero** – College of ACES, Department of Crop Sciences
- **Jeffrey Brawn** – College of ACES, Department of Natural Resources and Environmental Science
- **Carla Cáceres** – College of LAS, School of Integrative Biology, Department of Animal Biology
- **Arnab Chakraborty** – College of FAA, Department of Urban and Regional Planning
- **Don Fullerton** – Gies College of Business, Department of Finance
- **Praveen Kumar** – College of Engineering, Department of Civil and Environmental Engineering
- **Sarah Taylor Lovell** – College of ACES, Department of Crop Sciences
- **Stephen P. Long** – College of ACES and College of LAS, Departments of Crop Sciences and Plant Biology
- **Benito Mariñas** – College of Engineering, Department of Civil and Environmental Engineering
- **Stephen Marshak** – College of LAS, School of Earth, Society and the Environment
- **Dipanjan Pan** – College of Engineering, Department of Bioengineering
- **Jesse Ribot** – College of LAS, Department of Geography and Geographic Information Systems
- **Peter Sauer** – College of Engineering, Department of Electrical and Computer Engineering
- **Murugesu Sivapalan** – College of Engineering, Department of Civil and Environmental Engineering
- **Rizwan Uddin** – College of Engineering, Department of Nuclear, Plasma and Radiological Engineering
- **Gillen D'Arcy Wood** – College of LAS, Department of English
- **Donald Wuebbles** – College of LAS, Department of Atmospheric Sciences
- **Nick Heyek** – Undergraduate Student, Student Sustainability Committee (SSC) Chair

iSEE DIRECTORS

- **Baum Family Director Evan H. DeLucia** – College of LAS, School of Integrative Biology, Department of Plant Biology
- **Associate Director for Education & Outreach Madhu Khanna** – College of ACES, Department of Agricultural and Consumer Economics
- **Associate Director for Campus Sustainability Ximing Cai** – College of Engineering, Department of Civil and Environmental Engineering

TASK FORCE QUESTIONS:

OPPORTUNITIES AND CHALLENGES

These three items address the impacts climate change will have on campus — and the responsibility the University of Illinois has in mitigating and adapting to them.

- Illinois is implementing a Community Climate Resilience Action Plan by leading a joint campus-community task force that will assess the likely impacts and vulnerabilities of the local community to climate change and extreme weather, then recommend strategies for building resilience and capacity to adapt utilities, infrastructure, and public health care to address the impacts.
- The U of I will press forward toward meeting the iCAP goal of a carbon-neutral campus by 2050, if not sooner. The campus will bring more sustainability recommendations to fruition by strengthening communication of the iCAP objectives and recommendations to responsible administrators, units, faculty, staff, and students.
- The University is also pushing to increase faculty and staff engagement in developing research-oriented campus sustainability projects — using the Urbana-Champaign campus as a living laboratory to study energy and environment topics.

SPECIFIC ACTIONS RELATED TO EDUCATION, RESEARCH, AND ENGAGEMENT

The University of Illinois must train the next generation of leaders equipped to find solutions to sustainability challenges and must serve as a gateway for increasing awareness and communicating research-based knowledge to achieve a sustainable, resilient society.

- The U of I must grow enrollment in the campuswide minor in sustainability (Sustainability Energy, and Environment Fellows Program) by expanding opportunities for internships and career placement through a strengthening of ties with external partners.
- Campus will host an annual research forum (iSEE Congress) to foster scientific exchange with leading scholars and industry speakers and to highlight an agenda for actionable research on campus on grand societal challenges.
- The University must diversify the funding portfolio for research in sustainability, energy, and environment by engaging with corporate, foundation, government, and non-government partners to address challenges of mutual interest.
- Illinois will build collaborative, interdisciplinary research capacity that leverages scholarly strengths across campus to conduct research with solutions for pressing environmental and energy challenges.

- The U of I will work with academic units to identify and fill key expertise gaps in our faculty with scholars who could synergize new, cross-campus research and education initiatives in sustainability, energy, and environment.

WAYS TO LEVERAGE RESEARCH STRENGTH

We must support science that progresses toward real-world solutions that can have immediate and lasting impact on global problems involving sustainability, energy, and the environment.

- The University will explore new Illinois Scholars groups to proclaim the breadth of expertise on campus and will:
    - Engage these groups with several major public events each academic year, including the Congress, high-impact lecture series, campus sustainability events with broad student participation; and
    - Harness these groups as incubators that will birth interdisciplinary research teams to take advantage of major funding opportunities.
- By seed funding researchers willing to tie calls for proposals from large granting agencies to existing sustainability programs and features on campus, Illinois can use current resources to fund future innovations in both science and campus sustainability.

WAYS TO ENGAGE COMMUNITY

Illinois is implementing a Community Climate Resilience Action Plan by leading a joint campus-community task force that will assess the likely impacts and vulnerabilities of the local community to climate change and extreme weather, then recommend strategies for building resilience and capacity to adapt utilities, infrastructure, and public health care to address the impacts.