

November 14, 2014

## **Institute for Sustainability, Energy, and Environment**

### **Call for Proposals for Seed Grants to Launch Thematic Research**

#### **Timeline**

**Call for Pre-proposals (white paper) Issue Date: *November 14, 2014***

**Pre-proposals (white paper) Due Date: *February 1, 2015***

**Pre-proposals Selection: *February 20, 2015***

**Invited Full Proposals Due Date: *April 12, 2015***

**Reviewed By: *May 29, 2015***

**Funding Decisions By: *June 5, 2015***

#### **Overview**

One major element of the mission of the Institute for Sustainability, Energy, and Environment (iSEE) is to foster actionable, interdisciplinary research to address fundamental challenges in sustainability, energy, and environment, and to establish the University of Illinois as an international leader in these disciplines. The institute has identified five thematic areas (see below) that will guide research. The near-term strategic objective is to identify and develop up to five innovative research projects in one or more of the institute's thematic areas to address fundamental challenges in sustainability, energy, and environment. Seed grants will be provided to launch each research project. Each seed grant will be up to a total of \$400K direct costs for a period of three years, in addition to postdoctoral and student support. This document describes the two-step process for requesting seed funds that will be available to initiate iSEE thematic research activities; a pre-proposal in the form of a short white paper, followed by a more detailed proposal.

As part of the white paper process, complementary research projects will be identified that capitalize on major existing campus strengths in areas such as agriculture, biology, engineering, business, economics, social science, and information technology. Research projects are expected to fall under the thematic areas outlined below, but may also bridge one or more of these areas. Topics not explicitly mentioned in this list but are consistent with the topics identified by the "Energy & Environment" visioning exercise<sup>1</sup> will be considered.

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<sup>1</sup> <http://www.oc.illinois.edu/visioning/energy.html>

## **iSEE Research Themes**

### ***1. Climate Solutions***

- o Evaluating risk from climate change
- o Mitigation and adaptation to climate change
- o Human health effects
- o Social vulnerability, conflict, and democracy
- o Ecological integrity

### ***2. Energy Transitions***

- o Renewables
- o Optimization of supply and demand
- o Systems and controls
- o Energy transmission and storage
- o Pollution

### ***3. Sustainable Infrastructure***

- o Transportation
- o Built environment
- o Vulnerability to climate change
- o Pollution and waste
- o Cities and urban environments

### ***4. Water and Land Stewardship***

- o Land use change
- o Freshwater resources and purity
- o Conservation and biodiversity
- o Land and resource tenure
- o Health

### ***5. Secure and Sustainable Agriculture***

- o GHG emissions and farming practices
- o Soil health and nutrient management
- o Technology for sustainable agriculture
- o Regulation of agriculture
- o Public health, food safety, and policy

**We encourage proposals in the *Climate Solutions* and *Sustainable Infrastructure* areas.**  
*iSEE* has funded projects in the *Energy Transitions*, *Water and Land Stewardship*, and *Secure and Sustainable Agriculture* in the 2014 call for proposals round.

Solutions to the challenges associated with these thematic areas will require research bridging traditional disciplinary boundaries, and it is anticipated that these major thematic areas will be linked by one or more of the following cross-cutting concepts or activities: risk, computing, biology, human health, ecological integrity, information technology and society, justice, policy, energy literacy.

Funding provided by *iSEE* to launch research projects is expected to be catalytic, and successful projects will be expected to reach annual milestones and to secure significant external support in the form of a center or program project grant from NIH, NSF, DOE, USDA or other federal agency, and/or industry or foundation sponsorship.

Research supported by *iSEE* will take place in the PI's department, however, limited space will be available in *iSEE* to congregate PIs, post-doctoral associates, and students to catalyze interdisciplinary activities and for obtaining external funding to support thematic research.

To facilitate the development of research projects and to assign accountability, a project leader will be identified in each white paper (see items 1C and 4 below). The project leader should be an internationally recognized leader in his/her discipline and have demonstrated ability leading interdisciplinary research projects. In support of the University's mission to promote economic development, the project leader should also have a basic understanding of technology transfer and commercialization.

Early-career faculty are also encouraged to present research concepts through the white paper process as limited funds for "development projects" may be available.

It is expected that project leaders will serve on the *iSEE* steering committee and that they will work to promote and develop new research activities in the institute. At this early stage in the development of the institute, the project PI maybe be asked to help develop other activities within the larger thematic research area. The director will work with each of the project leaders to ensure that adequate administrative support is available for planning theme efforts.

It is expected that faculty comprising a project will be drawn from multiple disciplines, potentially bridging academic departments and even colleges. Participating faculty will have demonstrated expertise in a research discipline that is critical to addressing the main problems of the theme.

The process for selecting *iSEE* research projects that will populate the themes is intended to be faculty-driven. It is recognized that the success of *iSEE* will depend on the support of the faculty and academic units. Coordination between *iSEE*, academic units, and the campus will be essential. The rigorous process that has been established for selection of the research projects and periodic expert review of project and theme activities will ensure that the *iSEE* will develop into a world renowned institute providing national and international leadership in sustainability, energy, and environment.

## 1. PROCEDURE FOR REQUESTING FUNDS

- A. The request to create an *i*SEE research project must be submitted in the form of a white paper that serves as a "pre-proposal."
- B. It is expected that *i*SEE-supported research will address a globally significant problem related to the institute's research themes, and the white paper should present the major scientific objective of the research. **We encourage proposals in the *Climate Solutions* and *Sustainable Infrastructure* areas.**
- C. A project leader should be identified. The project leader will be responsible for all correspondence relating to the proposal as well as other planning activities, and he/she will serve on the *i*SEE steering committee.
- D. Research projects may involve approximately five scholars (more or less are acceptable), who will then become *i*SEE faculty. Research teams composed of scholars from more than one academic department or administrative unit are encouraged.
- E. The scholars comprising a project should have all skills necessary to conduct the proposed research and to attract external funding. It is, however, recognized that some research areas would benefit from hiring additional faculty. Therefore, new faculty hires may be suggested as an addendum to the white paper, either as individual hires or as part of a "cluster hire" of multiple individuals. These suggestions should be amply justified. The institute does not have the authority to hire new faculty but will bring these recommendations to the attention of the relevant department heads and deans. Suggestions for faculty hiring will not be evaluated as part of the pre-proposal.
- F. Scholars may be associated with more than one white paper.

## 2. STRUCTURE OF WHITE PAPERS

White papers, not to exceed 3 pages (11 or 12 pt. font; 1" margins), are due no later than **February 1, 2015**. A successful white paper should include the following:

- Project Title: concise and descriptive
- Research Team: identify PI, Co-PIs, and other collaborators. List their research experience, expertise and department affiliations.
- Project Description: Identify the global problem being addressed. Describe the proposed research strategy and metrics for success.
- Describe the value-added aspects of the proposed project, specifying new and innovative aspects of the proposed research
- Strength: Describe how this project leverages scholarly and infrastructure strengths on campus
- Resources: Explicitly identify potential future funding sources, including sources and amounts that could be approached to support this research after the seed grant stage.
- 2-page Biographical Sketch for the PI only (see 4. iv for format)

- Addendum justifying new faculty hires if appropriate.
- White papers should be sent via email in PDF format to Ms. Amy Rosenbery ([husted@illinois.edu](mailto:husted@illinois.edu)).

### 3. REVIEW PROCESS

- A. An ad hoc review committee appointed by the *iSEE* director will evaluate the white papers. The review committee will advise the director on the merits of the thematic proposals.
- B. The review committee will be chaired by the *iSEE* director and may include members of the steering committee. Members of the review committee will be chosen to be free of conflicts.
- C. The review committee may solicit revisions or additional information if necessary.
- D. White papers that are considered to be timely, meritorious, and consistent with the goals of the institute will be invited to submit a more detailed proposal, including a proposed budget and timelines. The evaluation of white papers will be completed by **February 20, 2015**. The *iSEE* director will invite authors of the most promising white papers to submit a full proposal.

### 4. STRUCTURE OF FULL PROPOSALS

- A. Full proposals will be due by **April 12, 2015**.
- B. Proposals must contain the following sections:
  - i. **Project Summary** (maximum 1 page) with:
    - a concise, descriptive title
    - a list of senior personnel (PI, Co-PIs, Senior Personnel) along with their home departments; and
    - a summary of the scientific objectives and approaches.
  - ii. **Project Description** (maximum 7 pages, including figures and tables) covering:
    - Relevance and justification - briefly, but explicitly, explain the relevance of the proposed research to *iSEE*'s goals (e.g. actionable research to address a problem of global significance regarding sustainability, energy, or environment; consistent with *iSEE* thematic research areas)
    - Research plan - describe the goals of the project, scientific and technical approaches, with expected outcomes, sufficiently detailed to allow adequate review)
    - Other Resources and Connections - include anticipated resource commitments by other organizations (industry, government, etc)
    - Plans for external funding
    - Synergies with other units on campus

iii. **References Cited:** no page limit

iv. **Biographical Sketches** (2 pages each): Biographical sketches must be included for the PI, Co-PIs and each of the senior personnel listed on the project. Each biographical sketch should include: education, appointments, honors and awards, synergistic activities, five relevant publications, and funding history for the last five years.

v. **Management:** If the proposal lists co-PIs, describe how the research project will be managed (describe how research will be coordinated between groups and how information will be integrated and shared).

vi. **Proposal Budget and Budget Justification:** Provide a summary budget by year, including a breakdown of personnel costs, travel and materials.

vii. **Submit** in a single PDF file to Ms. Amy Rosenbery ([husted@illinois.edu](mailto:husted@illinois.edu))

viii. **Conflict of Interest Document (COI):** In addition to the proposal document in a separate file please disclose COI, including the following two categories:

- List of current and past postdocs, students, mentors, and collaborators
- List of any individuals you prefer not review your proposal

ix. **List of potential reviewers:** Please include the names and email addresses of five scholars (at least three should be external to the U Illinois) you feel could adequately address the merit of your proposal.

x. **Email** COI and the list of potential reviewers to [husted@illinois.edu](mailto:husted@illinois.edu)

## 5. POINTS TO ADDRESS IN THE FULL PROPOSAL:

- A. What are the major scientific issues to be addressed by the research project? What major problem(s) are to be solved? How will you measure success? Who are the stakeholders in the research outcomes?
- B. Why does the problem to be addressed benefit from an interdisciplinary approach? For each *i*SEE faculty member, briefly describe what expertise each brings to bear on solving the main problems to be addressed in the project. Expertise of affiliates may also be discussed.
- C. How does the proposed research apply to a globally significant problem and how will it lead to real life solutions?
- D. Briefly outline the proposed organization and administration of the theme research project.

- E. Is a postdoctoral research fellow required to help establish the research project? If so, how long is the anticipated appointment, where will he/she be housed and what specifically will he/she be expected to accomplish?
- F. If relevant, describe the social, legal, and ethical issues that may be addressed in this research. Indicate potential faculty affiliates in the humanities, College of Business, and College of Law, where appropriate.
- G. Describe the economic development potential of the theme. Will intellectual property arise from the thematic research? How do you envision technology transfer for new IP developed by the theme?
- H. Identify funding sources and describe the strategy for obtaining additional funding for theme's activities. Specifically, which federal agencies/private sponsor will be targeted to meet the short and long term plans to ensure the longevity of the theme. Please give this point detailed thought and adequate space in the proposal.
- I. Describe any coupled academic activities planned for the project (courses, training grants, conferences and symposia, etc.).
- J. What are the critical factors that will determine the success of the project? What will be necessary during the next two years to establish the project so that a successful on-going solution-oriented research program is in place? Will there be actionable results from the research and how and which markets do you plan on implementing the results?
- K. Would the thematic research benefit from hiring one or more new faculty? Describe the need and expertise of each proposed new cluster faculty hire. The institute does not have the authority to hire new faculty but will bring these recommendations to the attention of the relevant department heads and deans.

## **6. PROPOSAL REVIEW PROCESS**

The proposals will undergo confidential peer review by colleagues with expertise in the subject matter of the proposals.

- A. The review committee will be made up of external members and *iSEE*'s steering committee members.
- B. Proposals that are reviewed favorably for technical merit will then be considered for funding by *iSEE*.

- C. The review procedure will not provide a formal written critique to submitters. The director will communicate decisions on which research themes are selected directly to the submitters.
- D. The objective of the review process is to identify thematic research projects that are outstanding scientifically, appropriate to the mission of the *iSEE*, will synergize new research activities on campus, and that have potential to attract significant external support. It is anticipated that two research projects will be selected for funding with this call for proposals. Ideally, these initial projects will fall into different thematic research areas. There will be another opportunity to submit white papers after January 1, 2015.

## 7. PROPOSAL SELECTION CRITERIA

The review committee will use the following criteria to select proposals:

- *Relevance* – How does it align with the mission of *iSEE*<sup>2</sup>?
  - *Innovative* – Is the project original; what is the potential impact and how credible is it; what is the intellectual merit; is it feasible and scientifically sound?
  - *Uniqueness* – Does the project take advantage of UIUC’s unique intellectual capabilities and does it synergize a new research activity or significantly enhance an existing research activity?
  - *Market & Business* – Does the project have broad applicability; will it have actionable results?
  - *Multi-Disciplinary* – Is the project inter and multi-disciplinary, is it forging new collaborations and connecting diverse fields and units on campus; does it have breadth and depth?
  - *External Funding* – Does the project have potential for sustained funding; does it have potential to grow into a major program?
8. Project leaders of selected research activities will receive administrative support from *iSEE* for the preparation of grant proposals and other materials that may be required for the full development of the theme.
9. A percentage of ICR generated from these grant proposals will be distributed to the PI’s home unit, under the new policy for ICR distribution. The Institute will not retain ICR. The intent is to encourage the submission of multi-disciplinary research initiatives in all the sustainability areas through the Institute without penalizing the home departments.
10. It is essential for the long-term success of *iSEE* that the Institute respond to new scientific opportunities. This necessitates a natural turnover of faculty within themes as well as the

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<sup>2</sup> The mission of *iSEE* is to conduct actionable research and educate the next generation of leaders to address grand challenges in sustainability, energy, and environment, and to move our campus and community toward becoming a global model of sustainability.



thematic research projects themselves. To permit this flexibility, policies and procedures will be established to conduct periodic reviews of institute faculty and the research.

In the short-term, the director will review the research projects at the end of the first year to assess whether any other external funding was solicited or secured by the themes.

It is anticipated that an external committee of experts appointed by the director will review each research project and thematic research area every 3-5 years and make recommendations to the director on their continuance. Research projects and institute faculty that no longer fit *iSEE*'s scientific direction or do not meet expectations for productivity, international recognition, external support or technology transfer may be discontinued.

While recognizing the importance of periodic review of the research projects and themes, it is also important to provide adequate time for projects and themes to reach their full potential. Even if the promise of a project or theme does not materialize (for example, if funding completely dissipates) a project or theme will have the opportunity to reinvent itself. All efforts will be made to facilitate the stability and longevity of projects or themes.

Please address administrative or submission questions to Jenny Kokini ([jkokini@illinois.edu](mailto:jkokini@illinois.edu))