



**Request for Proposals: Round #8**

**Application Deadline: February 4, 2011**

The Mascaro Center for Sustainable Innovation (MCSI) at the University of Pittsburgh is requesting proposals for novel and innovative solutions to one of a series of challenging problems in sustainable design. The goal of the MCSI seed grant program is to support proof-of-concept development of solutions that will enhance the national and local visibility of our sustainable engineering programs while also providing platforms for follow-on funding, community engagement and technology transfer. MCSI is looking for proposals where the funding is designed to move a project from concept to early milestones that would clearly allow for further funding from industry, foundations, or federal sources. The research challenges given below share a close relationship to sustainable design, a dearth of suitable solutions to date (and hence opportunity), global importance, and a strong connection to quality of life.

**Research challenges open to address this round:**

1. Sustainable infrastructure
  - a. Design of roadway surfaces that decrease energy use; whereas in the past this has typically meant design of roadways that require less (expensive) maintenance, we are particularly interested in design of surfaces that promote higher gas mileage. This could also include design of tire-surface combinations that significantly enhance gas mileage.
  - b. Energy harvesting from infrastructure. While a number of technologies have been proposed to harvest energy from roads and bridges, deployment has been very slow owing to cost, lack of robustness, poor performance, and other problems. As such, MCSI would be very receptive to proposals on means by which to harvest energy from infrastructure.
2. Sustainability and Human Health. The potential toxicity of leachable components of consumer products is of continuing concern to the general public and has led to the recent withdrawal of several high value materials from certain markets. MCSI would therefore welcome novel solutions to problems associated with consumer product toxicity. Given the increasing use of nanostructured materials in consumer products (such as cosmetics), means by which to reduce the ecological and human toxicity of nanomaterials would also be welcomed.
3. Reducing the Environmental Footprint of Electronics. Approximately 1 billion mobile phones were sold during 2009 with an estimated lifetime of 18 months each. Unregulated disposal of such appliances scatters over 2 million pounds of heavy metals into the environment. Needless to say, when one examines the entire constellation of electronic appliances, waste issues loom large. In addition, given our love of electronic gadgets, the fraction of home energy consumption devoted to electronics is rapidly approaching 15%. As such, MCSI would welcome proposals regarding the reduction of e-waste, namely:
  - a. Design to save energy
  - b. Design for recyclability or to reduce waste.
  - c. Reduced use of toxic metals in e-design.

MCSI welcomes proposal ideas on “challenges” not related to the list above, but proposed projects **must** be closely related to sustainable design, there must be a dearth of suitable solutions to date (and hence opportunity), and finally the proposed technology must enhance quality of life. MCSI typically welcomes novel ideas related to design of greener materials and innovative energy reduction strategies for buildings. PI’s should submit “off-list” ideas by email to [gmk9@pitt.edu](mailto:gmk9@pitt.edu) by **January 10th** for consideration (a paragraph will suffice) with a justification as to why they meet the global challenge criteria.

For all proposals, PI’s should emphasize the innovative nature of their proposed solutions.

## Proposal Requirements

### Eligibility:

A faculty member at the University of Pittsburgh must be a Co-PI on the proposal. Due to the interdisciplinary nature of the thrust areas we strongly encourage collaboration between departments, schools, universities and organizations.

### Budgets:

MCSI typically has \$225,000 to award for funding of seed grants. A maximum of 4 grants will be awarded in 2011. All grants will be funded for a one or two year period beginning July 1, 2011. Note that funding for faculty/staff salary or travel is not an allowable budget item for these grants.

### Proposal Cover page(s)

- PI's name, department, email address, campus address and phone number.
- Names and contact info of all co-PI's.
- Title of proposal, research challenge being addressed, and a 200-word abstract.

### Body of the Proposal

The body of the proposal should not exceed five single-spaced pages and should employ a 12-point font size and one-inch margins. This excludes tables, figures and references.

The body of the proposal should provide:

- A clear statement of goals and rationale for the work.
- A detailed work plan.
- A description of the proposed work that describes how it differs from previous approaches.
- If a proposed solution is designed to be more sustainable than current analogs, then a means by which the new solution will be validated (vis-à-vis sustainability) should be included in the proposal.
- A set of milestones that will allow judgment of project success.

### Budget

Proposals must include a 1-page budget and 1-page maximum budget justification.

**Note regarding graduate tuition rates:** In developing your budget please note that graduate students will be supported as Fellows and fringe benefits should not be paid. However, \$252.05 (monthly) should be provided for medical coverage and \$10,000 in tuition should be paid.

### Appendices (CV's, current support):

The PI and all co-PI's should include their NSF (or NIH) 2-page CV's.

### Matching Support

If any matching support is being provided, this should be detailed in a letter of support.

### Important Dates:

**Proposals are due to Gena Kovalcik ([gmk9@pitt.edu](mailto:gmk9@pitt.edu)) and must be sent within one document in a .pdf format electronically by February 4, 2011.** Funding decisions will be announced by March 26, 2011.

### Reporting Requirements:

Recipients of a seed grant must fulfill the following requirements:

1. Provide a written six-month interim report for each year of the grant.
2. Provide a final report through a 30 minute PowerPoint presentation.
3. Participate as an oral or poster presenter at Engineering Sustainability 2013.

### For Additional Information:

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