

2009–10 CHALLENGE

SPONSORED BY THE MASCARO CENTER FOR SUSTAINABLE INNOVATION



THE CHALLENGE:

If the entire globe consumed raw materials and energy at the rate that Americans do, we would need the equivalent of three Earths to sustain us. As such, one way to help create a more sustainable society is to replace single-use (short lifetime) items with multiuse (longer lifetime) improvements. Examples of products with very short lifetimes that inevitably find their way to landfills or the environment include (but certainly are not limited to) plastic bottles, carpeting, packaging of all kinds, cosmetics, cleaning products, office supplies, cell phones, toys, gift cards and hotel room keys, and many others.

COMPETITION OBJECTIVES

The Mascaro Center is looking for innovations that reduce waste, embedded energy, and water use by creating multiuse products, processes, or services to replace single-use analogues, through which performance is improved while waste, embedded energy, and water consumption are reduced. Design strategies could include (but, again, are not limited to) design for longer lifetime, design for reuse, replacement of products with services, design of ultra-low embedded energy or embedded water products. Designs must show a high likelihood of implementation; both performance and price must be competitive with conventional analogues.

A description of last year's winners (in response to a different challenge) can be found in the *Pittsburgh Post-Gazette* archives at tinyurl.com/mcsi2009.

ELIGIBILITY

- Must be an undergraduate student enrolled at any university or college in Allegheny, Butler, Westmoreland, or Washington county.
- Open to all undergraduate students of any discipline and level.
- Multidisciplinary and cross-institutional teams are strongly encouraged.
- Teams are encouraged to secure a faculty member or industry professional to serve in an advisory role.
- Teams must consist of a minimum of two and a maximum of five students.

JUDGING CRITERIA

An independent panel of individuals with expertise in sustainable design will serve as the judges for the competition. Project proposals must be sent electronically to mcsi@pitt.edu by 5 p.m. on October 21, 2009. The review committee will announce five recipients of Phase II grants by November 4, 2009. Final proposals are due electronically at mcsi@pitt.edu by 5 p.m. on March 31, 2010. Winners will be announced on April 30, 2010. Projects will be judged on:

- Whether the product, process, or service fulfills the challenge objectives;
- The degree of innovation;
- The clarity of the presentation; and
- Likelihood of successful implementation.

PROPOSAL CRITERIA

Phase I

- Phase I proposals should concisely present a multiuse product, process, or service to replace single-use analogues, through which performance is improved while waste, embedded energy, and water consumption is reduced. Successful Phase I teams, as judged by our panel of experts, will move on to the second round of the competition as described below.
- Proposals should be sent electronically to mcsi@pitt.edu by 5 p.m. on October 21.
- The cover page should include the following information:
 - Project title
 - List of team members, schools, and departments and contact information
 - List of faculty/industry advisor(s), if any, and contact information
 - A team captain to serve as lead contact
- Concepts should be limited to two pages maximum and provide sufficient content and information (text, graphics, charts, etc.) for adequate evaluation by the committee.

Phase II (five finalists)

- Full proposals are due on March 31, 2010.
- A written report (10 pages maximum) that includes:
 - A general description of the product, process, or system
 - Technical details of the fabrication and installation of the product or system
 - Projected reductions of waste, energy, and water consumption
 - Estimated economic costs, payback periods, and potential market share
 - Metrics for assessing the environmental impact or sustainability of the product, process, or system
- Where applicable, a working demonstration prototype (delivered to 153 Benedum Hall by 5 p.m.)

FUNDING

Each Phase II team will receive a \$1,500 budget that may be used for supplies, equipment, travel, etc. This funding may not be used for salary support for faculty or students.

AWARDS

First Place: **\$5,000**

Second Place: **\$2,500**

Third Place: **\$1,000**

SCHEDULE

What	When
Project concepts due	October 21, 2009
Five Finalists selected and announced	November 4, 2009
Phase II proposals due	March 31, 2010
Winners announced.....	April 30, 2010

SPONSOR

The Mascaro Center for Sustainable Innovation at the University of Pittsburgh is a center of excellence in sustainable engineering, specifically focusing on the design of sustainable neighborhoods. The Mascaro Center was created to encourage and nurture new collaborative projects based on strong and innovative research helping to translate the fundamental science of sustainability into real products and processes. The center's goal is to create innovations that positively impact the environment and improve quality of life. Research conducted under the auspices of the Mascaro Center includes projects on greening the built environment, more sustainable use of water, and the design of distributed power systems. Visit www.mascarocenter.pitt.edu.

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