

## Center for Sustainable Processes and Practices Miller Grant RFP Round 2: 2009-2010 Grant Recipients and Abstracts

### About the RFP Process

The following projects have been selected as recipients of grant funding from the Miller Grant Request for Proposals (RFP), Round 2 for activities and initiatives that promote sustainability at Portland State and within the community during the 2009-2010 academic year. Funding is allocated by the Center for Sustainable Processes and Practices at Portland State University, and made possible by a ten year, \$25 million grant from the James F. and Marion L. Miller Foundation.

The following activities align with Portland State's sustainability strategic plan, with an emphasis on near-term and medium-term sustainability priorities: to become a national and international leader in scholarship and education focused on a "systems" approach to sustainability in the urban context. Core to this opportunity are commitments to addressing all three aspects of sustainability (social, economic and environmental) in an integrated manner, and to engaging in a "living laboratory" approach—a problem-based teaching, research, and innovation strategy in which ongoing assessment and evaluation contribute to the knowledge base regarding sustainability at all scales.

### Project Abstracts

#### Project Title: "Design and implementation of Greenhouse Gas Market Analyzers"

**Principal Investigator (PI) and Co-PIs: Steven A. Bleiler; Randy Bluffstone; Dacian Daescu; Tom Fielden; Jong Sung Kim; Yoko Nagase.**

**Abstract:** Funding is sought for a team of PSU researchers with expertise in Computational Mathematics, Economics, Game Theory, Statistics, and Technology that designs and implements market analyzers that evaluate potential policies for greenhouse gas control via market mechanisms. Team members have authored a decision support tool designed for use by policy analysts at the California Air Resource Board (CARB). This particular implementation is currently the state of the art tool for the evaluation of the design of policies for the carbon markets arising under California AB32 and the Western States Climate Initiative. As Oregon, California, and the country moves toward carbon regulation a new generation of such tools, with more features and broader assumptions, is required by policy makers and members of impacted industries. Our team has the economic, mathematical, statistical, and technological expertise needed to successfully compete for outside funding and to make our new analyzers the industry standard tools.

**Project Title: "Social Sustainability at PSU: Building Capacity"****Principal Investigator (PI) and Co-PIs: Veronica Dujon; Eileen Brennan**

Abstract: This Project will provide infrastructure support to integrate and expand internal and external collaborations advancing theory, research, and practice regarding the social aspects of sustainability and their interrelation with economic and environmental dimensions. Faculty across disciplines previously proposing projects to Miller jointly submit this proposal to: (1) establish a Social Sustainability Network (SSNET); (2) reinforce the Social Sustainability Colloquium Series; (3) construct an inventory of PSU's related research, educational resources, and community partnerships; and (4) intensify dissemination of our progress including sponsoring community roundtables and establishing a user-friendly website. The proposed project will promote the University's ability to establish itself nationally and internationally as one of the few academic institutions actively pursuing an agenda that focuses on defining social sustainability, the least well understood area of sustainability, identifying key indicators that capture its essence, developing measures that capture progress in achieving it, and building programs and practices that implement it through a living laboratory approach.

**Project Title: "Building capacity to reduce environmental and public health impacts of traffic flows and traffic management policies in urban areas"****Principal Investigator (PI) and Co-PIs: Linda George; Miguel Figliozzi; Christopher Monsere**

Abstract: Vehicle emissions have a well-established negative impact on the health of urban dwellers - pedestrians, cyclists, vehicle commuters, workers, residents, etc. However, the extent of these impacts is highly dependent on population activity, proximity to traffic flows, and built environment characteristics. Our goal is to investigate these issues by building an interdisciplinary research and education program that integrates and expands existing knowledge and builds institutional capacity to model, assess and mitigate the environmental impacts of traffic on communities. A major outcome envisioned for research agendas supported by this capacity building will be to guide urban traffic management and urban planning to best protect human health in the built environment. Interdisciplinary research and teaching opportunities will be significantly strengthened for undergraduate and graduate students in engineering and environmental sciences, as well as for general education students in a new community-based learning course (Senior Capstone).

**Project Title: "The Humanities sustainability research project"****Principal Investigator (PI) and Co-PIs: Leerom Medovoi; Avram Hiller**

Abstract: The Humanities Sustainability Research Project seeks support to continue building a strong sustainability research emphasis across the Humanities at Portland State. Sponsored by the Portland Center for Public Humanities, and including faculty from seven departments and three schools, the research group focuses on the role played by foundational concepts, values, stories and imaginings in constructing the triadic relationship between nature, social life, and economic activity. The organizing question for which the project seeks answers is this: how do we need to think, value, narrate, or imagine differently if we are to succeed in bring social, economic, and environmental sustainability into alignment?

**Project Title: "Integrating social sustainability into urban planning and governance performance matrix"**

**Principal Investigator (PI) and Co-PIs: Janet Hammer; Bowen McBeath; Sy Alder; Ellen Bassett; Vivek Shandas; Meg Merrick; Laurie Powers.**

Abstract: This initiative contributes to theory and practice regarding how to achieve and assess triple bottom line sustainable development objectives. As convener and lead researcher, PSU will work with Metro, City of Portland and other local jurisdictions, developers and community leaders to integrate social dimensions of sustainability with economic and environmental dimensions when assessing development at project and community levels. Through research, teaching, and engagement, this initiative enhances sustainability efforts in the region while contributing to national and international agendas regarding the content of sustainability assessment and process of implementation. Students will engage in community-based learning that contributes to regional sustainability and internationally significant innovations in theory and practice. Further, the initiative will engage traditionally underrepresented populations in community-based assessment and facilitate more effective pathways to higher education.

**Project Title: "First Stop Portland"**

**Principal Investigator (PI) and Co-PIs: Sheila Martin; Nancy Hales; Lynn Weigand**

Abstract: First Stop Portland (FSP) is a collaboration that shares Portland's sustainable practices with delegations from around the world. FSP will link Portland State University's faculty and students and private and public sector experts and leaders with visiting delegations seeking an understanding of Portland's strategies for sustainability. FSP provides a tour-based experience to highlight PSU's contributions and to complement the efforts of public and private sector leaders in building, improving, and promoting our region's urban sustainability.

**Project Title: "A comprehensive road map for the development of low/no emission electric vehicle infrastructure in Portland Metro region"**

**Principal Investigator (PI) and Co-PIs: John MacArthur; George Beard; Peter Murchie**

Abstract: This proposal seeks funding to support the creation of a comprehensive roadmap for the development of electric vehicle infrastructure in the Portland Metro region. The roadmap will guide research, education, partnership initiatives, and community engagement activities at PSU and the Portland Metro region. This project will be a joint effort between OTREC and the Hatfield School of Government's Oregon Solutions program and the Executive Leadership Institute.

**Project Title: "Public Leadership for Sustainable Development: Building PSU and Portland community partner capacity"**

**Principal Investigator (PI) and Co-PIs: Douglas Morgan; Marcus Ingle; Craig Shinn**

Abstract: This project uses the Leadership for Sustainability developed in Round I of the Miller to:

- 1) Undertake University-Wide Curricular Development by: transforming the content of 12 undergraduate/graduate courses and six departmental units; facilitating the development of six new courses to build knowledge in leading for sustainability.
- 2) Deepen Community Partnerships with the support of ten community partners to: refine the Leadership for Sustainability Model and Improve training programs of six institutes at PSU
- 3) Enhance PSU Student and Faculty Opportunities in Southeast Asia by: cosponsoring a leadership for performance and sustainable development conference; jointly offering a course in China; facilitating a new Leadership Discipline in Vietnam; and integrating the framework in Vietnam and China.
- 4) Disseminate Project Results by organizing and participating Conferences/ Forums.
- 5) Institutionalize Leadership for Sustainable Development Activities by coproducing the project activities with the Sustainability Leadership Collaborative.

**Project Title: "Development of Center for Aerosol and Climate Change research"**

**Principal Investigator (PI) and Co-PIs: James F. Pankow; M.A.K. Khalil; Dean Atkinson; Kelley Barsanti; Chris Butenhoff; Andrew Rice; Todd Rosenstiel; Reinhold Rasmussen**

Abstract: The Fourth Assessment Report (2007) of the U.N. Intergovernmental Panel on Climate Change (IPCC) states: "warming of the climate system is unequivocal". Given the anticipated deleterious effects of global warming across many scales and sectors, no sustainability issue is more pressing for Oregon, for the nation, or for the world than that posed by the prospect of significant uncontrolled climate change. There is thus a great need for improved models that can predict the roles of greenhouse gases and aerosols on global energy budgets. This is particularly true for atmospheric aerosols, since they are responsible for large uncertainties in the predictions coming from current climate models. By a convergence of several fortunate coincidences, PSU is now home to a group of scientists that is uniquely positioned to attack the aerosol+climate modeling problem. This group proposes creation of the PSU Center for Aerosol and Climate Change Research (CACCR) as a multidisciplinary engine for research and teaching on aerosols and climate that will be respected and admired at an international level.

## **Project Title: "A research agenda for the Oregon Sustainability Center"**

**Principal Investigator (PI) and Co-PIs: David Sailor**

Abstract: The Green Building Research Laboratory<sup>1</sup> (GBRL) will house resources to facilitate the development and analysis of high performance buildings. As the state pursues a feasibility study for a Living Building to house the Oregon Sustainability Center (OSC) a tremendous opportunity presents itself to the CSP2, BEST, and the GBRL. This opportunity is to develop and articulate a research agenda for the OSC. This research agenda has two elements (1) identify/develop/test technologies necessary to meet the Living Building Challenge; and (2) ensure that the building is constructed and instrumented in such a way as to facilitate long-term analysis of its performance relative to energy, water, indoor environmental quality, and interaction with the surrounding built environment. A multidisciplinary team of faculty and students will work with Oregon BEST and the feasibility study team to develop this research agenda and identify mechanisms to fund its implementation.