OVERVIEW INFORMATION

U.S. Environmental Protection Agency
National Center for Environmental Research
P3 Award Program

12th Annual P3 Awards: A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet

This is the initial announcement of this funding opportunity.

Funding Opportunity Numbers (FON) and Associated Research Areas:
EPA-G2015-P3-Q1 – Energy
EPA-G2015-P3-Q2 – Built Environment
EPA-G2015-P3-Q3 – Materials and Chemicals
EPA-G2015-P3-Q4 – Water
EPA-G2015-P3-Q5 – Urban Green Water Infrastructure
EPA-G2015-P3-Q6 – Clean Cookstoves

Catalog of Federal Domestic Assistance (CFDA) Number: 66.516

Solicitation Opening Date: September 5, 2014

Solicitation Closing Date: December 16, 2014, 11:59:59 pm Eastern Time

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SUMMARY OF PROGRAM REQUIREMENTS

Synopsis of Program:
The U.S. Environmental Protection Agency (EPA), as part of the P3-People, Prosperity and the Planet Award Program, is seeking applications proposing to research, develop, and design solutions to real world challenges involving the overall sustainability of human society. The P3 competition highlights the use of scientific principles in creating innovative projects focused on sustainability. The P3 Award program was developed to foster progress toward sustainability by achieving the mutual goals of improved quality of life, economic prosperity and protection of the planet -- people, prosperity, and the planet – the three pillars of sustainability. The EPA offers the P3 competition in order to respond to the technical needs of the world while moving towards the goal of sustainability. Please see the P3 website (http://www.epa.gov/P3) for more details about this program.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. Human subjects research supported by the EPA is governed by EPA Regulation 40 CFR Part 26 (Protection of Human Subjects). This includes the Common Rule at subpart A and prohibitions and additional protections for pregnant women and fetuses, nursing women, and children at subparts B, C, and D. Research meeting the regulatory definition of intentional exposure research found in subpart B is prohibited by that subpart in pregnant women, nursing women, and children. Research meeting the regulatory definition of observational research found in subparts C and D is subject to the additional protections found in those subparts for pregnant women and fetuses (subpart C) and children (subpart D). All applications must include a Human Subjects Research Statement (HSRS, as described in Section IV.B.5.b), and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.C and V.D of this solicitation.

Guidance and training for investigators conducting EPA-funded research involving human subjects may be obtained here:
http://www.epa.gov/osainter/phre/support.htm
http://www.epa.gov/osa/pdfs/phre/phre_course/index.htm

Award Information:
Anticipated Type of Award: Grant
Estimated Number of Awards: Approximately 35 awards for Phase I; Approximately 6 awards for Phase II.
Anticipated Funding Amount: Approximately $975,000 total for all Phase I & II grant awards.
Potential Funding per Award: Up to $15,000 per Phase I grant including direct and indirect costs. Proposals for Phase I grants must be for only one year. Proposals for Phase I grants requesting an award of more than $15,000 will not be considered.

Upon the successful completion of Phase I, grant recipients will have the opportunity to apply for a P3 Phase II grant of up to $75,000 total for two years including direct and indirect costs (see Background section for more information). Proposals for Phase II grants requesting an award of more than $75,000 will not be considered.

Cost-sharing is not required for either Phase I or Phase II grants.

Eligibility Information:
Public nonprofit institutions/organizations (limited to degree-granting public institutions of higher education) and private nonprofit institutions/organizations (limited to degree-granting private institutions of higher education) located in the U.S. (includes U.S. territories and possessions) are eligible to apply to be the recipient of a grant to support teams of undergraduate

and/or graduate students. Profit-making firms are not eligible to receive assistance agreements from the EPA under this program. See full announcement for more details.

Application Materials:
To apply under this solicitation, use the application package available at Grants.gov (for further submission information see Section IV.E. "Submission Instructions for Phase I Applications and Other Submission Requirements"). The necessary forms for submitting a P3 application will be found on the National Center for Environmental Research (NCER) web site, http://epa.gov/ncer/rfa/forms. If your organization is not currently registered with Grants.gov, you need to allow approximately one month to complete the registration process. Please note that the registration process also requires that your organization have a DUNS number and a current registration with the System for Award Management (SAM) and the process of obtaining both could take a month or more. Applicants must ensure that all registration requirements are met in order to apply for this opportunity through grants.gov and should ensure that all such requirements have been met well in advance of the submission deadline. This registration, and electronic submission of your application, must be performed by an authorized representative of your organization.

If you do not have the technical capability to utilize the Grants.gov application submission process for this solicitation, send a webmail message to http://www.epa.gov/ncer/contact_us.html at least 15 calendar days before the submission deadline to assure timely receipt of alternate submission instructions. In your message provide the funding opportunity number and title of the program, specify that you are requesting alternate submission instructions, and provide a telephone number, fax number, and an email address, if available. Alternate instructions will be emailed whenever possible. Any applications submitted through alternate submission methods must comply with all the provisions of this Request for Applications (RFA), including Section IV, and be received by the solicitation closing date identified above.

Agency Contacts:
Technical Contacts: Cynthia L. Nolt-Helms; phone: 703-347-8102; email: nolt-helms.cynthia@epa.gov and Gregory Lank; phone: 703-347-8128; email: lank.gregory@epa.gov
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I. FUNDING OPPORTUNITY DESCRIPTION

A. Introduction

The United States Environmental Protection Agency (EPA), under the auspices of the Office of

Research and Development (ORD), National Center for Environmental Research (NCER), invites submissions to the 12th Annual P3 Awards: A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet. P3 focuses on scientific projects and engineering designs that address the three components of sustainability: people, prosperity and the planet. The P3 Program is intended to support science-based projects and designs developed by interdisciplinary student teams that benefit people by improving their quality of life, promote prosperity by developing local economies, and protect the planet by conserving resources and minimizing pollution. Additional details about EPA's sustainability research can be found in EPA's *Sustainability Research Strategy* (2007) (http://epa.gov/sciencematters/april2011/pdf/EPA-12057_SRS_4.pdf) which presents the role of EPA's Office of Research and Development in improving understanding of the earth's natural and man-made systems, assessing threats to those systems, and developing and applying new technologies and decision support tools. An overview of the meaning of sustainability for application in NCER research proposals is located here: http://epa.gov/ncer/rfa/forms/sustainability_primer_v9.pdf

The concept of sustainable development became widely promoted following the 1987 publication of *Our Common Future* by the World Commission on Environment and Development (World Commission on Environment and Development, 1987). That document defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Earlier, the National Environmental Policy Act of 1969 introduced the concept of sustainability and the definition used there was reiterated in Executive Order 13514, Federal Leadership in Environmental, Energy, and Economic Performance, stating that the goal of sustainability is to, "create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations."

The concept of sustainable development as encompassing activities that address people, prosperity and the planet continues to have international support as indicated by the United Nations 2012 Conference on Sustainable Development Rio+20 outcome document. This document states "Eradicating poverty is the greatest global challenge facing the world today and an indispensable requirement for sustainable development;" followed by "We recognize that poverty eradication, changing unsustainable and promoting sustainable patterns of consumption and production and protecting and managing the natural resource base of economic and social development are the overarching objectives of and essential requirements for sustainable development." That report went on to state "We therefore acknowledge the need to further mainstream sustainable development at all levels, integrating economic, social and environmental aspects and recognizing their interlinkages, so as to achieve sustainable development in all its dimensions." (United Nations, 2012)

In an article entitled *Sustainability science and engineering: The emergence of a new metadiscipline*, Mihelcic et al. (2003) provided a useful definition of sustainability for scientists and engineers as the "design of human and industrial systems to ensure that humankind's use of natural resources and cycles do not lead to diminished quality of life due either to losses in future economic opportunities or to adverse impacts on social conditions, human health and the environment." Fundamentally, sustainability requires the balancing of economic prosperity, environmental responsibility, and social fairness. It is imperative to recognize the key role scientific, engineering, and policy innovations can play in addressing the sustainable development challenge. Successful sustainable design recognizes the needs, available resources, and boundaries of the intended user. See for instance: *Cradle to Cradle* (Braungart & McDonough, 2002), *The Upcycle: Beyond Sustainability--Designing for Abundance* (McDonough & Braungart, 2013), *Engineering Biomimicry* (Lakhtakia & Martín-Palma, 2013) and *Biomimicry* (Benyus, 2002).

The P3 Award Program is composed of two phases that award grants on a competitive basis. The purpose of this RFA is to solicit proposals for innovative research projects and designs to compete for the first phase of the P3 Award Program. The first phase is a competition for one-year grants of up to $15,000 to test, research and develop innovative scientific projects or engineering designs that will promote sustainable development. In the spring of 2016, the Phase I grantees awarded from this solicitation are required to present their projects/designs at the annual National Sustainable Design Expo where they will have an opportunity to be eligible to compete for Phase II grant awards of up to $75,000. The Phase II grant awards are intended to support the further development and demonstration of the sustainability projects/designs created in Phase I. The competitors for 2016 P3 Phase II grants are limited to recipients of Phase I grant awards from this solicitation. Additional instructions for completing the Phase II proposals, which will be due approximately seven months after the Phase I grants are awarded, will be distributed to Phase I recipients. Those projects identified for receipt of a Phase II grant will be recognized as P3 Award recipients on the P3 website.

This RFA represents the twelfth National P3 Awards competition. Previously awarded projects funded through this program can be viewed at http://www.epa.gov/P3.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. Human subjects research supported by the EPA is governed by EPA Regulation 40 CFR Part 26 (Protection of Human Subjects). This includes the Common Rule at subpart A and prohibitions and additional protections for pregnant women and fetuses, nursing women, and children at subparts B, C, and D. Research meeting the regulatory definition of intentional exposure research found in subpart B is prohibited by that subpart in pregnant women, nursing women, and children. Research meeting the regulatory definition of observational research found in subparts C and D is subject to the additional protections found in those subparts for pregnant women and fetuses (subpart C) and children (subpart D). All

applications must include a Human Subjects Research Statement (HSRS, as described in Section IV.B.5.b), and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.C and V.D of this solicitation.

Guidance and training for investigators conducting EPA-funded research involving human subjects may be obtained here:
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http://www.epa.gov/osa/pdfs/phre/phre_course/index.htm

B. Background

Increased awareness and understanding of sustainability are critical components for promoting a systematic shift towards more environmentally benign and sustainable products, processes, and systems. It is essential that all involved in the design, discovery, demonstration, and implementation of sustainable innovations understand the fundamental techniques and principles that underlie sustainability. Innovative research can take the form of wholly new applications or applications that build on existing knowledge and approaches for new uses.

EPA's P3 Program has identified the following four strategic program goals.

Goal 1: Engage and educate the next generation of scientists, engineers, and the greater academic and external communities in the principles of sustainability.
Goal 2: Spark innovation and sustainable technologies through research and development conducted by the P3 projects.
Goal 3: Support the demonstration of sustainable technologies around the world.
Goal 4: Foster the development of small businesses rooted in sustainability.

Specific outputs and outcomes from the Phase I and II grant awards are described in Section I.D. below.

This announcement addresses the first phase (Phase I) of the P3 competition by requesting proposals for innovative research projects or designs from eligible institutions. The Phase I grants are intended to support an interdisciplinary team of undergraduate and/or graduate students to develop their projects/designs in preparation for competing for a P3 Phase II grant award to demonstrate their proposed projects/designs. The EPA will fund approximately 35 Phase I research proposals from around the country during the 2015-2016 academic year.

The proposal process for the Phase II grant awards will begin in the spring of 2016, when the student teams and their faculty advisor (the Principal Investigator [PI] on the grant) will be invited to submit a *Project Report* describing the Phase I project activities and the Phase II proposal for further development. P3 Phase II applications are a combination of the written

Project Reports and team presentations at the National Sustainable Design Expo (the Expo). A panel of qualified experts will be convened to review the applications and score them based on the evaluation criteria described in Section V.

Partnerships with industry or non-governmental organizations (NGOs) are strongly encouraged, particularly in Phase II. These partners are expected to help further develop the design, demonstrate the project in the field, and/or move the design to the marketplace. Matching contributions are not required in either the Phase I or the Phase II competition; however, anticipated partnerships should be identified.

Although P3 grant funding must be used for research and cannot be used for commercialization and for-profit initiatives (such as business creation), proposals with commercial potential are encouraged to apply to EPA's Small Business Innovation Research (SBIR) program. Since its inception, EPA's SBIR Program has provided incentive funding to small businesses to translate their innovative ideas into commercial products that address environmental problems. The EPA is one of 11 federal agencies that participate in the SBIR Program established by the Small Business Innovation Development Act of 1982. EPA issues annual solicitations for Phase I and Phase II research proposals from science and technology-based firms (not universities). Many institutions have entrepreneurship centers where adjunct faculty are practicing entrepreneurs. SBIR applicants are encouraged to consult with their university's business or management school and entrepreneurship center faculty about how best to design their proposed research. For more information on EPA's SBIR program see http://www.epa.gov/ncer/sbir/. For more information about the federal SBIR program see http://www.sbir.gov/.

The specific Strategic Goal and Objective from the EPA's Strategic Plan that relate to this solicitation are Goal 3: Cleaning Up Communities and Advancing Sustainable Development, Objective 3.1: Promote Sustainable and Livable Communities.

The EPA's FY 2014-2018 Strategic Plan can be found at:
http://www.epa.gov/planandbudget/strategicplan.html

C. Authority and Regulations

1. Statutory Authorities

Note that a project's focus is to consist of activities within the statutory terms of EPA's financial assistance authorities, specifically, the statute(s) listed below. Generally, a project must address the causes, effects, extent, prevention, reduction, and elimination of air pollution, water pollution, solid/hazardous waste pollution, toxic substances control, or pesticide control depending on which statute(s) is identified to support the research proposal. Proposals should emphasize this "learning" concept, as opposed to "fixing" an

environmental problem via a well-established method. Proposals relating to other topics which are sometimes included within the term "environment" such as recreation, conservation, restoration, protection of wildlife habitats, etc., must describe the relationship of these topics to a statutorily required purpose of pollution prevention and/or control.

The authorities for awarding research grants under this RFA are contained in the Clean Air Act (CAA), Section 103, 42 U.S.C. 7403; Clean Water Act (CWA), Section 104, 33 U.S.C. 1254; the Safe Drinking Water Act (SDWA), Section 1442, 42 U.S.C. 300j-1; the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), Section 20, 7 U.S.C. 136r; the Solid Waste Disposal Act (SWDA), Section 8001, 42 U.S.C. 6981; and the Toxic Substances Control Act (TSCA), Section 10, 15 U.S.C. 2609. For research with an international aspect, the above statutes are supplemented, as appropriate, by the National Environmental Policy Act (NEPA), Section 102(2)(F). Specific descriptions of the areas of research that are authorized by each statute are described below:

CAA: Clean Air Act--Section 103:
Section 103 of the Clean Air Act authorizes the EPA to make grants to institutions for research, investigations, experiments, demonstrations, surveys and studies relating to the causes, effects, extent, prevention and control of air pollution.

CWA: Clean Water Act--Section 104:
Section 104 of the Clean Water Act authorizes the EPA to make grants to institutions for research, investigations, experiments, training, demonstrations, surveys and studies relating to the causes, effects, extent, prevention, reduction, and elimination of water pollution. Water pollution is defined as man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including freshwater aquatic ecosystems.

SDWA: Safe Drinking Water Act--Section 1442:
Section 1442 of the Safe Drinking Water Act authorizes the EPA to make grants for research, training, studies, and demonstrations relating to the causes, diagnosis, treatment, control, and prevention of physical and mental diseases and other impairments of man resulting directly or indirectly from contaminants in water, or to the provision of a dependably safe supply of drinking water, including (A) improved methods: (i) to identify and measure the existence of contaminants in drinking water (including methods which may be used by State and local health and water officials), and (ii) to identify the source of such contaminants; (B) improved methods to identify and measure the health effects of contaminants in drinking water; (C) new methods of treating raw water to prepare it for drinking, so as to improve the efficiency of water treatment and to remove contaminants from water; (D) improved methods for providing a dependably safe supply

of drinking water, including improvements in water purification and distribution, and methods of assessing the health related hazards of drinking water; and (E) improved methods of protecting underground water sources of public water systems from contamination.

FIFRA: Federal Insecticide, Fungicide and Rodenticide Act--Section 20:
Section 20 of the Federal Insecticide, Fungicide and Rodenticide Act authorizes the EPA to make grants for pesticide-related research, development, monitoring, public education, training, demonstrations, and studies.

SWDA: Solid Waste Disposal Act--Section 8001:
Section 8001 of the Solid Waste Disposal Act authorizes the EPA to make grants for research, investigations, experiments, training, demonstrations, surveys, public education programs and studies relating to: (1) adverse health and welfare effects from solid waste; (2) solid waste management programs; (3) resource recovery and conservation, and hazardous waste management systems; (4) production of usable forms of recovered resources; (5) waste reduction; (6) improved solid waste collection and disposal methods; (7) identification of solid waste components; (8) small scale and low technology solid waste management systems; (9) methods to improve performance of recovered solid waste; (10) improvements in land disposal practices; (11) methods for sound disposal of resources, including sludge and coal slurry; (12) methods of hazardous waste management; and (13) air quality impacts from the burning of solid waste.

TSCA: Toxic Substance Control Act--Section 10:
Section 10 of the Toxic Substance Control Act authorizes the EPA to make grants for research, development, monitoring, public education, training, demonstrations and studies directed toward the development of the fundamental scientific basis of screening and monitoring techniques used to detect toxic chemical substances and quantify the effects of toxic chemical substances and mixtures in the environment.

NEPA: National Environmental Policy Act (NEPA)--Section 102(2)(F):
For research with an international aspect, the above statutes are supplemented, as appropriate, by the National Environmental Policy Act (NEPA), Section 102(2)(F) which authorizes support to foreign recipients and international work/travel by domestic recipients. (NEPA cannot be the sole supporting statute for a proposed project.)

2. Applicable regulations

Applicable regulations include: 40 CFR Part 30 (Uniform Administrative Requirements for Grants and Agreements with Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations and 40 CFR Part 40 (Research and Demonstration Grants).

Applicable OMB Circulars include: OMB Circular A-21 (Cost Principles for Educational Institutions) relocated to 2 CFR Part 220 (http://www.access.gpo.gov/nara/cfr/waisidx_08/2cfr220_08.html), and OMB Circular A-122 (Cost Principles for Non-Profit Organizations) relocated to 2 CFR Part 230 (http://www.access.gpo.gov/nara/cfr/waisidx_07/2cfr230_07.html).

D. Expected Outputs and Outcomes

Note to applicant: The term "output" means an environmental activity, effort, and/or associated work products related to an environmental goal or objective, that will be produced or provided over a period of time or by a specified date. The term "outcome" means the result, effect or consequence that will occur from carrying out an environmental program or activity that is related to an environmental or programmatic goal or objective.

The P3 program aims to generate research outputs in the form of innovative, inherently benign, integrated, and interdisciplinary designs that will advance the scientific, technical, and policy knowledge necessary to enhance the sustainability of human society on the planet. The desired outcomes of the research conducted via the P3 program address the three aspects of sustainability. Through the use of sustainable technologies they are to simultaneously: (1) maintain or improve human health and well-being; (2) advance economic competitiveness; and (3) protect and preserve the environment by effectively and efficiently using water, materials, and energy and minimizing the generation or emission of pollution or minimizing the use of hazardous substances.

The outputs and outcomes of the research efforts conducted via the individual P3 grants contribute directly to accomplishing the P3 Program goals presented in Section B. of this solicitation.

E. Research Areas

Applicants should address one of the research areas listed below in their Phase I proposals. *Note that each application must be submitted using a single Funding Opportunity Number (FON).* (Proposals can include, but are not limited to, technical challenges within the examples following each research area below.) Review criteria specific to the P3 Program and against which the Phase I proposals will be evaluated are presented later in Section V.A.2. To fulfill Agency requirements for a research grant, all proposals should clearly articulate how the proposed project/design will result in pollution prevention and/or control. The link to pollution prevention should be direct such as reduction in air emissions from a more efficient engine design.

Energy (Funding Opportunity Number: EPA-G2015-P3-Q1 – Energy)

1. Green Energy
   The green energy area of interest includes but is not limited to innovative strategies for conservation and efficiency as well as energy production and distribution, inherently benign energy through green chemistry, biomimicry, green engineering and development of alternative energy sources.

2. Biofuels and Waste to Energy
   This area includes technologies which address the environmental implications of biofuels and energy from waste, making their availability and use more sustainable while potentially mitigating waste management challenges. Areas of interest include but **are not limited to** research on:
   a. Technologies to improve process efficiencies and reduce air and water emissions and waste disposal impacts from biofuel production.
   b. Innovative technologies that produce biofuels or energy from waste materials, including manure and farm wastes, forest wood biomass, grassland biomass, organic non-recyclable components of municipal solid waste, biosolids from wastewater treatment plants, meat rendering, greases and food wastes or other waste material. This would include research to develop manure-to-energy technologies for semi-arid or arid climates with high solid content feedstock and to make anaerobic digesters smaller and easier to operate with lower installation and maintenance costs.
   c. Cost effective gasification technologies and systems designed to gasify animal and farm wastes, including wastes from animal feeding operations (AFOs). (For more information on AFOs, see: www.epa.gov/npdes/afo.)
   d. Biological systems that produce an enriched, easily transported feedstock for digester systems.
   e. Technologies to divert storm debris from the waste stream and instead recover energy and other resources.

Built Environment (Funding Opportunity Number: EPA-G2015-P3-Q2 – Built Environment)

1. Green Buildings
   Green building practices maximize efficiency with which buildings and their sites use resources, energy, water, and materials, while minimizing building impacts on human health and the environment, throughout the complete building life cycle from siting, design, and construction to operation, renovation, and reuse. Areas of interest include but **are not limited to** research on:
   a. Innovative processes for minimizing waste generation from the construction, renovation and demolition of buildings, including new technologies for

boosting safe recycling of materials with low recycling rates (e.g. carpet, asphalt shingles, plastics, tile, and insulation).

b. Devices, technologies, and materials that reduce energy needs in existing buildings including efficient distributed energy delivery systems, intelligence systems able to track overall building energy efficiency and reduce total energy use, particularly in commercial buildings, and technologies to more efficiently match building utilization patterns with energy needs associated with heating and cooling and lighting.

2. Smart Growth

Smart growth covers a range of development and conservation strategies that help protect our natural environment and make our communities more attractive, economically stronger, and more socially diverse. Areas of interest include but are not limited to research on:

a. Innovative transportation and mobility strategies that result in environmental benefits such as air emission reductions or water quality improvements.

b. Information technologies such as smart phone apps that contribute to pollution prevention resulting in more sustainable communities.

Materials and Chemicals (Funding Opportunity Number: EPA-G2015-P3-Q3 – Materials and Chemicals)

1. Sustainable Materials

Research is needed to develop new materials and products with minimal environmental and public health impacts over their life cycles. Areas of interest include but **are not limited to** research on:

a. New materials, processes, and systems with minimal environmental and public health impacts and reduced carbon footprints over their full lifecycles.
b. Materials conservation through renewable feedstocks and reuse of materials through product, process, or system design innovations.
c. Innovative materials through biomimicry practices that contribute to pollution prevention and improved functionality.
d. Redesign of existing products to reduce resources used in production or consumption over the lifecycles of the products.
e. Projects that may reduce electronics waste or promote substitution and/or recovery of rare earth elements.

2. Sustainable Chemistry

Sustainable chemistry is the design of chemical products and processes that prevent pollution by reducing or eliminating the use or generation of hazardous substances. Sustainable chemistry applies across the life cycle of a chemical

product, including its design, manufacture, and use. Areas of interest include but **are not limited to** research on:

a. Non-fluorinated wetting agents - Fluorinated polymers/telomers are used as wetting agents in floor finishes and coatings. The conventional longer-chain C8 chemicals are highly persistent and associated with various health and environmental effects. Even the safest of this class of chemical -- the very short-chain telomers and polymers-- is associated with some level of concern. Safer, non-fluorinated alternatives in this area are needed.
b. Less persistent, less toxic preservatives - Preservatives for cleaning products and other applications typically use a mechanism of action that, while preventing degradation of the product, also persist in the environment and often carry moderate to high toxicity. Safer alternatives in this area are needed.
c. Safer "solubilizers" - In order to make surfactants for liquid detergents pourable, small amines are added to surfactant blends. These small amines are associated with a range of health effects. Alternatives that allow liquid detergent compaction, but are not associated with adverse health effects are needed.
d. Less toxic flame retardants - Alternative flame retardants to problematic flame retardants are needed. Areas for innovation include flexible and rigid polyurethane foam, high impact polystyrene, and expandable polystyrene for which there are limited flame retardant options.
e. Chemistry in agriculture - Reduction or elimination of pesticides, minimization of fertilizer and nutrient runoff, productive use of agricultural wastes.
f. Substitution of rare earth metals.

Water (Funding Opportunity Number: EPA-G2015-P3-Q4 – Water)

1. Drinking Water

   A multitude of drinking water challenges may be addressed by technology solutions. Priority considerations for new technologies include cost, ease of use, and environmental impacts including resource and energy use. Areas of interest include but **are not limited to** research on:

   a. Drinking water delivery systems or treatment technologies, especially for small, very small or remote systems. Systems or technologies should address health risks posed by contaminants and pathogens and should be easy to operate and maintain and have minimal energy use. Systems could be community-level or point-of-use/point-of-entry (POU/POE) treatment technologies.
   b. Increasing disaster resilience by preventing pollutant release into drinking water sources during flood events.

2. Water Quality

Research on the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water, including freshwater aquatic ecosystems, is vital for ensuring the long-term sustainability of this resource.

3. Wastewater and Water Reuse

   A multitude of wastewater, stormwater and water reuse challenges may be addressed by technology solutions. Areas of interest include but **are not limited to**:

   a. Research related to the capture and innovative use of rainwater or stormwater run-off. Treatment technologies to capture energy from wastewater and/or wastewater solids, or to recover heat or utilize other green energy sources at wastewater treatment plants.
   b. Energy-efficient technologies for capturing, purifying and concentrating nutrient compounds or other water contaminants for recovery or reuse from wastewater.

Urban Green Water Infrastructure (Funding Opportunity Number: EPA-G2015-P3-Q5 – Urban Green Water Infrastructure)

This area is listed as a separate research area due to EPA's membership in the Urban Waters Federal Partnership. Information on EPA's Urban Waters program is available at http://www.epa.gov/urbanwaters/. Information about the Urban Waters Federal Partnership can be found at: http://urbanwaters.gov/.

Urban green water infrastructure uses soils and vegetation, or practices that mimic the hydrologic functions of soils and vegetation, to manage stormwater runoff while also improving air quality, reducing urban temperatures, mitigating climate impacts and supporting more livable and sustainable communities. Areas of interest include but **are not limited to** research on:

a. Quantification of costs and benefits associated with urban water infrastructure projects in improving urban waters and providing additional co-benefits such as environmental and social benefits.
b. The development and evaluation of code policies and ordinances for communities that would promote urban green water infrastructure and allow more holistic uses of water by matching intended uses with the quality of the water provided.
c. Systems to reduce stormwater runoff and remove pollutants from stormwater at existing homes and buildings, including systems that promote stormwater reuse.

d. The ability of green infrastructure to meet multiple water resource objectives, including urban stormwater management, reduction in potable water demand, and augmentation of urban water supply (i.e. through rainwater harvesting, groundwater recharge).
e. "Climate-ready" water infrastructure that integrates physical resilience to changing hydrologic regimes, protects human health and the environment and provides community amenities.

Clean Cookstoves (Funding Opportunity Number: EPA-G2015-P3-Q6 – Clean Cookstoves)
This area is listed as a separate research area due to EPA's pledge toward the goals of the Global Alliance for Clean Cookstoves. Information on EPA's Cookstoves efforts is available at http://www.epa.gov/cookstoves/. Information about the Global Alliance for Clean Cookstoves can be found at: http://www.cleancookstoves.org/.

There is interest in proposals that research the design or development of efficient, clean cookstoves. Since every region has different social and environmental inputs that affect what type of cookstove will work best, it is strongly suggested that teams have an in-country partner to provide the necessary information to most effectively innovate a cookstove fitting for that region that takes into account local fuel, availability of parts for maintenance, what "affordable" means for that region and what cultures and traditions are important for long term acceptance and sustainability of the innovated cookstove. Areas of interest include but **are not limited to** research on:

a. Devices or techniques that provide improved indoor air quality.
b. Alternative fuel sources that are renewable with minimal environmental impact and are presently a waste source.
c. Cookstove devices or techniques that improve cooking efficiency while maintaining desired attributes to that specific community such as cooking time and temperature.
d. Identifying desired attributes for cookstoves or techniques in the U.S. and maximizing attractiveness to potential users.

It is recognized that some proposals may be appropriate for more than one FON/research area, but the applicant should identify a primary FON/research area for application submission purposes. The primary FON/research area is used to determine the appropriate peer review panel.

Please note the following Agency requirements for P3 research proposals:

- All proposals should clearly articulate how the proposed project/design will result in pollution prevention and/or control or describe how the proposed project/design proposes

research within the scope of the statutes described in Section I.C.1. above. (NEPA is a secondary supporting statute for international projects and cannot be the sole supporting statute for a proposed project.)

- Generally, a proposal to this solicitation should address the causes, effects, extent, prevention, reduction, and elimination of air pollution, water pollution, solid/hazardous waste pollution, toxic substances control, or pesticide control. Proposals should not focus on fixing an environmental problem via a well-established method, but instead highlight their innovative research aspects. For example, a proposal to plant some trees in an economically depressed area in order to prevent erosion, or a proposal to start a routine recycling or composting program would not be considered appropriate for the P3 Program. However, the first instance of the application of a pollution-control technique or an innovative application of a previously used method would be considered appropriate for the P3 Program.

- To the extent practicable, research proposals must embody innovation and sustainability. Innovation for the purposes of this RFA is defined as the process of making changes; a new method, custom or device. Innovative research can take the form of wholly new applications or applications that build on existing knowledge and approaches for new uses. Research proposals must include a discussion on how the proposed research is innovative (see Section IV.B.5.a). The concept of sustainability is based on language in the U.S. National Environmental Policy Act of 1969 (NEPA). This definition is reiterated in Executive Order 13514, Federal Leadership in Environment, Energy, and Economic Performance, stating that the goal of sustainability is to, "create and maintain conditions, under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic, and other requirements of present and future generations." Research proposals must include a discussion on how the proposed research will seek sustainable solutions that protect the environment and strengthen our communities (see Section IV.B.5.a). ORD will draw from all of the above-mentioned innovation and sustainability definitions in the review/evaluation process of recommending research proposals (see Sections V.A and V.B).

Review criteria specific to the P3 Program are presented in Sections V.A. and V.B.

F. References

Journals

Mihelcic, J.R., Crittendan, J.C., Small, M.J., Shonnard, D.R., Hokanson, D.R., Zhang, Q. 2003. Sustainability science and engineering: The emergence of a new metadiscipline. *Environmental Science and Technology*, 37, 5314-5324. 4.

Reports

United Nations. 2012. *Rio +20 United Nationals Conference on Sustainable Development Outcome Document.* United Nations. (http://uncsd2012.org/thefuturewewant.html EXIT Disclaimer)

United States Environmental Protection Agency. 2007. *Sustainability Research Strategy.* EPA 600/S 07/001 (http://www.epa.gov/sustainability/pdfs/EPA-12057_SRS_R4-1.pdf (72 pp, 1.38 MB)

Books

Benyus, J. 2002. Biomimicry: Innovation Inspired by Nature. William Morrow Paperbacks. ISBN 978-0060533229.

Braungart, M. & McDonough, W. 2002. Cradle to Cradle. North Point Press. ISBN 978-0865475878.

Lakhtakia, A. & Martín-Palma, R.J. (Eds.) 2013. Engineered Biomimicry. Elsevier. ISBN: 978-0-12-415995-2. http://www.sciencedirect.com/science/book/9780124159952 (E-book)

McDonough, W. & Braungart, M. 2013. The Upcycle: Beyond Sustainability—Designing for Abundance. North Point Press. ISBN 978-086547748

World Commission on Environment and Development. 1987. *Our Common Future.* Oxford: Oxford University Press.

G. Special Requirements

Agency policy and ethical considerations prevent EPA technical staff and managers from providing applicants with information that may create an unfair competitive advantage. Consequently, EPA employees will not review, comment, advise, and/or provide technical assistance to applicants preparing applications in response to EPA RFAs. EPA employees cannot endorse any particular application.

P3 Award projects (both Phase I & II) will not accommodate a Multiple PI application. P3 Award projects should be submitted as a single Lead PI application.

These awards may involve the collection of "Geospatial Information," which includes information that identifies the geographic location and characteristics of natural or constructed features or boundaries on the Earth or applications, tools, and hardware associated with the generation, maintenance, or distribution of such information. This information may be derived

from, among other things, a Geographic Positioning System (GPS), remote sensing, mapping, charting, and surveying technologies, or statistical data.

A P3 award may involve intellectual property. If that is the case, P3 teams are encouraged to ensure explanations about technologies and key components of prototypes are reviewed by their university's technology transfer office prior to presentation at the National Sustainable Design Expo (the Expo). This is to ensure any issues related to patent filings or adjustments to intellectual property strategies, if needed, can be made prior to any public display at the Expo.

This solicitation provides the opportunity for the submission of applications for projects that may involve human subjects research. There are many scientific and ethical considerations that must be addressed in such studies by the study sponsor and research team, including, but not limited to, those related to recruitment, retention, participant compensation, third-party issues, researcher-participant interactions, researcher-community interactions, communications, interventions, and education. All such research must comply with the requirements of 40 CFR Part 26, and any human observational exposure studies must also adhere to the principles set forth in the Scientific and Ethical Approaches for Observational Exposure Studies (SEAOES) (EPA/600/R-08/062) (http://www.epa.gov/nerl/sots/SEAOES_doc20080707.pdf) document. SEAOES, which was published by researchers in EPA and which discusses the principles for the ethical conduct of human research studies, serves as a resource for applicants interested in applying under this solicitation. References to "SEAOES Principles" in this solicitation refers, in general, to the issues of interest in conducting human subjects research studies that maintain the highest scientific and ethical standards and safety during the conduct of these studies. All applications must include a Human Subjects Research Statement (HSRS; described in Section IV.B.5.b) and if the project involves human subjects research, it will be subject to an additional level of review prior to funding decisions being made as described in Sections V.C and V.D of this solicitation.

Groups of two or more eligible applicants may choose to form a consortium and submit a single application for this assistance agreement. The application must identify which organization will be the recipient of the assistance agreement and which organizations(s) will be subawardees of the recipient.

II. AWARD INFORMATION

It is anticipated that a total of approximately $975,000 will be awarded under this announcement for Phase I and Phase II grant awards, depending on the availability of funds, quality of applications received, and other applicable considerations. The EPA anticipates funding approximately 35 grants for Phase I under this RFA. The projected EPA award amount for each Phase I grant is up to $15,000 for its one year duration. Requests for amounts in excess of a total

of $15,000, including direct and indirect costs, will not be considered. The total project period for an application submitted for a Phase I grant may not exceed one year.

Based on the completed Phase I project/design, the Phase II proposal to further develop and demonstrate the sustainability project/design created in Phase I, and the reviews from the reviewers, EPA will select approximately six P3 Award winners from among recipients of Phase I funding, depending on the availability of funds. These P3 Award winners will be eligible to receive additional Phase II funding of up to $75,000 each. Proposals for Phase II grants with total budget requests exceeding $75,000, including direct and indirect costs, will not be considered. The total project period for a Phase II grant may not exceed two years.

The EPA reserves the right to reject all applications and make no awards, or make fewer awards than anticipated, under this RFA. The EPA reserves the right to make additional awards under this announcement, consistent with Agency policy, if additional funding becomes available after the original selections are made. Any additional selections for awards will be made no later than six months after the original selection decisions.

In appropriate circumstances, EPA reserves the right to partially fund proposals/applications by funding discrete portions or phases of proposed projects. If EPA decides to partially fund a proposal/application, it will do so in a manner that does not prejudice any applicants or affect the basis upon which the proposal/application, or portion thereof, was evaluated and selected for award, and therefore maintains the integrity of the competition and selection process.

EPA intends to award only grants under this announcement. Under a *grant*, EPA scientists and engineers are not permitted to be substantially involved in the execution of the research. However, EPA encourages interaction between its own laboratory scientists and grant Principal Investigators after the award of an EPA grant for the sole purpose of exchanging information in research areas of common interest that may add value to their respective research activities. This interaction must be incidental to achieving the goals of the research under a grant. Interaction that is "incidental" does not involve resource commitments

III. ELIGIBILITY INFORMATION

A. Eligible Applicants

Public nonprofit institutions/organizations (limited to degree-granting public institutions of higher education) and private nonprofit institutions/organizations (limited to degree-granting private institutions of higher education) located in the U.S. (includes U.S. territories and possessions) are eligible to apply to be the recipient of a grant to support teams of undergraduate and/or graduate students. Profit-making firms are not eligible to receive assistance agreements from the EPA under this program.

The students on the teams supported by the institution receiving the grant must be enrolled in the college, university, or post-secondary educational institution they will be representing at the time the proposal is submitted. Institutions are allowed to submit more than one application where each application represents a unique design concept and student team. For the purposes of grant administration, the team's faculty advisor will be designated the Principal Investigator throughout the P3 grant award and competition process. In addition to the Principal Investigator, each team selected for award will also be asked to provide contact information for a student lead.

Eligible nonprofit organizations include research institutes, corporations, or foundations that are part of a U.S. institution of higher education. However, nonprofit organizations described in Section 501(c)(4) of the Internal Revenue Code that lobby are not eligible to apply.

Foreign governments, international organizations, and non-governmental international organizations/institutions are not eligible to apply.

National laboratories funded by Federal Agencies (Federally-Funded Research and Development Centers, "FFRDCs") may not apply. FFRDC employees may cooperate or collaborate with eligible applicants within the limits imposed by applicable legislation and regulations. They may participate in planning, conducting, and analyzing the research directed by the applicant, but may not direct projects on behalf of the applicant organization. The institution, organization, or governance receiving the award may provide funds through its assistance agreement from the EPA to an FFRDC for supplies, equipment, and other expenses directly related to the research. However, salaries for permanent FFRDC employees may not be provided through this mechanism.

Federal Agencies may not apply. Federal employees are not eligible to serve in a principal leadership role on an assistance agreement, and may not receive salaries or augment their Agency's appropriations in other ways through awards made under this program.

The applicant institution may enter into an agreement with a Federal Agency to purchase or utilize unique supplies or services unavailable in the private sector. Examples are purchase of satellite data, chemical reference standards, analyses, or use of instrumentation or other facilities not available elsewhere. A written justification for federal involvement must be included in the application. In addition, an appropriate form of assurance that documents the commitment, such as a letter of intent from the Federal Agency involved, should be included.

Potential applicants who are uncertain of their eligibility should contact Ron Josephson in NCER, phone: 703-308-0442, email: josephson.ron@epa.gov.

B. Cost-Sharing

Institutional cost-sharing is not required for Phase I or Phase II.

C. Other

Phase I application packages must substantially comply with the application submission instructions and requirements set forth in Section IV of this announcement or they will be rejected. In addition, where a page limitation is expressed in Section IV with respect to parts of the application, pages in excess of the page limit will not be reviewed. Applications must be submitted through grants.gov or by other authorized alternate means (see Section IV.E. "Submission Instructions for Phase I Applications and Other Submission Requirements" for further information), on or before the solicitation closing date and time in Section IV of this announcement or they will be returned to the sender without further consideration. Also, applications exceeding the funding limits or project period term described herein will be returned without review. Further, applications that fail to demonstrate a public purpose of support or stimulation (e.g., by proposing research which primarily benefits a Federal program or provides a service for a Federal agency) will not be funded since these are not appropriate uses of Federal assistance agreement awards.

Applications deemed ineligible for funding consideration will be notified within fifteen calendar days of the ineligibility determination.

As mentioned above, the competitors for the P3 Awards and the subsequent grant for further development and demonstration (Phase II) will be limited to those selected to receive support as a result of the competition under this RFA (Phase I).

IV. APPLICATION AND SUBMISSION INFORMATION

Additional provisions that apply to this solicitation and/or awards made under this solicitation, including but not limited to those related to confidential business information, contracts and subawards under grants, and proposal assistance and communications, can be found at http://www.epa.gov/ogd/competition/solicitation_provisions.htm
These, and the other provisions that can be found at the website link, are important, and applicants must review them when preparing applications for this solicitation. If you are unable to access these provisions electronically at the website above, please communicate with the EPA contact listed in this solicitation to obtain the provisions.

Formal instructions for submission through Grants.gov follow in Section E.

A. Internet Address to Request Application Package

Use the application package available at Grants.gov (see Section E. "Submission Instructions for Phase I Applications and Other Submission Requirements"). Note: With the exception of the

current and pending support form (available at http://epa.gov/ncer/rfa/forms), all necessary forms are included in the electronic application package.

An email will be sent by NCER to the Principal Investigator (PI) and the Administrative Contact (see below) to acknowledge receipt of the application and transmit other important information. The email will be sent from receipt.application@epa.gov; emails to this address will not be accepted. *If you do not receive an email acknowledgment within 30 days of the submission closing date, immediately inform the Eligibility Contact shown in this solicitation. Failure to do so may result in your application not being reviewed.* See Section E. "Submission Instructions for Phase I Applications and Other Submission Requirements" for additional information regarding the application receipt acknowledgment.

B. Content and Form of Application Submission

The application is made by submitting the materials described below. **Applications must contain all information requested and be submitted in the formats described.**

1. Standard Form 424

The applicant must complete Standard Form 424. Instructions for completion of the SF424 are included with the form. (However, note that EPA requires that the entire requested dollar amount appear on the SF424, not simply the proposed first year expenses.) The form must contain the signature of an authorized representative of the applying organization.

Applicants are required to provide a "Dun and Bradstreet Data Universal Numbering System" (DUNS) number when applying for federal grants or cooperative agreements. Organizations may receive a DUNS number by calling 1-866-705-5711 or by visiting the web site at **http://www.dnb.com**.

Executive Order 12372, "Intergovernmental Review of Federal Programs," does not apply to the Office of Research and Development's research and training programs unless EPA has determined that the activities that will be carried out under the applicants' proposal (a) require an Environmental Impact Statement (EIS), or (b) do not require an EIS but will be newly initiated at a particular site and require unusual measures to limit the possibility of adverse exposure or hazard to the general public, or (c) have a unique geographic focus and are directly relevant to the governmental responsibilities of a State or local government within that geographic area.

If EPA determines that Executive Order 12372 applies to an applicant's proposal, the applicant must follow the procedures in 40 CFR Part 29. The applicant must notify their state's single point of contact (SPOC). To determine whether their state participates in this process, and how to comply, applicants should consult http://www.whitehouse.gov/omb/grants_spoc/. If an applicant

is in a State that does not have a SPOC, or the State has not selected research and development grants for intergovernmental review, the applicant must notify directly affected State, area wide, regional and local entities of its proposal.

EPA will notify the successful applicant(s) if Executive Order 12372 applies to its proposal prior to award.

2. Key Contacts

The applicant must complete the "Key Contacts" form found in the Grants.gov application package. An "Additional Key Contacts" form is also available at http://epa.gov/ncer/rfa/forms. The Key Contacts form should also be completed for major sub-agreements (i.e., primary investigators). Do not include information for consultants or other contractors. Please make certain that all contact information is accurate.

3. Table of Contents

Provide a list of the major subdivisions of the application indicating the page number on which each section begins.

4. Abstract (2 pages)

The abstract is a very important document in the review process. Therefore, it is critical that the abstract accurately and **understandably** describe the research or new design concept being proposed and convey all the essential elements of the proposed project. Abstracts of applications that receive funding will be posted on the NCER web site.

The abstract should include the information described below (a-k). Examples of abstracts for previous P3 grants may be found on the P3 web site (http://www.epa.gov/P3).

a. Funding Opportunity Number(s) and Research Area(s): Enter the full name of the solicitation *(12th Annual P3 Awards: A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet)* and the funding opportunity number and associated research area under which you are submitting your proposal. The funding opportunity numbers and their associated research areas are listed at the beginning of this announcement, in Section I.E. above, and in Section IV.B.9.b below.

Please note: Include the Funding Opportunity Number to which the proposal is being submitted in the upper right side of the "header" of the Abstract page. **Each application should be submitted using a single FON.**

b. Project Title: Use the exact title of your project as it appears in the application. The title must be brief yet represent the major thrust of the project. Because the title will be used by those not familiar with the project, use more commonly understood terminology. Do not use general phrases such as "research on."

c. Principal Investigator (P.I.): This person will serve as the faculty advisor for the P3 student team. List the name of the PI and then the names and affiliations of any co-investigators/advisors who will significantly contribute to the project. Provide a web site URL or an email contact address for each investigator.

d. Student Team. If student investigators are known at the time of the proposal, list them, indicate whether each student is an undergraduate or graduate student, and indicate the expertise they will contribute to the P3 team. If student investigators are not yet known, provide a brief explanation of how and when the P3 student team will be formed and the areas of expertise to be recruited for the team.

e. Institution(s): In the same order as the list of investigators, list the name, city and state of each participating university or other applicant institution. The institution applying for assistance must be clearly identified.

f. Student Represented Departments and Institutions: List the departments and institutions that will be represented by the students participating on the team.

g. Project Period and Location: Show the proposed project beginning and ending dates. Projects will generally begin in August/September 2015. Also provide the performance sites/geographical location(s) where the work will be conducted.

h. Proposed EPA Project Cost: Show the total dollars requested from the EPA, including direct and indirect costs. (This cannot exceed $15,000.)

i. Project Summary: Provide the following three subsections:
   - Objective: Provide a definition of the technical challenge to sustainability, describe how the proposed design approach will address the challenge, and identify the innovative scientific or technical aspects of the proposal.
   - Description: Describe the project/design and how it relates to the three aspects of sustainability: people, prosperity and the planet. Also identify how the P3 Project will provide education about the concepts of sustainability at the university or community level.
   - Results: Identify the expected outputs/outcomes of the project and provide a description of the strategy for measuring results, evaluation and demonstration.

j. Contribution to Pollution Prevention or Control: Provide a brief statement describing how the proposed project/design will further the goals of pollution prevention and/or control.

k. Supplemental Keywords: Without duplicating terms already used in the text of the abstract, list keywords to assist database searchers in finding your research. A list of suggested keywords may be found in the P3 Abstract format provided at: http://epa.gov/ncer/rfa/forms.

5. Research Plan, Human Subjects Research Statement and References

a. Research Plan (12 pages)

Note: Please review the Evaluation Criteria presented in Section V.A. to ensure that your proposal addresses all of the criteria against which it will be evaluated by the external and internal reviewers.

This plan must not exceed twelve (12) consecutively numbered (bottom center) 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins. While these guidelines establish the minimum type size requirements, applicants are advised that readability is of paramount importance and should take precedence in selection of an appropriate font for use in the plan.

Divide your research plan into the following sections and label accordingly.

Section 1: Proposed Research

(a) Challenge Definition

- Identify the technical challenge to achieving sustainability the team will research.
- Identify the research project's innovative aspects by describing how it shifts current research or engineering paradigms by using innovative theoretical concepts, approaches or methodologies, instrumentation or interventions applicable to one or more fields of research. Where appropriate, put the research in the context of current approaches (e.g., provide a literature review).

(b) Research Description

- Describe the research and its goals and objectives.
- Explain the scientific/technical soundness and trade-offs involved in the proposed design.
- Explain the plan for engaging intended end users.
- State how the research relates to pollution prevention/control or link it to one of EPA's authorizing statutes provided in Section I.C. (*Put in link to Section 1.C. of solicitation.*)
- If appropriate, identify any existing or potential partnerships*.

(c) Results (outputs/outcomes), Evaluation and Demonstration

- Describe the expected outputs and the potential outcomes to society, the economy and the environment (See Section I. D.; link).
- Describe how progress toward achieving the expected outputs and outcomes will be tracked and measured.

Section 2: Relationship of Challenge to Sustainability (People, Prosperity and the Planet)

- Describe how your project embodies the principles of sustainability and seeks sustainable solutions that protect the environment and strengthen our communities. The sustainability primer (http://www.epa.gov/ncer/rfa/forms/sustainability_primer_v9.pdf) provides examples of research activities that promote and incorporate sustainability principles.
- Describe how the proposed environmental and economic outcomes could benefit the intended users and/or society more generally.
- Describe the potential for implementation, adoption, concept transferability, and long-term viability of the research.

Section 3: Project Management

- Provide schedules for key milestones and project tasks, including partner activities as appropriate.
- Provide the areas of expertise/experience to be represented on the student team.
- Detail how project objectives will be successfully achieved within the grant period and describe the approach, procedures and controls for ensuring that grant funds will be expended in a timely and efficient manner.

Section 4: Educational and Interdisciplinary Aspects of Research

- Identify the educational benefits of the research. (Will it be used to teach sustainability principles, promote sustainability practices in a community, and teach team members how to apply sustainability principles or all of the above?)
- Clearly identify the planned mix of disciplines to be represented on the team.

* Partnerships are strongly encouraged and will be particularly important for the demonstration strategies. While formal partnerships need not be established prior to submitting the proposal, indicate any and all anticipated partnerships including the type of partner (educational institution, industry and/or NGOs). Formal letters of understanding or commitment from any and all partners should be submitted in support of the application, when available and appropriate and will be considered letters of intent/support as described in Section IV.B.9.a. below.

b. **EPA Human Subjects Research Statement (HSRS)** (6 pages)

All human research studies conducted or supported by EPA are governed by EPA regulations at 40 CFR Part 26 (Protection of Human Subjects; http://www.gpo.gov/fdsys/pkg/CFR-2010-title40-vol1/xml/CFR-2010-title40-vol1-part26.xml). This includes the Basic Federal Policy for the Protection of Human Research Subjects, also known as the Common Rule, at subpart A and additional prohibitions and special protections for pregnant women, nursing women, and children in research conducted or supported by EPA at subparts B, C, and D. Depending upon the type of research being conducted, additional subparts of 40 CFR Part 26 may be relevant.

Procedures for the review and oversight of human research subject to 40 CFR Part 26 are also provided in EPA Order 1000.17 Change A1 (http://www.epa.gov/phre/pdf/epa-order-1000_17-a1.pdf). These include review of projects for EPA-supported human research by the EPA Human Subjects Research Review Official (HSRRO). EPA Order 1000.17 Change A1 requires preliminary approval by the HSRRO of all proposed EPA-supported human research before the agreement can be entered into. Additional requirements must be met and final approval received from the HSRRO before the research can begin. When reviewing human observational exposure studies, EPA Order 1000.17 Change A1 requires the HSRRO to apply the principles described in the SEAOES document (http://www.epa.gov/nerl/sots/SEAOES_doc20080707.pdf) and grant approval only to studies that adhere to those principles.

All applications submitted under this solicitation must include a HSRS as described below. Please use the definitions below to determine whether the proposed research involves human subjects, and then prepare a HSRS as explained below in the "HSRS Requirements" section.

Definitions (from 40 CFR Part 26 Subparts A, B, and C) to determine the involvement of human subjects in proposed research:

- "Human subject" means a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information.
- "Intervention" includes both physical procedures by which data are gathered and manipulations of the subject or the subject's environment that are performed for research purposes.
- "Interaction" includes communication or interpersonal contact between investigator and subject.
- "Private information" includes information about behavior that occurs in a context in which an individual can reasonably expect that no observation or recording is taking place, and information which has been provided for specific purposes by an individual and which the individual can reasonably expect will not be made public (for example, a medical record).
- "Individually identifiable" means the identity of the subject is or may readily be ascertained by the investigator or associated with the information.
- "Research involving the intentional exposure of a human subject" means a study of a substance in which the exposure to the substance experienced by a human subject participating in the study would not have occurred but for the human subject's

participation in the study. Research involving intentional human exposures have additional requirements based upon the 2004 NRC Report "Intentional Human Dosing Studies for EPA Regulatory Purposes" (http://www.nap.edu/catalog.php?record_id=10927) See Sections 9 - 15.

- "Observational research" means any human research that does not meet the definition of research involving intentional exposure of a human subject.

Human Subjects Research Statement (HSRS) Requirements

If the proposed research **does not** involve human subjects as defined above, provide the following statement in your application package as your HSRS: "The proposed research does not involve human subjects." Applicants should provide a clear justification about how the proposed research does not meet the definition (for example, all samples come from deceased individuals OR samples are purchased from a commercial source and provided without identifiers, etc.).

If the proposed research **does** involve human subjects, then include in your application package a HSRS that addresses each applicable section listed below, referencing the specific location of the information in the Research Plan, providing the information in the HSRS, or explaining why the section does not apply to the proposed research. (Not all will apply.) Please use the definitions provided above to ensure consistency in the interpretation of terminology. Do not exceed **six** consecutively numbered, 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

NOTE: Before EPA approves any research involving human subjects, the requirements of the regulations at 40 CFR Part 26 must be met. Also, before EPA approves human observational exposure research, EPA will examine it to ensure consistency with the SEAOES Principles. The federal Office for Human Research Protections requires that federally funded human subjects research only be conducted at facilities covered by a Federalwide Assurance (FWA). An FWA is a document that designates the Institutional Review Board that will review and oversee the research, specifies the ethical principles under which the research will be conducted, and names the individuals who will be responsible for the proper conduct of the research. The factors below are not intended to be exhaustive of all those needed for the HSRRO to provide the final approval necessary for research to be conducted, but provide a basis upon which the HSRRO may grant the conditional approval necessary for the funding process to begin.

Items 1 – 8 must be completed for all studies involving human subjects. (For studies involving intentional exposures, also complete Items 9 -15.)

(1) Human subjects involvement, characteristics, and design.

(a) Describe and justify the proposed involvement of human subjects in the work being proposed.

(b) Describe the characteristics of the subject population, including their anticipated number, age range, and health status if relevant.

(c) Describe and justify the sampling plan, as well as the recruitment and retention strategies and the criteria for inclusion or exclusion of any subpopulations.

(d) Describe the research material that will be obtained from or about living individuals in the form of data, specimens, or records.

(e) List any collaborating sites where human subjects research will be performed, and describe the role of those sites and collaborating investigators in the research.

(f) Describe and justify any compensation being provided to subjects for their participation in the research.

(g) Describe the plan for communicating individual and/or aggregate research results to participants, if relevant.

(2) Potential risks to subjects.

(a) Describe the potential risks to human subjects (physical, psychological, financial, legal, or other) and assess their likelihood and seriousness to the human subjects.

(3) Adequacy of protection against risks.

(a) Describe planned procedures for protecting against or minimizing potential risks and assess their likely effectiveness.

(b) Describe planned procedures for the process of obtaining and maintaining informed consent. Include a description of the circumstances under which consent will be sought and obtained, who will seek it, the nature of the information to be provided to prospective subjects, and the method of documenting consent.

(c) If waiver of some or all of the elements of informed consent or of documentation of consent will be sought, provide justification for the waiver.

(d) Where appropriate, discuss the plans for ensuring necessary medical or professional intervention in the event of adverse effects to subjects.

(4) Protection of vulnerable groups, see 40 CFR Part 26, subparts C & D.

(a) Explain the rationale for the involvement of any vulnerable populations, including pregnant women, fetuses, and children if relevant.

(b) Describe the additional protections in place, if any, for protecting vulnerable populations included in the research.

(c) If children are included in the research, describe the process for obtaining parental permission and child assent if relevant.

(5) Protection of privacy and confidentiality.

(a) Describe how data, specimens, and/or records will be collected, managed, and protected, including at collaborating sites, if any, as well as at the primary site.

(b) Indicate who will have access to individually identifiable private information about human subjects.

(c) Describe any additional procedures for the protection of privacy and confidentiality of the human research subjects.

(d) Discuss any mandatory reporting requirements with the potential to come into play during the conduct of the research and describe how these will be communicated to participants if relevant.

(e) Discuss the potential of the research to obtain information about third parties and describe how this will be handled if it occurs.

(6) Relationship between researcher and community.

(a) If the research will take place in a community setting, describe the procedures in place for defining the community, obtaining its involvement in the research, and establishing and maintaining trust.

(7) Potential benefits of the research to the participants and others.

(a) Discuss the potential benefits of the research to the research participants and others.

(b) Discuss why the risks to subjects are reasonable in relation to the anticipated benefits.

(8) Importance of the knowledge to be gained.

(a) Discuss the importance of the knowledge to be gained as a result of the proposed research.

(b) Discuss why the risks to subjects are reasonable in relation to the importance of the knowledge that reasonably may be expected to result.

The following sections are to be completed for projects involving the intentional exposure of a human subject. Note that intentional exposure of children, pregnant women or nursing women is prohibited, according to 40 CFR Part 26, subpart B. If your proposal does not involve intentional exposures of humans, you may enter "non-applicable" for Sections 9 – 15.

(9) Projects involving intentional exposure of human subjects should only be considered if they have the potential of providing a clear health or environmental benefit or if acquisition of such information is not obtainable by any other means. In no case should the exposure cause lasting harm to study participants.

(a) Provide justification, in advance of being conducted, that the study could contribute to addressing an important scientific question that cannot be resolved on the basis of animal data or other study;

(b) Discuss how the study is designed in accordance with current scientific standards and practices to i) address the research question, ii) include representative study populations for the endpoint in question, and iii) meet requirements for adequate statistical power;

(c) Discuss how the study will be conducted in accordance with recognized good clinical practices, including appropriate monitoring for safety; and

(d) Confirm that the grantee will report comprehensively to their EPA Project Officer, providing the full study protocol, detailed analyses of the data and report any adverse events promptly.

(10) Value of Studies that Seek to Provide a Potential Public Health or Environmental Benefit

(a) Discuss the constitution of the IRB and their ability to consider whether a study has the potential of providing a clear health or environmental benefit to the community.

(11) Criteria for Scientific and Ethical Acceptability

(a) Confirm that the following necessary conditions for scientifically and ethically acceptable intentional human dosing studies have been satisfied:
(i) prior animal studies and, if available, human observational studies;

(ii) a demonstrated need for the knowledge to be obtained from intentional human dosing studies;
(iii) justification and documentation of a research design and statistical analysis that are adequate to address an important scientific question, including adequate power to detect appropriate effects;
(iv) an acceptable balance of risks and benefits, and minimization of risks to participants;
(v) equitable selection of participants;
(vi) free and informed consent of participants; and
(vii) review by an appropriately constituted IRB.

(12) Participant Selection Criteria

(a) Discuss how the project design ensures that the following conditions are met in selecting research participants: (i) Selection should be equitable; (ii) Selection of persons from vulnerable populations must be convincingly justified in the protocol, which also must justify the measures to be taken to protect those participants; (iii) Selection of individuals with conditions that put them at increased risk for adverse effects in such studies must be convincingly justified in the protocol, which also must justify the measures that investigators will use to decrease the risks to those participants to an acceptable level.

(13) Payment for Participation

(a) Discuss how IRBs, all relevant review boards, investigators, and research sponsors should ensure that payments to participants in intentional human dosing studies are neither so high as to constitute undue inducement nor so low as to be attractive only to individuals who are socio-economically disadvantaged. Proposed levels of and purposes for remuneration (e.g., time, inconvenience, and risk) should be scrutinized in light of the principles of justice and respect for persons.

(14) Best Practices in Informed Consent

(a) Discuss the proposed process regarding informed consent in intentional human dosing studies and how it compares to best practices.

(15) Compensation for Research-Related Injuries

(a) Discuss how you ensure that participants receive needed medical care for injuries incurred in the study, without cost to the participants.

c. References

References cited are in addition to other page limits (e.g. research plan, human subjects research statement).

6. Budget and Budget Justification

a. Budget

Prepare a master budget table using "SF-424A Budget Information for Non-Construction Programs" (aka SF-424A), available in the Grants.gov electronic application package and also at http://www.epa.gov/ncer/rfa/forms/. **Only complete "Section B-Budget Categories".** Provide the object class budget category (a. - k.) amounts under the "Grant Program, Function or Activity" heading. Each column reflects a separate budget year. Since P3 Phase I grants are one-year grants you will only need to fill in the Year 1 column which will automatically be copied into the total budget column (Column 5).

If a subaward is included in the application, provide a separate SF-424A and budget justification for the subaward. Include the total amount for the subaward under "Other" in the master SF-424A.

Applicants may not use subagreements to transfer or delegate their responsibility for successful completion of their EPA assistance agreement. Therefore, EPA expects that subawards or subcontracts should not constitute more than 40% of the total direct cost of the total project budget. If a subaward/subcontract constitutes more than 40% of the total direct cost, additional justification may be required before award, discussing the need for the subaward/subcontract to accomplish the objectives of the research project. Please refer to http://www.epa.gov/ogd/competition/solicitation_provisions.htm#Contracts_subawards if your organization intends to identify specific contractors, including consultants, and subawardees in your proposal.

Please note that institutional cost-sharing is not required. However, if voluntary cost-sharing is proposed, a brief statement concerning cost-sharing should be added to the budget justification.

The budget must include travel expenses for the P3 team, or representatives of the P3 team, to participate in the National Sustainable Design Expo. For budget planning purposes, assume the Expo will be held in the spring of 2016 in Washington, DC.

b. Budget Justification *[2 pages in addition to the Section IV.B.5. page limitations, not including additions under No. (7) below to support subawards]*

Describe the basis for calculating the travel, equipment, supplies, contractual support, and other costs identified in the SF-424A. The budget justification should not exceed two consecutively

numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

Budget information should be supported at the level of detail described below:

(1) Personnel: Personnel costs are **not** eligible under this solicitation.

(2) Fringe Benefits: Fringe benefits are **not** eligible under this solicitation.

(3) Travel: Be certain to include travel costs for an estimated number of P3 team members to participate in the National Sustainable Design Expo featuring the EPA's P3 Award. For budget purposes, assume the Expo will be held in Washington, D.C. in the spring of 2016. Specify the estimated number of trips, purpose of each trip, number of travelers per trip, destinations, and other costs for each type of travel. Explain the need for any travel, paying particular attention to travel outside the United States.
Below is a sample computation for Travel:

Purpose of Travel	**Location**	**Item**	**Computation**	**Cost**
EPA P3 Expo	DC	Lodging	4 people x $100 per night x 2 nights	$800
		Airfare	4 people x 500 round trip	$2,000
		Per Diem	4 people x $50 per day x 2 days	$400
Total Travel				**$3,200**

(4) Equipment: Identify all tangible, non-expendable personal property to be purchased that has an estimated cost of $5,000 or more per unit and a useful life of more than one year. Details such as the type of equipment, cost, and a brief narrative on the intended use of the equipment for project objectives are required. Each item of equipment must be identified with the corresponding cost. General-purpose equipment (office equipment, etc.) must be justified as to how it will be used on the project. (Property items with a unit cost of less than $5,000 are considered supplies.)

(5) Supplies: "Supplies" means tangible property other than "equipment." Identify supplies to be used under the project. This may include: software, office supplies, and laboratory supplies such as reagents, chemicals and glassware. Specifically identify computers to be purchased or upgraded.

(6) Contractual: Specify the amount you anticipate expending for services/analyses or consultants and specify the purpose of the contracts and estimated cost. **Any procurement of services from individual consultants or commercial firms (including space for workshops) must comply with the competitive procurement requirements of 40 CFR**

Part 30.40-30.48. Please see http://www.epa.gov/ogd/competition/solicitation_provisions.htm#Contracts_subawards for more details.

Examples of Contractual costs include:

i. Consultants – Consultants are individuals with specialized skills who are paid at a daily or hourly rate. EPA's participation in the salary rate (excluding overhead) paid to individual consultants retained by recipients or by a recipient's contractors or subcontractors is limited to the maximum daily rate for a Level IV of the Executive Schedule (formerly GS-18), to be adjusted annually.

ii. Equipment Rental – When there is a need to rent equipment for use on the project, provide information on the type of equipment to be rented, the purpose or use on the project, the length of time needed and the rental rate. Renting or leasing of equipment will require a lease vs. purchase cost analysis prior to approval.

iii. Facility Rental – When it is necessary to rent office or other facilities spaces for project implementation, and the space(s) are located off-site from the organization's main facility in space not owned by the applicant organization, the cost of the rent may be charged against the award as a contractual expense if the space is used specifically for the project. The budget justifications should provide details on the monthly rental charge and if the rent is pro-rated to the project.

iv. Service or Maintenance Contracts – Costs should be in direct correlation to the use of the equipment for the project (i.e., if a particular machine is used 50% of the time for the project, the project should only be charged 50% of the service/maintenance costs). Provide details of the type of equipment and the amount of the service contract to be paid from EPA funds.

v. Speaker/Trainer Fees – Information on speakers should include the fee and a description of the services they are providing.

(7) Other: List each item in sufficient detail for the EPA to determine the reasonableness of its cost relative to the research to be undertaken. "Other" items may include publication costs, long distance telephone charges, and photocopying costs. Note that subawards, such as those with other universities for members of the research team, are included in this category. Subawards must have a separate SF-424A and budget justification, not to exceed one additional page each. **Subawards may not be used to acquire services from consultants or commercial firms. Please see http://www.epa.gov/ogd/competition/solicitation_provisions.htm#Contracts_subawards for more details.**

(8) Indirect Costs: Indirect costs are those incurred by the applicant for a common or joint purpose that benefit more than one cost objective or project, and are not readily assignable to specific cost objectives or projects as a direct cost. In order for indirect costs to be allowable, the applicant must have a negotiated indirect cost rate (e.g., fixed, predetermined, final or provisional), or must have submitted a proposal to their cognizant agency. If indirect costs are included in the budget, identify the cognizant agency and the approved indirect rate. If your organization

does not have a cognizant agency, please note that in the budget justification and provide a brief explanation for how you calculated your indirect cost rate.

7. Resumes

Provide resumes for each investigator and student team member. You may include resumes from staff of subawardees such as universities. Do not include resumes of consultants or other contractors. The resume for each individual must not exceed two consecutively numbered (bottom center), 8.5x11-inch pages of single-spaced, standard 12-point type with 1-inch margins.

8. Current and Pending Support

Complete a current and pending support form (provided at http://epa.gov/ncer/rfa/forms) for each investigator and important co-worker. Do not include current and pending support for consultants or other contractors. Include all current and pending research regardless of source.

Note to all prospective applicants requiring multiple Current and Pending Support Form pages: Due to a limitation in Adobe Acrobat's forms functionality, additional pages cannot be directly inserted into the original PDF form and preserve the form data on the subsequent pages. Multiple page form submissions can be created in Acrobat 8 and later using the "PDF Package" option in the "Create PDF from Multiple Files" function. If you have an earlier version of Adobe Standard or Professional, applicants will need to convert each PDF page of the form to an EPS (Encapsulated Post Script) file before creating the PDF for submission. The following steps will allow applicants with earlier versions of Adobe Standard or Professional to create a PDF package:

1. Populate the first page of the PDF, and save it as a EPS (Encapsulated Post Script) file.
2. Reopen the form, and populate it with the data for page 2. Save this page as a different EPS file. Repeat for as many pages as necessary.
3. Use Acrobat Distiller to convert the EPS files back to PDF.
4. Open Acrobat Professional, and combine the individual pages into a combined PDF file.

9. Guidelines, Limitations, and Additional Requirements

a. Letters of Intent/Letters of Support

Letters of intent to provide resources for the proposed research or to document intended interactions are limited to one brief paragraph committing the availability of a resource (e.g., use of a person's time or equipment) or intended interaction (e.g., sharing of data, as-needed consultation) that is described in the Research Plan. Letters of intent are to be included as an addition to the budget justification documents. EPA employees are not permitted to provide letters of intent for any application.

Letters of support do not commit a resource vital to the success of the proposal. A letter of support is written by businesses, organizations, or community members stating their support of the applicant's proposed project. EPA employees are not permitted to provide letters of support for any application.

Note: Letters of intent or support must be part of the application; letters submitted separately will not be accepted. Any letter of intent or support that exceeds one brief paragraph (excluding letterhead and salutations), is considered part of the Research Plan and is included in the 12-page Research Plan limit. Any transactions between the successful applicant and parties providing letters of intent or support financed with EPA grant funds are subject to the contract and subaward requirements described here http://www.epa.gov/ogd/competition/solicitation_provisions.htm#Contracts_subawards.

b. Funding Opportunity Number (FON) and Research Areas

At various places in the application, applicants are asked to identify the FON. Applicants must select the FON corresponding to their proposed research topic area. It is the responsibility of the applicant to identify the proper FON based on the nature of the proposed research. Failure to do so could result in an inappropriate peer review assignment. If your research seems to fit under more than one FON, choose the most appropriate one. **Each application must be submitted using a single FON.**

The Funding Opportunity Numbers and associated research areas for this RFA are listed below:

12th Annual P3 Awards: A National Student Design Competition for Sustainability Focusing on People, Prosperity and the Planet

- EPA-G2015-P3-Q1 – Energy
- EPA-G2015-P3-Q2 – Built Environment
- EPA-G2015-P3-Q3 – Materials and Chemicals
- EPA-G2015-P3-Q4 – Water
- EPA-G2015-P3-Q5 – Urban Green Water Infrastructure
- EPA-G2015-P3-Q6 – Clean Cookstoves

Additional detail for each FON is provided above in Section I.E.

c. Confidentiality

By submitting an application in response to this solicitation, the applicant grants the EPA permission to make limited disclosures of the application to technical reviewers both within and outside the Agency for the express purpose of assisting the Agency with evaluating the application. Information from a pending or unsuccessful application will be kept confidential to the fullest extent allowed under law; information from a successful application may be publicly disclosed to the extent permitted by law.

C. Submission Dates and Times

Applications **must be transferred to Grants.gov no later than 11:59:59 pm Eastern Time** on the solicitation closing date. Applications transferred after the closing date and time will be returned to the sender without further consideration. EPA will not accept any changes to applications after the closing date.

It should be noted that this schedule may be changed without prior notification because of factors not anticipated at the time of announcement. In the case of a change in the solicitation closing date, a new date will be posted on the NCER web site (http://epa.gov/ncer/rfa/) and a modification posted on **www.grants.gov.**

Solicitation Closing Date: December 16, 2014, 11:59:59 pm Eastern Time (applications ***must*** be submitted to Grants.gov by this time, see Section IV.E "Submission Instructions and Other Submission Requirements" for further information).

NOTE: Customarily, applicants are notified about evaluation decisions within six months of the solicitation closing date. Awards are generally made 9-12 months after the solicitation closing date.

D. Funding Restrictions

The funding mechanism for all awards issued under the P3 solicitation will consist of assistance agreements from the EPA. All award decisions are subject to the availability of funds. In accordance with the Federal Grant and Cooperative Agreement Act, 31 U.S.C. 6301 et seq., the primary purpose of an assistance agreement is to accomplish a public purpose of support or stimulation authorized by federal statute, rather than acquisition for the direct benefit or use of the Agency. In issuing a grant, the EPA anticipates that there will be no substantial EPA involvement in the design, implementation, or conduct of the research. However, the EPA will monitor research progress through annual reports provided by grantees and other contacts, including site visits, with the Principal Investigator(s).

If you wish to submit applications for more than one EPA funding opportunity you must ensure that the research proposed in each application is significantly different from any other that has been submitted to the EPA or from any other financial assistance you are currently receiving from the EPA or other federal government agency.

Collaborative applications involving more than one institution must be submitted as a single administrative package from one of the institutions involved.

Each proposed project must be able to be completed within the project period and with the initial award of funds. Applicants should request the entire amount of money needed to complete the

project. Recipients should not anticipate additional funding beyond the initial award of funds for a specific project.

E. Submission Instructions for Phase I Applications and Other Submission Requirements

Please read this entire section before attempting an electronic submission through Grants.gov.

If you do not have the technical capability to utilize the Grants.gov application submission process for this solicitation, send a webmail message to http://www.epa.gov/ncer/contact_us.html at least 15 calendar days before the submission deadline to assure timely receipt of alternate submission instructions. In your message provide the funding opportunity number and title of the program, specify that you are requesting alternate submission instructions, and provide a telephone number, fax number, and an email address, if available. Alternate instructions will be emailed whenever possible. Any applications submitted through alternate submission methods must comply with all the provisions of this RFA, including Section IV, and be received by the solicitation closing date identified above.

Note: Grants.gov submission instructions are updated on an as-needed basis. Please provide your Authorized Organizational Representative (AOR) with a copy of the following instructions to avoid submission delays that may occur from the use of outdated instructions.

1. Preparing for Submission. The electronic submission of your application must be made by an official representative of your institution who is registered with Grants.gov and is authorized to sign applications for Federal assistance. For more information on the registration requirements that must be completed in order to submit an application through grants.gov, go to http://www.grants.gov and click on "Applicants" on the top of the page and then go to the "Get Registered" link on the page. If your organization is not currently registered with Grants.gov, please encourage your office to designate an Authorized Organization Representative (AOR) and ask that individual to begin the registration process as soon as possible. Please note that the registration process also requires that your organization have a DUNS number and a current registration with the System for Award Management (SAM) and the process of obtaining both could take a month or more. Applicants must ensure that all registration requirements are met in order to apply for this opportunity through grants.gov and should ensure that all such requirements have been met well in advance of the submission deadline. Registration on grants.gov, SAM.gov, and DUNS number assignment is FREE.

To begin the application process under this grant announcement, go to http://www.grants.gov and click on "Applicants" on the top of the page and then "Apply for Grants" from the dropdown menu and then follow the instructions accordingly. Please note: To apply through grants.gov, you must use Adobe Reader software and download the compatible

Adobe Reader version. For more information about Adobe Reader, to verify compatibility, or to download the free software, please visit http://www.grants.gov/web/grants/support/technical-support/software/adobe-reader-compatibility.html

You may also be able to access the application package for this announcement by searching for the opportunity on http://www.grants.gov. Go to http://www.grants.gov and then click on "Search Grants" at the top of the page and enter the Funding Opportunity Number, EPA-G2015-P3-XX, or the CFDA number that applies to the announcement (CFDA 66.516), in the appropriate field and click the Search button. Alternatively, you may be able to access the application package by clicking on the Application Package button at the top right of the synopsis page for the announcement on http://www.grants.gov. To find the synopsis page, go to http://www.grants.gov and click "Browse Agencies" in the middle of the page and then go to "Environmental Protection Agency" to find the EPA funding opportunities.

2. Acknowledgement of Receipt. The complete application must be transferred to Grants.gov no later than 11:59:59 pm Eastern Time on the solicitation closing date (see "Submission Dates and Times"). Applications submitted through grants.gov will be time and date stamped electronically. Grants.gov provides an on-screen notification of successful initial transfer as well as an email notification of successful transfer from Grants.gov to EPA. While it is advisable to retain copies of these Grants.gov acknowledgements to document submission, *the only official documentation that the application has been received by NCER is the email acknowledgement sent by NCER to the PI and the Administrative Contact.* This email will be sent from receipt.application@epa.gov; emails to this address will not be accepted. ***If an email acknowledgment from*** receipt.application@epa.gov ***has not been received within 30 days of the solicitation closing date, immediately inform the Eligibility Contact shown in this solicitation. Failure to do so may result in your application not being reviewed.***

3. Application Package Preparation. Your organization's AOR must submit your complete application package electronically to EPA through Grants.gov (http://www.grants.gov) no later than December 16, 2014, 11:59:59 pm Eastern Time. Please allow for enough time to successfully submit your application process and allow for unexpected errors that may require you to resubmit.

Please submit all of the application materials described below using the grants.gov application package that you downloaded using the instructions above. For additional instructions on completing and submitting the electronic application package, click on the "Show Instructions" tab that is accessible within the application package itself.

The application package consists of the following mandatory documents.

(a) Application for Federal Assistance (SF 424): Complete the form except for the

"competition ID" field.

(b) EPA Key Contacts Form 5700-54: Complete the form. If additional pages are needed, see (d) below.

(c) SF-424A Budget Information for Non-Construction Programs: Only complete "Section B-Budget Categories". Provide the object class budget category (a. - k.) amounts for each budget year under the "Grant Program, Function or Activity" heading. Each column reflects a separate budget year.

(d) Project Narrative Attachment Form (click on "Add Mandatory Project Narrative"): Attach a single electronic PDF file labeled "Application" that contains the items described in Section IV.B.3. through IV.B.9.a (Table of Contents, Abstract, Research Plan, Human Subjects Research Statement, References, Budget Justification, Resumes, Current and Pending Support, and Letters of Intent/Support) of this solicitation. *In order to maintain format integrity, this file must be submitted in Adobe Acrobat PDF.* Please review the PDF file for conversion errors prior to including it in the electronic application package; requests to rectify conversion errors will not be accepted if made after the solicitation closing date and time. If Key Contacts Continuation pages (see http://epa.gov/ncer/rfa/forms) are needed, place them before the Table of Contents (Section IV.B.3.).

Once the application package has been completed, the "Submit" button should be enabled. If the "Submit" button is not active, please call Grants.gov for assistance at 1-800-518-4726. Applicants who are outside the U.S. at the time of submittal and are not able to access the toll-free number may reach a Grants.gov representative by calling 606-545-5035. Investigators should save the completed application package with two different file names before providing it to the AOR to avoid having to re-create the package should submission problems be experienced or a revised application needs to be submitted. Note: Revised applications must be submitted before the solicitation closing date and time.

4. Submitting the application. The application package must be transferred to Grants.gov by an AOR. The AOR should close all other software before attempting to submit the application package. Click the "submit" button of the application package. Your Internet browser will launch and a sign-in page will appear. ***Note: Minor problems are not uncommon with transfers to Grants.gov. It is essential to allow sufficient time to ensure that your application is submitted to Grants.gov BEFORE 11:59:59 pm Eastern Time on the solicitation closing date.*** The Grants.gov support desk operates 24 hours a day, seven days a week, except Federal Holidays.

A successful transfer will end with an on-screen acknowledgement. For documentation

purposes, print or screen capture this acknowledgement. If a submission problem occurs, reboot the computer – turning the power off may be necessary – and re-attempt the submission.

Note: Grants.gov issues a "case number" upon a request for assistance.

5. Transmission Difficulties. If transmission difficulties that result in a late transmission, no transmission, or rejection of the transmitted application are experienced, and following the above instructions do not resolve the problem so that the application is submitted to Grants.Gov by the deadline date and time, follow the guidance below. The Agency will make a decision concerning each late submission on a case-by-case basis as to whether it should be forwarded for peer review. All emails, as described below, are to be sent to peterson.todd@epa.gov with the FON in the subject line.

Please note that if the application you are submitting is greater than 70 MB in size, please call or send an email message to the Electronic Submissions Contact listed for this RFA. The Agency may experience technical difficulty downloading files of this size from Grants.gov. Therefore, it is important that the Agency verify that the file can be downloaded. The Agency will provide alternate submission instructions if the file cannot be downloaded.

(a) If you are experiencing problems resulting in an inability to upload the application to Grants.gov, it is essential to call Grants.gov for assistance at 1-800-518-4726 before the application deadline. Applicants who are outside the U.S. at the time of submittal and are not able to access the toll-free number may reach a Grants.gov representative by calling 606-545-5035. Be *sure* to obtain a case number from Grants.gov.

(b) Unsuccessful transfer of the application package: If a successful transfer of the application cannot be accomplished even with assistance from Grants.gov due to electronic submission issues, send an email message by 11:59:59 pm Eastern Time on the solicitation closing date. The email message must document the problem and include the Grants.gov case number as well as the entire application in PDF format as an attachment.

(c) Grants.gov rejection of the application package: If a notification is received from Grants.gov stating that the application has been rejected for reasons other than late submittal, promptly send an email to Todd Peterson (peterson.todd@epa.gov) with the FON in the subject line within one business day of the closing date of this solicitation. The email should include any materials provided by Grants.gov and attach the entire application in PDF format.

F. Submission Instructions for Phase II Applications

Additional submission instructions for the Phase II competition will be provided to the Phase I awardees in the award terms and conditions.

Those receiving funding via a P3 Phase I grant are encouraged to apply for funding for a Phase II grant. Phase II proposals require many of the same documents as submitted for the Phase I grant. Phase II awards are separate grant awards. The proposal for a P3 Phase II grant, which is a component of the Phase I *Project Report*, will be due in March 2016.

V. APPLICATION REVIEW INFORMATION

A. Review Process for Phase I Applications

1. External Peer Review

All eligible grant applications are reviewed by appropriate external technical peer reviewers based on the criteria and process described below. This review is designed to evaluate each application according to how well it meets the criteria listed below. The individual external peer reviewers include non-EPA scientists, engineers, social scientists, and/or economists who are accomplished in their respective disciplines and proficient in the technical subjects they are reviewing.

Prior to the external technical peer review panel meeting, all reviewers will receive electronic copies of all applications, as well as a full set of abstracts for the applications. Each application will be assigned to a minimum of three primary peer reviewers, one of whom will be assigned the role of Rapporteur. Each reviewer will be assigned up to approximately 10 applications on which to serve as a primary reviewer. During the review period leading up to the panel meeting, primary reviewers will read the full set of abstracts and entire application package for each application they are assigned. They will also prepare a written individual evaluation for each assigned application that addresses the peer review criteria described below and rate the application with a score of highly recommend, recommend, or not recommend.

At the beginning of the panel meeting, each primary reviewer will report their ratings for the applications they reviewed. Those applications receiving at least two ratings of *Recommend* or one rating of *Highly Recommend* from among the primary reviewers will then be further discussed by the panel in terms of the peer review criteria below. In addition, if there is one *Recommend* rating among the primary reviewers of an application, the primary reviewer, whose initial rating is the *Recommend*, may request discussion of the application by the peer review panel. All other applications will be declined for further consideration.

After the discussion of an application by the panel, the primary reviewers may revise their initial ratings; and if they do so this will also be documented. The final ratings of the primary reviewers will then be translated by EPA into the final peer review score (highly recommend, recommend, or not recommend) for the application. This is reflected in a peer review results document developed by the Rapporteur, which combines the individual initial and final evaluations of the primary reviewers and captures any substantive comments from the panel discussion. This score will be used to determine which applications undergo the internal programmatic review discussed below. A peer review results document is also developed for applications that are not discussed. However this document is a consolidation of the individual primary reviewer initial evaluations, with an average of the scores assigned by the primary reviewers.

2. Criteria for External Peer Review of Phase I Awards

All eligible grant applications for Phase I awards will be peer reviewed by an external peer review panel based on the criteria below. Each of the three criteria categories are equally weighted.

a. Proposal Quality (criteria listed in descending order of importance)

- The project's innovative aspects are clearly identified and supported by a literature review where appropriate. The proposed research challenges and seeks to shift current research or engineering paradigms by using innovative theoretical concepts, approaches or methodologies, instrumentation or interventions applicable to one or more fields of research.
- Project goals and objectives are clear and achievable.
- The proposed research is scientifically sound, feasible, and appropriate.
- The proposal describes the proposed outputs and the projected social, economic and environmental outcomes.
- The proposal identifies how progress toward achieving the expected outputs and outcomes will be tracked and measured.
- End users are identified and appropriately engaged.
- Budget and schedule are reasonable and appropriate.
- The approach for ensuring successful achievement of project objectives is adequate and in accordance with the proposal's project schedule and milestones.
- The approach, procedures, and controls for ensuring timely and efficient expenditure of awarded grant funds are well defined and acceptable.
- Where appropriate, partnerships have been identified.

b. Overall Sustainability (criteria are equally weighted)

This criterion addresses both the overall sustainability of the project/design as well as its potential for broader impacts.

- The proposed research embodies the principles of sustainability and seeks sustainable solutions that protect the environment and strengthen our communities. The sustainability primer

(http://www.epa.gov/ncer/rfa/forms/sustainability_primer_v9.pdf) provides examples of research activities that promote and incorporate sustainability.
- The project demonstrates how the proposed environmental and economic outcomes could benefit the intended users and/or society more generally.
- The proposal describes the potential for implementation, adoption, concept transferability and long-term viability.

c. Education and Teamwork (criteria are equally weighted)
- The proposal describes how the project serves as a tool for teaching sustainability principles.
- The proposed student design reflects the contributions of an interdisciplinary team representing a breadth of skills, knowledge and expertise.

3. Programmatic Review

Applications receiving final peer review scores of highly recommend or recommend will then undergo an internal programmatic review, as described below, conducted by technical experts from the EPA, including individuals from the Office of Research and Development (ORD) and program and regional offices involved with the science or engineering proposed. All other applications are automatically declined.

Those applicants who received final scores of highly recommend or recommend as a result of the peer review process will be asked to provide additional information for the programmatic review pertaining to the proposed PIs "Past Performance and Reporting History." The applicant must provide the EPA Project Officer with information on the proposed PI's past performance and reporting history under prior Federal agency assistance agreements (assistance agreements include grants and cooperative agreements but not contracts) in terms of: (i) the level of success in managing and completing each agreement, and (ii) history of meeting the reporting requirements under each agreement.

This information is required only for the proposed PI's performance under Federal assistance agreements initiated within the last three years that were similar in size and scope to the proposed project.

The specific information required for each agreement is shown below, and must be provided within one week of EPA's request. A maximum of three pages will be permitted for the response; excess pages will not be reviewed. **Note: If no prior past performance information and/or reporting history exists, you will be asked to so state.**

1. Name of Granting Agency.
2. Grant/Cooperative agreement number.
3. Grant/Cooperative agreement title.
4. Brief description of the grant/cooperative agreement.
5. A description of how the agreement is similar in size and scope to the proposed project and whether or not it was successfully managed and completed; if not successfully managed and completed, provide an explanation.

6. Information relating to the proposed PI's past performance in reporting on progress towards achieving the expected results (outputs/outcomes) under the agreement. Include the history of submitting timely progress/final technical reports, describe how progress towards achieving the expected results was reported/documented, and if such progress was not being made, provide an explanation of whether, and how, this was reported.
7. Total (all years) grant/cooperative agreement dollar value.
8. Project period.
9. Technical contact (project officer), telephone number, and Email address (if available).

The purpose of the programmatic review is to ensure an integrated research portfolio for the Agency and help determine which applications to recommend for award. In conducting the programmatic review, the EPA will consider information provided by the applicant and may consider information from other sources, including prior and current grantors and agency files.

The internal programmatic review panel will assess (relevance is more important than the PI's past performance):

a. Relevance of Proposed Research to EPA Research Priorities

Research priorities can be reviewed in EPA's *FY2014-2018 Strategic Plan* (http://www2.epa.gov/planandbudget/fy-2014-2018-strategic-plan) which details how EPA plans to progress towards fulfilling its mission of protecting human health and the environment.

b. Past Performance

One aspect of the internal programmatic review is an evaluation of the PI's past performance under Federal agency assistance agreements (assistance agreements include grants and cooperative agreements but not contracts) initiated within the last three years that were similar in size and scope to the proposed project in two areas: First, in successfully managing and completing these prior Federal assistance projects, including whether there is a satisfactory explanation for any lack of success. Second, in reporting progress toward achieving results (outputs/outcomes) under these agreements, including the proposed PI's history of submitting timely progress/final technical reports that adequately describe the progress toward achieving the expected results under the agreements. Any explanation of why progress toward achieving the results was not made will also be considered. Applicants whose proposed PI has no relevant past performance and/or reporting history, or for whom this information is not available, will be evaluated neither favorably nor unfavorably on these elements.

B. Review Process for Phase II Applications

1. Internal Programmatic Review

Every application for a Phase II grant will undergo an internal programmatic review, as described below, conducted by at least two technical experts from the EPA. The purpose of the programmatic review is to ensure an integrated research portfolio for the Agency and help determine which applications to recommend for award. In conducting the programmatic review, the EPA will consider information provided by the applicant and may consider information from other sources, including prior and current grantors and agency files. Applications will receive one of three ratings: "Clearly fulfills programmatic review criteria" "Fulfills programmatic review criteria with minor concerns" or "Does not appear to fulfill programmatic review criteria."

The internal programmatic review will assess (relevance is more important than the Principal Investigator's (PI) past performance):

a. Relevance of Proposed Research to EPA Research Priorities
   Research priorities can be reviewed in EPA's *FY2014-2018 Strategic Plan* (http://www2.epa.gov/planandbudget/fy-2014-2018-strategic-plan) which details how EPA plans to progress towards fulfilling its mission of protecting human health and the environment.

b. Past Performance
   One aspect of the internal programmatic review is an evaluation of the PI's past performance under Federal agency assistance agreements (assistance agreements include grants and cooperative agreements but not contracts). The same information described in Section V.A.3. above (the past performance component of the Internal Programmatic Review for the P3 Phase I applications), will be requested for the Principal Investigator of the Phase II proposal as a component of the *P3 Project Report* which will be due in March 2015. **Note: If no prior past performance information and/or reporting history exists, you will be asked to so state.**

   The EPA will evaluate the PI's past performance and reporting history under prior Federal agency assistance agreements initiated within the last three years that were similar in size and scope to the proposed project in two areas: first, in successfully managing and completing these prior Federal agency assistance projects, including whether there is a satisfactory explanation for any lack of success; second, in reporting progress toward achieving results (outputs/outcomes) under these agreements, including the proposed PI's history of submitting timely progress/final technical reports that adequately describe the progress toward achieving the expected results under the agreements. Any explanation of why progress toward achieving the results was not made will also be considered. Applicants whose proposed PI has no relevant past performance and/or reporting history, or for whom this information is not available, will be evaluated neither favorably nor unfavorably on these elements.

2. External Peer Review

Phase II applications receiving ratings of "Clearly fulfills programmatic review criteria" or "Fulfills programmatic review criteria with minor concerns" will then undergo an external technical review, as described below. All Phase II projects/designs will be evaluated by an external panel of judges made up of non-EPA scientists, engineers, social scientists, economists and/or other professionals who are accomplished in their respective disciplines and proficient in the technical subjects they are evaluating. All Phase I teams will submit a written *Project Report* which will summarize their Phase I activities and include their proposed Phase II activities. At the National Sustainable Design Expo, the teams will be expected to display and discuss their Phase I and proposed Phase II projects to interested attendees and provide a presentation to an external panel of judges.

Each *Project Report* and each Expo presentation/discussion will be evaluated by two sets of external judges; one set of judges will evaluate the *Project Report* and the other will evaluate the Expo presentation/discussion for each team. The judges will individually assign a score of excellent, very good, good, fair, or poor to each *Project Report* and to each Expo presentation/discussion based on the criteria presented below. EPA translates the individual scores from the judges into the final peer review score by equally weighting the average scores for the *Project Report* and the Expo presentation/discussion. Reviewers may consider the education level of the team members when applying the criteria below. Applications receiving scores of Excellent or Very Good will be considered for funding. All other applications are automatically declined.

3. Criteria for External Review of Phase II Grant Awards

The external panel of judges will base their evaluations of the written *Project Reports* and the presentations/discussions that take place at the National Sustainable Design Expo on the criteria below. Each of the three criteria categories are equally weighted.

a. Proposal Quality (criteria listed in descending order of importance)
   - The project's innovative aspects are clearly identified and supported by a literature review where appropriate. The proposed research challenges and seeks to shift current research or engineering paradigms by using innovative theoretical concepts, approaches or methodologies, instrumentation or interventions applicable to one or more fields of research.
   - Project goals and objectives are clear and achievable.
   - The proposed research is scientifically sound, feasible, and appropriate.
   - The proposal describes the proposed outputs and the projected social, economic and environmental outcomes.
   - The proposal describes how progress toward achieving the expected outputs and outcomes will be tracked and measured.
   - End users are identified and appropriately engaged.

- Budget and schedule are reasonable and appropriate.
- The approach for ensuring successful achievement of project objectives is adequate and in accordance with the proposal's project schedule and milestones.
- The approach, procedures, and controls for ensuring timely and efficient expenditure of awarded grant funds are well defined and acceptable.
- Where appropriate, partnerships have been identified.

b. Overall Sustainability (criteria are equally weighted)

This criterion addresses both the overall sustainability of the project/design as well as its potential for broader impacts.

- The proposed research embodies the principles of sustainability and seeks sustainable solutions that protect the environment and strengthen our communities. The sustainability primer (http://www.epa.gov/ncer/rfa/forms/sustainability_primer_v9.pdf) provides examples of research activities that promote and incorporate sustainability.
- The project demonstrates how the proposed environmental and economic outcomes could benefit the intended users and/or society more generally.
- The proposal describes the potential for implementation, adoption, concept transferability and long-term viability.

c. Education and Teamwork (criteria are equally weighted)

- The proposal describes how the project serves as a tool for teaching sustainability principles.
- The proposed student design reflects the contributions of an interdisciplinary team representing a breadth of skills, knowledge, and expertise.
- The proposal includes a team transition plan for moving to Phase II.
- The project is appropriate for the team's mix of undergraduate and graduate students.

C. Human Subjects Research Statement (HSRS) Review

Phase I applications being considered for funding after the Programmatic Review that involve human subjects research studies will have their HSRS reviewed by EPA's HSRRO prior to award. The HSRRO will review the information provided in the HSRS and the Research Plan to determine if the ethical treatment of human subjects is described in a manner appropriate for conditional approval to be granted.

Phase II applications being considered for funding after the Peer Review that involve human subjects research studies will have their HSRS reviewed by EPA's HSRRO prior to award. The HSRRO will review the information provided in the HSRS and the Research Plan to determine if the ethical treatment of human subjects is described in a manner appropriate for conditional approval to be granted.

D. Funding Decisions

Phase I funding decisions are made by the NCER Director based on the results of the peer review and the internal programmatic review and, where applicable, the EPA HSRRO's assessment of the applicant's HSRS (see Section IV.B.5.b). In addition, in making the final funding decisions, the NCER Director may also consider program balance and available funds. Applicants selected for funding will be required to provide additional information listed below under "Award Notices." The application will then be forwarded to EPA's Grants and Interagency Agreement Management Division for award in accordance with the EPA's procedures.

Phase II funding decisions are made by the NCER Director based on the results of the internal programmatic review and external peer review. In addition, in making the final funding decisions, the NCER Director may also consider program balance and available funds. Where applicable, EPA's HSRRO will review the HSRS prior to award. Applicants selected for funding will be required to provide additional information listed below under "Award Notices." The application will then be forwarded to EPA's Grants and Interagency Agreement Management Division for award in accordance with the EPA's procedures.

VI. AWARD ADMINISTRATION INFORMATION

A. Award Notices

Customarily, applicants are notified about evaluation decisions within six months of the solicitation closing date. A Peer Review Results document summarizing the scientific review will be provided to each applicant with an award or declination letter.

Applicants to be recommended for funding will be required to submit additional certifications and an electronic version of the revised project abstract. They may also be asked to provide responses to comments or suggestions offered by the peer reviewers and/or submit a revised budget. EPA Project Officers will contact the PI to obtain these materials. Before or after an award, applicants may be required to provide additional quality assurance documentation for Phase II grants.

The official notification of an award will be made by the Agency's Grants and Interagency Agreement Management Division. Applicants are cautioned that only a grants officer is authorized to bind the Government to the expenditure of funds; preliminary selection by the NCER Director in the Office of Research and Development does not guarantee an award will be made. For example, statutory authorization, funding, or other issues discovered during the award process may affect the ability of EPA to make an award to an applicant. The award notice,

signed by an EPA grants officer, is the authorizing document and will be provided through electronic or postal mail.

B. Disputes

Disputes related to this assistance agreement competition will be resolved in accordance with the dispute resolution procedures set forth in 70 FR 3629, 3630 (January 26, 2005) which can be found at **http://www.epa.gov/ogd/competition/resolution.htm**. Questions regarding disputes may be referred to the Eligibility Contact identified below.

C. Administrative and National Policy Requirements

Additional provisions that apply to this solicitation and/or awards made under this solicitation, including but not limited to those related to DUNS, SAM, copyrights, disputes, and administrative capability, can be found at
http://www.epa.gov/ogd/competition/solicitation_provisions.htm
These, and the other provisions that can be found at the website link, are important, and applicants must review them when preparing applications for this solicitation. If you are unable to access these provisions electronically at the website above, please communicate with the EPA contact listed in this solicitation to obtain the provisions.

Expectations and responsibilities of NCER grantees are summarized in this section, although the terms grant and grantee are used. See http://www.epa.gov/ncer/guidance for the full terms and conditions associated with an award, including which activities require prior approval from the EPA.

1. Meetings: Principal Investigators will be expected to budget for, and participate in, the annual National Sustainable Design Expo.

2. Approval of Changes after Award: Prior written approval of changes may be required from EPA. Examples of these changes are contained in 40 C.F.R. 30.25. Note: prior written approval is also required from the EPA Award Official for incurring costs more than 90 calendar days prior to award.

3. Human Subjects: A grant applicant must agree to meet all EPA requirements for studies using human subjects prior to implementing any work with these subjects. These requirements are given in 40 CFR Part 26. Studies involving intentional exposure of human subjects who are children or pregnant or nursing women are prohibited by Subpart B of 40 CFR Part 26. For observational studies involving children or pregnant women and fetuses please refer to Subparts C & D of 40 CFR Part 26. U.S. Department of Health and Human Services regulations at 45 CFR Part 46.101(e) have long required "... compliance with pertinent Federal laws or regulations

which provide additional protection for human subjects." EPA's regulation 40 CFR Part 26 is such a pertinent Federal regulation. Therefore, the applicant's Institutional Review Board (IRB) approval must state that the applicant's study meets the EPA's regulations at 40 CFR Part 26. No work involving human subjects, including recruiting, may be initiated before the EPA has received a copy of the applicant's IRB approval of the project and the EPA has also provided approval. Where human subjects are involved in the research, the recipient must provide evidence of subsequent IRB reviews, including amendments or minor changes of protocol, as part of annual reports.

Guidance and training for investigators conducting EPA-funded research involving human subjects may be obtained here:
http://www.epa.gov/osainter/phre/support.htm
http://www.epa.gov/osa/pdfs/phre/phre_course/index.htm

4. Data Access and Information Release: After award, all data first produced under the award must be made available to the NCER Project Officer without restriction and be accompanied by comprehensive metadata documentation adequate for specialists and non-specialists alike to be able to understand how and where the data were obtained and to evaluate the quality of the data. If requested, the data products and their metadata must be provided to the NCER Project Officer in a standard exchange format no later than the due date of the grant's final report or the publication of the data product's associated results, whichever comes first.

Congress, through OMB, has instructed each federal agency to implement Information Quality Guidelines designed to "provide policy and procedural guidance...for ensuring and maximizing the quality, objectivity, utility, and integrity of information, including statistical information, disseminated by Federal agencies." The EPA's implementation may be found at http://www.epa.gov/quality/informationguidelines/. These procedures may apply to data generated by grant recipients if those data are disseminated as described in the Guidelines.

5. Reporting: A P3 Phase I grant recipient must agree to provide a written Project Report with an Executive Summary. A final report is also required if the project is extended beyond one year. A P3 Phase II grant recipient must agree to provide annual progress reports with associated summaries and a final report with an executive summary. The summaries will be posted on NCER's website.

A grant recipient must agree to provide copies of any peer reviewed journal article(s) resulting from the research during the project period. In addition, the recipient should notify the NCER Project Officer of any papers published after completion of the grant that were based on research supported by the grant. NCER posts references to all publications resulting from a grant on the NCER web site.

6. Acknowledgement of EPA Support: EPA's full or partial support must be acknowledged in journal articles, oral or poster presentations, news releases, interviews with reporters and other communications. Any documents developed under this agreement that are intended for distribution to the public or inclusion in a scientific, technical, or other journal shall include the following statement:

> This publication [article] was developed under Assistance Agreement No._____ awarded by the U.S. Environmental Protection Agency to [*name of recipient*]. It has not been formally reviewed by EPA. The views expressed in this document are solely those of [*name of recipient or names of authors*] and do not necessarily reflect those of the Agency. EPA does not endorse any products or commercial services mentioned in this publication.

VII. AGENCY CONTACTS

Further information, if needed, may be obtained from the EPA contacts indicated below. Information regarding this RFA obtained from sources other than these Agency Contacts may not be accurate. Email inquiries are preferred.

Technical Contact: Cynthia L. Nolt-Helms; phone: 703-347-8102; email: nolt-helms.cynthia@epa.gov and Gregory Lank; phone: 703-347-8128; email: lank.gregory@epa.gov
Eligibility Contact: Ron Josephson; phone: 703-308-0442; email: josephson.ron@epa.gov
Electronic Submissions: Todd Peterson; phone: 703-308-7224; email: peterson.todd@epa.gov