



Request for Pre-Proposals – Research in Residential Recycling

Submission Deadline December 3, 2018

Background

The Environmental Research & Education (EREF) Board of Directors has identified a high priority research topic in the area of residential recycling and has issued a request for pre-proposals on the topic to support the long-term needs and strategic direction of the solid waste field.

Residential recycling is an integral component of an integrated solid waste management system but there are still knowledge gaps revolving around this aspect of waste management. Recycling is significantly affected by human behavior which is a driving factor in the recovery of materials and program performance. There is a need to understand how to optimize processing, enhance material recyclability, and develop adequate and durable end markets. Beyond these facets, the demonstration of the overall value of residential recycling in terms of sustainability and economics is not well documented.

For the purposes of this RFP, residential recycling is defined as materials (primarily commodity recyclables such as fiber, metal, plastic, glass) that would typically be collected by refuse collection vehicles and transported to material recovery facilities (MRFs) where the collected materials would be processed and sorted. The post-MRF materials would then be utilized by a secondary manufacturer to process them into useful materials of a similar make-up to that of the recycled material. In other words, recycled plastic is re-manufactured into a plastic material, recycled fiber is utilized for paper/cardboard products, and so on. For this RFP, recycling does NOT include thermal or biological conversion of materials (e.g. waste-to-energy, composting, etc.) or wastes that would typically not go to MRFs (e.g. plastic film, food waste, e-waste).

Research Focus Areas

Submissions of scientific research pre-proposals related to residential recycling are invited in the following areas:

- ***Human Behavior***
 - source separation
 - bin/signage design
 - consumption patterns
 - education and communications programs (e.g., which are most effective)

- effectiveness of positive/negative incentives (e.g., rewards programs, competitions, fines, public notices of failure to comply)
- ***Collection and Program Performance/Effectiveness***
 - on contamination
 - based on housing type (e.g. single family, multi-family, townhouse, mixed use)
 - based on container type/size, labeling, collection frequency
 - existing program track record and gap analysis
 - effects of changing waste streams, commerce, and new global markets
 - viability of single stream, source separation, and mixed waste processing
- ***Definitions, Policies and Regulations***
 - definitions of recycling and the effect on policy
 - mass versus LCA-based goals
 - existing policy, regulations, and government incentives effectiveness given changing global markets (focus on past, present, and future)
 - role of sustainable materials management
- ***Reducing and Managing Contamination***
 - human behavior impacts
 - expected contamination rate and how to minimize before getting to MRF
 - strategies to manage/minimize at MRFs and economic impacts
 - role of upstream manufacturing practices
 - min/max contamination based on end use/market
- ***Technological Innovation & Processing Optimization***
 - capture efficiency through entire chain - MRFs/secondary processors
 - mixed waste processing
 - sorting technology improvement
 - technological advancement and innovation to minimize contamination or convert low-value recyclables into useful products
- ***Enhancing Material Recyclability***
 - management of plastic bags (e.g., should they be banned, expand collection and communication, create new markets, cost of expanded management)
 - based on upstream product design/manufacturing
- ***Development of End Markets***
 - economically stable end markets
 - primarily for larger volume commodity recyclables (e.g. plastic, fiber, glass)
- ***Recycling Value in terms of Economics and Sustainability***
 - true cost of recycling (including costs such as administrative overhead)

- commodity price volatility
 - viability of single stream
 - effects of labor availability, safety, and container and behavior issues
 - comparison with dual/multi-stream/mixed waste systems
 - cost comparison of using virgin materials compared to recovered materials (accounting for differences in geography or other factors affecting costs)
- ***Life-Cycle Assessment***
 - demonstrate and rationalize goals, markets, and infrastructure needs
 - whether or not something should be recycled or not based on environmental burden
 - impact of inventory metrics on recyclability (e.g. transport, energy use)

Pre-proposals submitted in response to this RFP should consider the focus areas noted herein. Projects and research previously funded by the Foundation can be viewed on its [website](#). Previously awarded grants have ranged from \$15,000 to over \$500,000 with the average grant amount in recent years being \$160,000. Typical project durations are about 2 years.

Submission Instructions and Deadline

The pre-proposal template must be used for all submissions and is available [online](#). This template also includes details on formatting your submission. Pre-proposal submissions are limited to two submissions per primary Principal Investigator (PI), however a PI may be on multiple pre-proposals if it is demonstrated that it will not affect his or her ability to fulfill the scope of work in the primary investigation.

All submissions must include the project duration and budget. If invited to submit a full proposal, the budget cannot exceed the amount outlined in the pre-proposal submission. EREF will not pay indirect or overhead costs in excess of 25%. Cost sharing is permitted but not required. Additional details on budget guidelines and restrictions can be found on EREF's [website](#).

Pre-proposals will be accepted [online](#) starting 15 calendar days prior to the deadline and up to the close of business (5:00 p.m. eastern time) on **December 3, 2018**. Pre-proposals must be received during this window to be considered. ***Late submissions will not be accepted.***

Review Process

All pre-proposals received are screened by EREF staff. Shortlisted pre-proposals will be reviewed and discussed by the EREF Research Council's Pre-Proposal Selection Committee. This review process can take up to 12 weeks from the solicitation deadline. Full details on the review process can be found on EREF's [website](#). Investigators invited to submit a full proposal will be given 45 calendar days to prepare their submission.

Educational Projects

Note that one of EREF's primary focal areas within its mission is to provide education. However, education components such as the development of educational materials or courses should not be included in a proposed project. EREF welcomes collaborations or partnerships with entities seeking to develop educational materials for sustainable solid waste management, including conferences or events, which advance the Foundation's educational mission. Grants are typically not provided to support the development of educational projects. Thus, concepts for educational projects should NOT be submitted as a pre-proposal. Rather, please contact EREF at (919) 861-6876 ext. 108 or sbolyard@erefdn.org to discuss the concept.

Frequently Asked Questions

Typical questions pertaining to pre-proposal review and notifications, formatting requirements, submittal process (pre-proposal and proposal), typical award amounts and duration, and criteria for submissions are outlined on the EREF [website](#).