Environmental Protection Network

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STAR RESEARCH GRANTS

Why the Program Is Important

Created in 1995, the Science to Achieve Results (STAR) program is EPAs primary funding mechanism to support the development of innovative and cutting-edge technologies by the nation's leading academic scientists and engineers on topics of high programmatic relevance. The program was developed to complement EPA's intramural research program by allowing the exploration of areas in which scientific expertise was either not available or resource limited. The target areas, identified in the Strategic Research Action Plans, are used to improve the scientific basis for decisions on national environmental issues. Topics include human and ecological health impacts of emerging contaminants; environmental fate, monitoring and treatment technologies for air and water pollution; and predictive models of human exposure and health effects. No other federal program provides funding for such fundamentally important areas of environmental protection.

How the Program Works

The STAR program develops Requests for Applications (RFAs) that target key environmental priorities, specify particular types of research being requested, and identify areas of research that are deemed non-responsive to programmatic needs. In some instances, EPA is able to partner with other federal agencies in co-funding an RFA, thus leveraging resources and enabling a greater environmental emphasis on the research that would have been lacking without EPA input and funding. The RFAs are announced broadly to the academic community. Proposals are submitted for scientific review by panels of outside experts, and for programmatic relevance by panels of EPA scientists. Only the highest rated science and programmatic utility efforts are funded. Recent examples of RFAs include efforts directed at the:

- Application of green infrastructure to manage stormwater runoff
- Development of a consumer-based framework to detect and control lead in drinking water
- Effects of development and climate change on water quality and temperature in the Puget Sound
- Impact of extreme weather events on contaminated sites and vulnerable communities
- Potential health effects from waterborne micro- and nano-plastic particles
- Control and prevention of hazardous algal blooms with nutrient treatment technologies
- Advanced methods for characterizing real-world human exposure to chemicals associated with consumer products in indoor environments
- Understanding of the persistent water quality and availability challenges of PFAS, better planning and decision-making to prevent future PFAS exposures and adverse health effects, and a greater awareness of how to restore water quality and availability in PFAS-impacted communities

Consequences if the Program Is Eliminated or Inadequately Funded

Elimination of the program will result in a significant loss of EPA's ability to engage the country's premiere scientific enterprise. Research in the areas of clean air and water, chemical safety and community health will be restricted to projects affordable by the increasingly resource-constrained intramural research program. EPA would no longer be able to support innovative and cutting-edge scientific research by the academic community that for the past 25 years has provided critical information for the program offices to accomplish their mission of protecting human health and the environment.

Demonstrated Successes

The program was reviewed by the National Research Council (NRC) in 2003 and 2017. In the first review, the NRC noted that "EPA requires a strong and balanced science and technology research program to fulfill its mission properly. The STAR program is an important part of the overall EPA research program." Furthermore, "STAR research effectively expands the nation's scientific foundation for protecting human health and the environment. In the follow-up 2017 review, the NRC concluded that environmental research has led to technological advances and to policies that have resulted in enormous improvements in human health and the environment. The committee found that STAR has been integral to EPA's efforts to address evolving environmental research priorities and that these efforts have benefited the public. The committee recommends that EPA continue to use the STAR program to address our nation's evolving environmental research priorities.

One concrete example of the program's impact is the Multi-Ethnic Study of Atherosclerosis (MESA) Air Study**.** After a study of more than 10 years, MESA researchers published major findings in the medical journal *The Lancet* about the relationship between air pollution and cardiovascular disease. The study provides direct evidence that long-term exposure to fine particulate matter (PM2.5) and nitrogen oxides in the air accelerate the development of atherosclerosis in healthy individuals. It also found that some people may be more susceptible, including older adults and those with hypertension. Significantly, these results define the relationship between air pollutants and the progression of coronary artery disease over time, an understanding that will help estimate the long-term health impacts and economic burden of air pollution within our population.

Funding for the Star Research Grants Program

FY2016 Baseline Budget: $39.058 million

FY2018 President's Budget Proposal: $0
FY2018 Amount Appropriated: $28.284 million

FY2019 President's Budget Proposal: $0
FY2019 Amount Appropriated: $28.536 million

FY2020 President's Budget Proposal: $0