

# United States Senate

WASHINGTON, DC 20510

August 2, 2017

The Honorable Rick Perry  
Secretary  
U.S. Department of Energy  
100 Independence Avenue, SW  
Washington, D.C. 20585

RE: Support for Proposal Submitted in Response to:

- **DE FOA 0001202 phase 2:** Opportunities to Develop High Performance, Economically Viable, and Environmentally Benign Technologies to Recover Rare Earth Elements (REEs) from Domestic Coal and Coal Byproducts.
- **Area of interest:** AOI 1
- **Name of Applicant:** West Virginia University Research Corporation
- **Project director/PI:** Paul F. Ziemkiewicz, PhD, West Virginia University.
- **Project title:** *Recovery of Rare Earth Elements (REEs) from Coal Mine Drainage*

Dear Secretary Perry:

I am writing in support of the above referenced proposal “Recovery of Rare Earth Elements (REEs) from Coal Mine Drainage” written in response to the U.S. Department of Energy solicitation *DE FOA 0001202 Phase 2*. The project would be jointly carried by West Virginia University and Virginia Tech University.

In addition to the scientific advancements that would result from funding this project, there are added benefits to the State of West Virginia and the nation. Due to the uses for rare earth elements (REE), finding a domestic source of REE would positive impact national security, economic development activities in depressed Appalachian communities, and an additional revenue for the coal industry. Furthermore, monetization of acid mine drainage (AMD) treatment would incentivize recovery efforts to restore watersheds impaired by legacy mine discharges.

This application would support phase 2 of the team’s successful lab scale project that evaluated the feasibility of extracting REE from solid precipitates resulting from the treatment of AMD. In order to scale up the project, phase 2 would establish a facility located on the West Virginia University campus to serve as the test bed for AMD solids as well as feedstocks produced by other processes. This facility would scale the team’s laboratory process by installing a continuous feed extraction plant producing three grams of refined rare earth mix per hour. Increasing the rate of REE mix for this project will help researchers fine-tune their REE extraction process while defining operating conditions and design criteria for a field-scale demonstration unit.

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Previous phase 1 findings surrounding rare earth element extraction and recovery have been promising and, should funding be provided to the phase 2 project, additional advancements are expected. The project has domestic economic impacts; it will develop a new, domestic source of REE that will be easily extracted, operate on previously permitted sites, and produce negligible levels of actinides or other waste materials. AMD precipitates could be recovered immediately. The team's technology largely consists of off-the-shelf components already used in hydrometallurgy; thus, technology deployment time would be minimal.

The significant potential benefits for domestic manufacturing, national security, energy, and environmental interests emphasize the importance of allowing the continuation of REE research by funding this phase 2 project to scale-up promising lab results and processes and building on the investment of federal research funding made for phase 1 of the project.

Thank you for your thoughtful consideration of this application.

Sincerely,



Shelley Moore Capito  
United States Senator