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# Ash Beneficial Use Center


- Research center for testing and developing technologies for processing and using CCPs harvested from landfills and ponds
- Review and development of beneficiation technologies
- Independent assessment of use technologies and products
- Development of detailed cost profiles
- Sustainable strategies for using harvested CCPs

## Background and Value

There are more than 2 billion tons of coal combustion products (CCP) stored in landfills and ponds in the US. These facilities can represent long-term economic and environmental risk. Increasingly, states are mandating excavation of ash ponds and either utilization or disposal of the CCPs.

Alternatively, these same ponds and landfills can be viewed as large sources of valuable raw materials for the manufacturing and construction industries. Stored CCPs are a readily available resource that can be used in a wide range of engineered products and processes, filling the gap as production ash quantities decline due to retirement of coal-fired units, and supporting the growing need for infrastructure improvements in the US.

However, efficiently tapping this large inventory of CCPs in a reasonable time frame will require research on CCP processing and use technologies to enable economic applications in both existing and new products. In most cases, CCPs harvested from landfills and ponds will require some level of beneficiation prior to use. Engineering, scientific, cost, and market data, are needed to advance beneficiation technologies and use technologies for economically harvesting and using stored CCPs.

The overall objectives of this project are to construct and operate a research center hosted at Georgia Power's Plant Bowen. The Ash Beneficial Use Center will be specifically designed for testing and development of technologies for beneficiating and using harvested CCPs, but will also be available for testing production ash. Georgia Power has provided funding for construction of the Center. Funding provided by this supplemental project will be used to fund research projects at the Center.

## Benefits

This project will help provide utilities and the public with cost-effective use of harvested CCPs. Specific benefits will include:

- Testing of commercial beneficiation processes
- Expedite development of emerging technologies
- Objective assessment of finished products
- Development of realistic cost profiles

## Project Summary

*Phase 1: Design and Construction*

Phase 1 will consist of the design and construction of the physical infrastructure. A Technical Advisory Group (TAG) will be formed to assist in the facility design. The TAG will consist of EPRI, GPC/SCS, and project funders, along with selected industry and academia representatives. The TAG will assist with development of a detailed scope of work for facility construction.

Flexibility to test both technologies and products at several scales is an important consideration in the conceptual design. Modular systems will allow common equipment for beneficiating harvested CCPs (e.g. handling, debris removal, drying, classifying) to be used for front-end processing prior to testing varying applications and products.

The Center will allow testing from bench-scale through pilot plant scale. It is currently envisioned that the research center would be sized with a total throughput of harvested ash on the order of 100-125 tons per day. This is about a 10x scale down from anticipated full-scale harvesting operations, and will allow testing multiple technologies/processes concurrently.

*Phase 2: Research and Development*

The operating Center will be available for research projects by EPRI, utilities, technology developers, and academia. Projects will be coordinated with the technology developers to ensure representative results, but evaluations will remain objective and independent. The Center will include basic laboratory test facilities, and will engage with EPRI Charlotte and other laboratories, including commercial and university facilities to extend the testing capabilities of the Center.

EPRI will work with the TAG to evaluate and select projects to be performed over the four-year period after the facility is functional. The scope, deliverables, and costs associated with each of these projects will be determined at that time.

## Deliverables

- Participation on the Technical Advisory Group
- Immediate access to research results and technologies via webcasts, meetings, workshops, and summary reports
- Draft and final R&D reports for all processes and technologies tested
- Access to the Center for specific research projects
- Funders will have the opportunity to have their CCPs included in test programs

## Price of Project

Pricing will be tiered based on coal-fired generation capacity and participation in Project Set 49B. Because the research center will be closely aligned with base research in Project Set 49B, the price of this project will be discounted by 25% for companies that also fund PS49B.

Companies with more than 5 GW coal capacity:

- $100,000/yr for 3 years
- $75,000/yr for 3 years if also fund PS49B

Companies with less than 5 GW coal capacity:

- $50,000/yr for 3 years
- $37,500/yr for 3 years if also fund PS49B

This project qualifies for Tailored Collaboration or Self Directed Funds.

## Project Status and Schedule

The project will begin in 2019 and continue through 2023. It is expected that Phase 1 will be completed in early 2020.

## Who Should Join

Any power company with active or inactive coal ash ponds or landfills.

## Contact Information

For more information, contact the EPRI Customer Assistance Center at 800.313.3774 (askepri@epri.com).

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