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## Abstract

The primary objective of the CCP Extension Program is to promote the responsible uses of Ohio CCPs that are technically sound, environmentally safe, and commercially competitive. A secondary objective is to assist other CCP generating states (particularly neighboring states) in establishing CCP use programs within their states.

The goal of the CCP extension program at OSU is to work with CCP stakeholders to increase the overall CCP state utilization rate to more than 30% by the year 2005. The program aims to increase FGD utilization for Ohio to more than 20% by the year 2005. The increased utilization rates are expected to be achieved through increased use of CCPs for highway, mine reclamation, agricultural, manufacturing, and other civil engineering uses. In order to accomplish these objectives and goals, the highly successful CCP pilot extension program previously in place at the university has been expanded and adopted by the university as a part of its outreach and engagement mission.

The extension program is an innovative technology transfer program with multiple sponsors. The program is a collaborative effort between The Ohio State University (College of Engineering and University Extension Service), United States Department of Energy's National Energy Technology Laboratory, Ohio Department of Development's Coal Development Office, and trade associations such as the American Coal Ash Association as well as the Midwest Coal Ash Association. Industry co-sponsors include American Electric Power, Dravo Lime Company, and ISG Resources.

Implementation of the proposed project results in both direct and indirect as well as societal benefits. These benefits include 1) increased utilization of CCPs instead of landfilling, 2) development of proper construction and installation procedures, 3) education of regulators, specification-writers, designers, construction contractors, and the public, 4) emphasis on recycling and decrease in the need for landfill space, 5) conservation of natural resources, 6) better products and significant technical benefits, 7) reduction in the cost of energy production for utilities, 8) substantial savings for end-users, 9) continued economic competitiveness of coal as a fossil fuel, 10) cleaner and safer environment, 11) reduced social costs, and 12) greater economic development.

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## Executive Summary

The CCP Extension Program promotes the responsible uses of Ohio CCPs that are technically sound, environmentally safe, and commercially competitive and assists other CCP generating states (particularly neighboring states) in establishing CCP use programs within their states.

The activities of the CCP Extension Program consisted of the following:

1. working with regulatory agencies to produce environmental and technical guidelines and standards for CCP use;
2. working towards overcoming regulatory, technical, economic, marketing, and public perception barriers to use of CCPs;
3. preparing educational materials for end-users which provide detailed instruction of various uses of CCPs and serving as a resource person to end-users;
4. conducting workshops to train end-users and others in the advantages and proper application of CCPs;
5. demonstrating the use of CCPs via preparation of informational materials, papers, presentations, press releases, web site, etc;
6. maintaining an Ohio-specific CCP database, updating it regularly, and providing information to stakeholders; and
7. serving as a liaison among CCP stakeholders in the state.

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- 1) increased utilization of CCPs instead of landfilling
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- 3) education of regulators, specification-writers, designers, construction contractors, and the public
- 4) emphasis on recycling and decrease in the need for landfill space
- 5) conservation of natural resources
- 6) better products and significant technical benefits
- 7) reduction in the cost of energy production for utilities
- 8) substantial savings for end-users
- 9) continued economic competitiveness of coal as a fossil fuel
- 10) cleaner and safer environment
- 11) reduced social costs
- 12) greater economic development.

## Experimental

The activities of the CCP Extension Program consist of the following:

1. working with regulatory agencies to produce environmental and technical guidelines and standards for CCP use;
2. working towards overcoming regulatory, technical, economic, marketing, and public perception barriers to use of CCPs;
3. preparing educational materials for end-users which provide detailed instruction of various uses of CCPs and serving as a resource person to end-users;
4. conducting workshops to train end-users and others in the advantages and proper application of CCPs;
5. demonstrating the use of CCPs via preparation of informational materials, papers, presentations, press releases, web site, etc;
6. maintaining an Ohio-specific CCP database, updating it regularly, and providing information to stakeholders;
7. and serving as a liaison among CCP stakeholders in the state.

## Results and Discussion

The specific highlighted activities of the program were as follows:

- Served as member of Coal Combustion By-Products National Steering Committee, United States Department of Interior: Office of Surface Mining. Worked to prepare the program for the April 2005 mine reclamation uses of CCBs to be held as a part of the World of Coal Ash.
- Served on the Program Committee of World of Coal Ash to be held April 2005 in Lexington, Kentucky.
- Served as the Program Co-Chair for the 2004 Pittsburgh Coal Conference held in September in Japan. Organized five sessions on CCPs, which included several US CCP projects. Attended the conference in Japan.
- Served as a member of American Society of Testing and Materials, E50.03 committee on CCPs. Provided technical input on standards under consideration by the committee. The committee has asked Drs. Butalia and Wolfe to work on an ASTM specification for the design and construction of CCP liners.
- Served as member of Residuals Management Committee of Ohio Water Association.
- Met with Ohio CCP stakeholders (OCDO, USDOE, AEP, First Energy, Cinergy, ACAA, ACAA-OC, etc) on several occasions.
- Reviewed technical manuscripts for publication in CCP related journals.
- Provided technical information on beneficial use of CCPs for highway, mine reclamation, agricultural, and manufacturing applications to a wide range of interested parties (within and outside Ohio).

## Conclusion

The utilization of CCPs can result in both direct and indirect as well as societal benefits. These benefits include 1) increased utilization of CCPs instead of landfilling, 2) development of proper construction and installation procedures, 3) education of regulators, specification-writers, designers, construction contractors, and the public, 4) emphasis on recycling and decrease in the need for landfill space, 5) conservation of natural resources, 6) better products and significant technical benefits, 7) reduction in the cost of energy production for utilities, 8) substantial savings for end-users, 9) continued economic competitiveness of coal as a fossil fuel, 10) cleaner and safer environment, 11) reduced social costs, and 12) greater economic development.



## References

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