

# PROJECT facts

U.S. DEPARTMENT OF ENERGY  
OFFICE OF FOSSIL ENERGY  
NATIONAL ENERGY TECHNOLOGY LABORATORY



## DEMONSTRATING MARKET APPROACH TO RECLAMATION OF MINED LANDS

### Background

Many years of coal mining in the Appalachian region has resulted in large areas of environmentally degraded land. Of special concern are the abandoned mine lands (AML) that were mined prior to any Federal or State regulations requiring post-mining land remediation. Many of these AML sites contain poor quality soils and release acidic discharges, which often limit vegetation to ground shrubbery and grass cover.

Sufficient funds are often not available to remediate abandoned mine sites. One possible solution is the institution of market incentives in the form of environmental commodity trading markets, which could facilitate ecosystem improvements more quickly and at less cost to the public than current approaches. Potential market incentives for landowner-funded restoration include carbon credits, water quality credits, wetland mitigation credits, and species conservation credits. This project will investigate the use of such market incentives.

The site chosen for this research project is an AML that drains into Sovern Run in West Virginia. It was estimated prior to the installation of this project's passive water treatment system that 17% of the acid load within Sovern Run comes from the project site.

### Primary Project Goal

The primary goal of this project is to demonstrate the efficacy of a market-based approach for reclaiming AML and ultimately to increase the extent of AML reclamation throughout the Appalachian coal mining region. This goal will be accomplished by evaluating potential environmental credit sales associated with the Sovern Run reclamation project, with the proceeds applied toward additional AML clean-up.

### CONTACTS

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*The AML research site includes installation of a limestone channel (shown with construction in-progress) for pH treatment.*



## PARTNERS

Electric Power Research Institute  
West Virginia University

## PERIOD OF PERFORMANCE

09/30/2003 to 12/31/2006

## COST

**Total Project Value**  
\$494,519

**DOE/Non-DOE Share**  
\$361,282 / \$133,237

## ADDRESS

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## WEBSITE

**www.netl.doe.gov**

## Objectives

This project has several key objectives:

- To improve an AML site by remediating acidic discharge with a passive treatment system;
- To determine the amount of ecological improvements created by the AML site improvement;
- To assign a value to the ecological improvements; and
- To develop a guide for use by landowners and third-party investors for evaluating the economic benefits of developing multiple environmental market credits on surface mined lands.

## Accomplishments

A limestone channel has been successfully constructed and is being used for passive water treatment at the site. The pH of the water entering the receiving stream has improved significantly by channeling the water through the treatment system.

## Benefits

The project research has the potential to provide the following benefits:

- Improved environmental conditions at AML sites and downstream river systems through passive water treatment and soil amendment efforts;
- Accelerated AML clean-up efforts through wide availability of a computer-based screening tool enabling land-owners and developers to quickly evaluate the efficacy of various environmental market credits; and
- Greater economic motivation for remediation of additional AML sites.

## Planned Activities

The last phase of work (currently ongoing) is to develop a guide for evaluating the economic benefits of developing multiple environmental market credits on surface mined lands. The guide will provide users with basic background information on four environmental credit markets, current status of the markets, general trading rules and performance requirements, current and anticipated credit prices, potential transaction costs, and state, national, and private market contact information.

Under this final phase, planned activities include:

- Continued monitoring of the passive treatment system's performance;
- A literature search to establish the status of environmental credit markets;
- Development of decision trees for determining the feasibility of developing credits at a particular site; and
- Development of a spreadsheet model using the decision trees.