

# PROJECT facts

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



## CONTACT POINTS

### Scott M. Klara

Sequestration Product Manager  
National Energy Technology  
Laboratory  
626 Cochran's Mill Road  
P.O. Box 10940  
Pittsburgh, PA 15236  
412-386-4864  
scott.klara@netl.doe.gov

### John Litynski

Project Manager  
National Energy Technology  
Laboratory  
3610 Collins Ferry Road  
P.O. Box 880  
Morgantown, WV 26507  
304-285-1339  
Jonh.Litynski@netl.doe.gov

### James A. Burger

Virginia Polytechnic Institute and  
State University  
Blacksburg, VA 24062  
540-231-2680  
jaburger@vt.edu

## CUSTOMER SERVICE

800-553-7681

## WEBSITE

[www.netl.doe.gov](http://www.netl.doe.gov)



## RESTORING SUSTAINABLE FORESTS ON APPALACHIAN MINED LANDS FOR WOOD PRODUCTS, RENEWABLE ENERGY, CARBON SEQUESTRATION, AND OTHER ECOSYSTEM SERVICES

### Background

Over 1.8 million hectares of land nationally (including 1.1 million hectares in the east) were under active coal mining permits during 2001; of these lands, over 600,000 hectares (including 200,000 hectares in the east) are currently classified as "disturbed." Converting these abandoned lands to productive forests has the potential of sequestering 100 million metric tons of carbon.

Virginia Polytechnic Institute and State University is working to develop hardwood and conifer forests on eastern U.S. coalfields, not only to sequester carbon but also to support a wood products economy, help control flooding, and provide clean water, wildlife habitat, biodiversity, and recreation. Current mining practices remove and burn the carbon-rich forest. Then, following coal removal, many eastern U.S. mine sites are reclaimed to grass having one-fifth the potential for carbon sequestration compared to reforestation. Primary studies indicate that through optimal reclamation/restoration procedure, there is a potential for mined-land forests to capture 250 to 290 tonnes of carbon per ha over a period of 70 years, at which time the mined lands' biological potential is nearly restored.

### Primary Project Goal

The primary goal of this project is to determine the biological and economic feasibility of restoring high-quality forests on mined land and to measure carbon sequestration and wood production benefits achieved with restored forests.

### Objectives

- To demonstrate and verify large-scale carbon sequestration by reforestation of mined lands using high-value tree species.
- To develop a forest site classification and mapping system for reclaimed mined sites.

# RESTORING SUSTAINABLE FORESTS ON APPALACHIAN MINED LANDS FOR WOOD PRODUCTS, RENEWABLE ENERGY, CARBON SEQUESTRATION, AND OTHER ECOSYSTEM SERVICES

## PROJECT PARTNERS

Virginia Polytechnic Institute  
and State University

Mead-Westvaco

Plum Creek Timber

Mountain Forest Products

## COST

Total Project Value:	\$629,381
DOE:	\$494,400
Non-DOE Share:	\$134,981

- To complete a cost benefit analysis of reforestation on these lands.
- To quantify the social and ecological benefits derived from these projects.

## Accomplishments

Preliminary criteria for classifying the quality of mined lands have been developed. Also, a preliminary economic analysis of the feasibility of reforestation with several different forest types and levels of management, have been completed. Future efforts will be aimed at looking into regulatory factors that can achieve the ultimate goal with reforestation of high quality forests for carbon sequestration and other eco-assets. Three test sites (one each in West Virginia, Ohio, and Virginia) have been identified to test reforestation practices on mined lands.

## Benefits

This study will provide estimates of the carbon sequestration potential for mined lands of varying quality using various reforestation methods. It will provide an inventory of mined lands available for reforestation, an estimate of cost-per-ton of carbon sequestered by reforestation on mined lands, and an estimate of the total eastern-U.S. mined-land carbon-sequestration potential under various policy-incentive scenarios. It will also determine the social and ecological benefits associated with the reforestation of these mined lands.

