

Project Coal to Electricity  
2009 Summer Teacher Education Program

Barbara Altizer  
Eastern Coal Council

Amy Gail Fannon  
Powell River Project Research & Education Center

Project Summary

This week-long summer session offers teachers in grades 3-6 and earth science a unique opportunity to learn about the coalfields in Virginia and the economic impact on the State's economy. Designed to address the natural resource and earth science standards of learning, the session provides teachers first hand field experience with the extraction, preparation and utilization of coal. In addition, the regulatory requirements and global economy associated with coal were examined.

Agenda

JULY 12 – SUNDAY

2:p.m. to 5:30p.m.  
6:00 p.m.

Check-In: Martha Randolph Hall, UVA-Wise  
Dinner: Cantrell Hall  
Welcome to the program: Barbara Altizer

JULY 13 – MONDAY

7:00 a.m.  
8:00 a.m.

Breakfast: Cantrell Hall  
Depart for Field Trip (UVA Bus provided Monday – Thursday for all trips)

8:00 a.m. – Noon

Tony Scales, Geologist, Virginia DMME  
Local geologic structure and its impact on history & coal mining and post-mining land use opportunities for economic development

12 Noon to 1:00 p.m.  
1:30 p.m. to 5:00 p.m.

Lunch: PRP-R&EC  
Mike Thomas, Red River Coal Co, coal surface mining operations

5:30 p.m. to 7:30 p.m.  
Sponsored by:

Dinner: (cook out) at PRP-R&EC  
Alpha Natural Resources  
Guest Speaker: Mike Abbott, Public Relations Manager, Virginia DMME

JULY 14 – TUESDAY

7:00 a.m.  
8:00 a.m.  
8:00 a.m. to Noon  
Noon to 1:00 p.m.  
1:30 p.m. to 5:00 p.m.  
6:30 p.m.

Breakfast: Cantrell Hall  
Depart for Field Trip  
Underground Coal Mine tour – Dickenson Russell Mine  
Lunch sponsored by: Dickenson Russell  
Moss # 3 Preparation Plant and Spectrum Coal Laboratory  
Wine tasting & dinner: David Lawson, MountainRose Vineyard Inc  
Guest Speaker: Charles "Dutch" Tubman, Norfolk Southern

Sponsored by: Norfolk Southern Corp

**JULY 15 – WEDNESDAY**

6:45 a.m. Breakfast: Cantrell Hall  
7:30 a.m. Depart for Buchanan County  
9:00 a.m. CNX Gas Tour (coalbed methane gas), Claypool Hill, VA  
11:00 a.m. Consol Energy Buchanan Mine (longwall operation)  
12 Noon Lunch: hosted by Consol Energy  
2:30 p.m. **Dallas Sizemore**, Virginia Department Environmental  
Quality - Air Quality  
Standards, Jewell Resources Training Center  
3:30 p.m. Jewell Smokeless Coke Ovens  
7:00 p.m. Dinner: Breaks Interstate Park, sponsored by: CNX Gas and  
Jewell Smokeless Coal Co  
Guest Speaker: Phillip Puckett, Virginia Senate

**JULY 16-THURSDAY**

7:00 a.m. Breakfast: Cantrell Hall  
8:00 a.m. Depart for Field Trip  
8:00 a.m. to 12 Noon Appalachian Power, Carbo Plant  
12 Noon to 1:00 p.m. Lunch: Appalachian Power, Carbo Plant  
1:45 p.m. to 3:30 p.m. Tour Dominion Energy Power Station site & Update  
5:30 p.m. to 10:30 p.m. Social & Dinner, John Fox Jr. House, Big Stone Gap  
Guest speaker: Herbert Wheary, Dominion Energy  
Sponsored by: Dominion Energy  
Outdoor Drama -- Trail of the Lonesome Pine  
Sponsored by: Oliver Coal Sales

**JULY 17 – FRIDAY**

7:00 a.m. Breakfast: Cantrell Hall  
8:00 a.m. Depart for Field Trip (Will take personal vehicles)  
8:15 a.m. to 10a.m. Joy Mining Machinery Re-build Facility, Duffield, VA  
11:00 a.m. Tony Scales: Tour Natural Tunnel  
12: Noon Lunch – Natural Tunnel  
1:30 p.m. Ray Ratheal: Eastman Chemical Company's Coal  
Gasification Plant, Kingsport, TN  
3:00 p.m. Discussion/evaluation of program with teachers  
Professional Development Certificates presented

**Project Coal to Electricity**

Program Evaluation

July 13 – 17, 2009

**Section 1 - Activity Questions**

1. The majority of the attendees found out about this program through co-workers that have attended and recommended it. All attendees verbally or in writing is recommending this program to co-workers of all subjects and have stated an overwhelming desire for a second week of the class.

2. Many of the attendees were interested in coal, the process of mining and production. Others teach energy and earth science and were interested for both classroom and personal reasons. There were art teachers that attended to be able to give a background of coal and the coal industry in order to have the knowledge and tools to share with their students.

### Section 2 - Awareness Change Questions

**3. Overall, how appropriate were the field trip activities?** Very Appropriate

**Please rate each field trip** (circle one)

A. Flag Rock – geology & land use	Poor	Fair	Good	Excellent
B. Powell River Project Research & Ed Ctr	Poor	Fair	Good	Excellent
C. Red River’s Surface Mine	Poor	Fair	Good	Excellent
D. Paramont Underground Mine	Poor	Fair	Good	Excellent
E. Toms Creek Prep Plant	Poor	Fair	Good	Excellent
F. CNX Gas	Poor	Fair	Good	Excellent
G. Consol Longwall Mine	Poor	Fair	Good	Excellent
H. DEQ	Poor	Fair	Good	Excellent
H. Jewell Smokeless Coke Ovens	Poor	Fair	Good	Excellent
I. Appalachian Power plant	Poor	Fair	Good	Excellent
J. Dominion Energy Power Plant	Poor	Fair	Good	Excellent
K. Joy Mining rebuild facility	Poor	Fair	Good	Excellent
L. Eastman Chemical coal gasification	Poor	Fair	Good	Excellent

**4. Overall, how appropriate were the evening programs?**

Very Appropriate

**Please rate each evening program** (circle one)

A. Mike Abbott, DMME	Poor	Fair	Good	Excellent
B. MountainRose Vineyard	Poor	Fair	Good	Excellent
C. Tom Rappold, Norfolk Southern	Poor	Fair	Good	Excellent
D. Breaks Interstate Park	Poor	Fair	Good	Excellent
E. Senator Phillip Puckett	Poor	Fair	Good	Excellent
F. Herbert Wheary, Dominion Energy	Poor	Fair	Good	Excellent
G. Trail of the Lonesome Pine	Poor	Fair	Good	Excellent

### Section 3 - Knowledge Change Questions

**5. As a result of this program, to what extent do you believe students will increase their understanding of the impact of coal on the Virginia economy?** To A Great Extent

**6. As a result of this program, to what extent do you believe students will increase their understanding of the coal industry’s future impact on the Virginia economy?** To A Great Extent

### Section 4 - Practice Change Questions

**7. To what extent will you incorporated the information gained during this program into lesson plans?**

- A. **Adapt material to existing lesson plans** Often, when subject correlates to appropriate chapters.
- B. **Use material to create new lesson plans** Often, More time will be spent on coal related SOL's because there is more information and materials to share with students.

**8. What will be done differently regarding teaching as a result of participating in the program?** Materials and samples to use in classroom activities. "Show and Tell" materials. Incorporating energy resources unit into curriculum. Knowledgeable on the coal industry and better equipped to teach it in depth. Sharing knowledge and materials with co-workers so they will be better equipped to teach about coal as an energy source. In depth teaching of the coal industry in Earth Science and some topics of environmental Biology. Coal and gas production were low priorities in curriculum, attendees intend to increase knowledge, analyze, use critical thinking skills as it pertains to future energy sources as opposed to coal and gas as a relates to economic and political factors.

### **Section 5 - End Result Change Questions**

**9. Has your ability to implement grade level Standards of Learning with SW VA coalfield examples improved as a result of your participating in the program?**  
Yes, To Some Extent

Exploring career opportunities in engineering, balances between economic needs and the environment. Increased knowledge of coal, the everyday uses of coal, and coal's impact on Virginia's worldwide trade. Enhanced knowledge of Virginia's natural resources.

**10. Do you believe this will result in students gaining a better understanding of the world around them than would be the case if this program were not offered?**

Yes, increased knowledge of coal, the everyday uses of coal, and coal's impact on Virginia's worldwide trade. Students often hear uninformed people speak negatively about the coal industry, an industry they know nothing about.

**11. Additional comments/impressions/thoughts:**

Attendees will encourage co-workers to attend next year. Attendees overall loved the program, it was well planned and laid out. Attendees "loved" the people involved. Barbara was an excellent guide/teacher. There should be a "coal class 102" a second year so they have an opportunity to come back and further explore coal, coals relationship to the environment and economics of coal producing areas. Attendees would like more time underground because a couple of hours does not allow enough time to really understand the concept.

Less late evening speakers, but do not change or take anything out of the program. More materials like the maps, as students are primarily visual learners. Artistic renditions of mining operations such as the picture at the conference room for the longwall mine.

Attendees should be allowed to revisit the topic every 2-3 years to compare/contrast the sights/sounds from the previous experience. Open the program to different teaching disciplines, including high school teachers as the information would benefit them as well.

Overall a fantastic program, eye opening to a number of misconceptions about energy production, mining, and reclamation. Attendees have repeatedly expressed a desire to learn more and revisit the same program as well as an option for a second year program.

#### ACKNOWLEDGMENTS/SPONSORS

Teachers can stay abreast of important topics and remain informed about relevant topics they need to address in the classrooms through quality educational efforts.

The Project: Coal to Electricity Energy Education Program would not be possible without the continued partnerships and interest of many individuals and sponsors. We want to acknowledge the following:

Alpha Natural Resources  
Appalachian Power Co. - Carbo Plant  
CNX Gas  
CONSOL Energy  
Dickenson Russell Coal  
Dominion Energy  
Eastman Chemical Company  
Jewell Smokeless Resources  
Joy Mining Machinery  
Norfolk Southern Corporation  
Oliver Coal Sales  
Paramont Coal Corp VA LLC  
Powell River Project  
Red River Coal Company  
Spectrum Laboratories  
Virginia Department of Mines, Minerals & Energy

These industry partners have made it possible for educators to broaden their understanding of environmental issues related to coal, rail and power, to experience the coalfields with hands on opportunities, to appreciate the important role of coal in the Commonwealth of Virginia's economy, as well as the United States.