

# Project Coal to Electricity 2008 Summer Teacher Education Program

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## **Project Summary**

This week-long summer session offered eleven teachers in grades 3-6 and earth science a unique opportunity to learn about Virginia's coalfields and their economic impact on the State's economy. The teachers were from Virginia Beach, Chesapeake, Lexington, South Boston, Dublin, Luray, and Spanishburg and Huntington, WV. We also had two guests for industry, Hannah Murrell with Natural Resource Partners and Cathy Coffey with Americans for Balanced Energy Choices.

The program is designed to address the natural resource and earth science standards of learning, the session provided a first hand field experience covering the extraction, preparation, transportation and utilization of coal. In addition, the Virginia regulatory requirements and global issues associated with coal were also examined.

## **Why Each Teacher Decided to Attend**

Great opportunity (3). Looked informative, hadn't seen all aspects of coal to electricity. I wanted to learn more about coal as a natural resource and how it is mined in VA. Wanted to know more about coal to energy. I knew nothing about the coal industry, and I teach electricity & natural resources of VA. SOL coverage. Opportunity to tour generating plant & coal mines

## **Field Trips & Presentations**

- Flag Rock & Powell River Project Research & Education Center: Tony Scales, Geologist, Virginia DMME, local geologic structure and its impact on history & coal mining. Jon Rockett, Powell River Project Research & Education Center, post-mining land use opportunities for economic development
- Coal Surface Mining Operations: Mike Thomas and Eddie Clapp, Red River Coal Co, Coal
- Virginia's Coal Regulatory Program: Mike Abbott, Virginia Department Mines Minerals & Energy
- Underground Coal Mining Operations: Dickenson/Russell Deep Mine #36 Coal Benefaction: Moss #3 Preparation Plant and Spectrum Laboratory
- Wine Tasting & Dinner, MountainRose Vineyard (Reclaimed Mine Site)
- Coal Rail Transportation Guest Speaker: Tom Rappold, Norfolk Southern Corporation
- Gas Production: CNX Gas (Coalbed Methane Gas)

- Longwall Underground Coal Mining: Consol Energy Buchanan Mine
- Air Quality Standards: Dallas Sizemore, Virginia Department Environmental Quality
- Coke Production: Jewell Smokeless Coke Ovens
- Breaks Interstate Park: Jon Rockett, Powell River Project Research & Education Center.
- Guest Speaker: The Honorable Phillip Puckett, Virginia Senate
- Coal-fired Electricity Generation: Appalachian Power, Carbo Plant/Waste Water Treatment/Ash Fill
- Virginia City Hybrid Plant: Herbert Wheary, Dominion Energy
- Cultural Enrichment: Outdoor Drama -- Trail of the Lonesome Pine and Natural Tunnel State Park
- Technology in the Workplace: Joy Mining Machinery Re-build Facility
- Coal Gasification: Eastman Chemical Company

Teachers received 40 hours of Professional Development credit for attending the program and provided the following evaluation:

*Overall, how appropriate were the field trip activities?*

( 11 ) Very Appropriate    ( 0 ) Appropriate    ( 0 ) Not Very Appropriate

*Please rate each field trip (max value 4.00)*

A.	Flag Rock – geology & land use	3.82
B.	Powell River Project Research & Ed Ctr	3.91
C.	Red River's surface mine	4.00
D.	D/R Mine # 36	4.00
E.	Moss 3 prep plant	4.00
F.	Spectrum Lab	3.73
G.	CNX Gas	3.73
H.	Consol longwall mine	4.00
I.	Jewell Smokeless coke ovens	4.00
J.	Appalachian Power plant	3.91
K.	Joy Mining rebuild facility	3.91
L.	Eastman Chemical coal gasification	3.36

*Overall, how appropriate were the evening programs?*

( 11 ) Very Appropriate    ( 0 ) Appropriate    ( 0 ) Not Very Appropriate

*Please rate each evening program (max value 4.00)*

A.	Mike Abbott, DMME	3.73
B.	MountainRose Vineyard	3.82
C.	Tom Rappold, Norfolk Southern	3.91
D.	Dallas Sizemore, DEQ	3.64
E.	Breaks Interstate Park	3.91
F.	Phillip Puckett, VA Senate	3.91
G.	John Fox House	4.00

H.	Herbert Wheary, Dominion Energy	4.00
I.	Trail of the Lonesome Pine	3.91
J.	Natural Tunnel SP	4.00

*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?*

( 9 ) To A Great Extent ( 2 ) To Some Extent ( 0 ) Not Much ( 0 ) Not At All

*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?*

( 6 ) To A Great Extent ( 5 ) To Some Extent ( 0 ) Not Much ( 0 ) Not At All

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

Adapt material to existing lesson plans: Never (0) Seldom (0) Often (5) Almost always (4)

Use material to create new lesson plans: Never (0) Seldom (0): Often (3) Almost always (6)

*What will be done differently regarding teaching as a result of participating in the program?*

- More in depth, more examples, more practicality.
- I will make the coal mining industry a very cool thing to do!
- Wow, this requires a lot of thought. Everything will be done differently as a result of the knowledge I have gained.
- Make a event based problem solving unit about energy
- Incorporating newly learned knowledge & personal experience of going into the mines & plants
- I will use correct terminology and provide a first hand experience instead of book facts
- Help the students to understand how much is involved (jobs, etc) with mining. Also, the resource of coal , what are uses, & safety
- Educating students about coal and its impact on energy and the US and the entire world
- Greater emphasis explanation electrical generation

*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?*

( 10 ) Yes ( 0 ) No

*If Yes, to what extent?*

( 9 ) To a Great Extent ( 1 ) To Some Extent ( 0 ) Not Much ( 0 ) Not At All

I learned so much about the industry this week.

*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?*

( 10 ) Yes

( 0 ) No

*Explain:*

- Gives us a much better understanding so we can pass it along to others
- Kids will listen to anything a teacher says with regards to something neat to do. I will impress the kids that coal mining is a great place to get a job when they are older.
- They will get info from me about everything I learned – especially energy!
- By participating in this program I can better relate how coal becomes electricity and try to have students use it wisely particularly when I can personally relate to a coal miners life (or plant worker)
- I have a better understanding of my own state, and I feel that the students will benefit from that as I teach and carry it over to a more global perspective.
- I have a better understanding and I will be able to better present the information
- Not only info from our immediate area but the entire world

*Additional comments/impressions/thoughts*

- I will send you both my thoughts via email once I have given the thought process the time needed to show my great appreciation for the program.
- My objective was to learn different aspects of coal fired electricity so I can educate reporters, elected officials and public. Thanks for the opportunity
- Everything was great! This was a wonderful experience! Want to come back! Food was awesome, too!
- This was the best professional development program I have attended. It was very informative & comprehensive.
- Fabulous, thanks!
- If you had to eliminate anything to cut it shorted you could eliminate *Trail of the Lonesome Pine*, but hen we'd miss the local flavor which is important tool
- You all did a wonderful job – I can't wait to become proactive!
- I'm looking forward to the advanced class!! I have absolutely nothing negative to say.
- This is a great program. I never knew so much was involved in the production or how clean it is. Great program!
- Project Coal to Electricity – one of the greatest classes I've taken for some time. (So much information is given to us.)
- I liked the busy schedule and recommend keeping the program exactly as it is. Wonderful week! Jon and Barbara, thanks for the personal attention. You all must be exhausted.