

Title: Coal and The Kentucky Economy

Level: Secondary

Day/Time: One class period or Homework assignment

KERA Goals: 1.2, 5.4, 6.1

Objective: Students will read information and answer questions related to the effects of the coal Industry on the economy in Kentucky.

Background Information:

Altogether, Kentucky coal mines produce about 160 million tons of coal each year. This coal is mainly used to generate electricity at power plants in Kentucky and throughout the Midwestern and southeastern United States; however, coal is also used to produce many other goods and services. Total coal sales bring more than \$3.99 billion into the Kentucky economy in 1994. The coal industry is essential to the livelihood and economic health of many communities in Kentucky.

Many communities rely on the coal industry as a primary source of employment and income. In addition to jobs that are directly created at a coal mine, it is estimated that about five additional non-mine jobs are created for each miner employed in Kentucky. That is because many other commodities and services are needed to support the mining operation and the miners' families. In a few areas in Kentucky, direct mining jobs and their spin-off jobs can account for more than 50 percent of the total county employment.

In 1990, Congress amended the federal Clean Air Act to address concerns that pollution is damaging our environment and our health. The Clean Air Act Amendments require a wide range of industries to reduce their emissions of pollutants and produce cleaner air. In Title IV of the Amendments, Congress required that electric utilities cut sulfur dioxide emissions - which contribute to acid deposition - in half by the year 2000. These mandates could be especially detrimental to the Western Kentucky coal industry since this coal is generally high in sulfur.

Electric utilities have developed a number of strategies to comply with the requirements of the new laws. While clean coal technologies have been developed that would allow electric utilities to continue burning Western Kentucky's high-sulfur coal, some traditional consumers of Western Kentucky coal are switching to low-sulfur coal from western states. The cost of switching to western coal is less than the cost of construction and operating the equipment for sulfur removal. Many of our coal consumers, however, are using clean coal technologies to allow them to continue to burn Western Kentucky coal.

As a result of the Clean Air Act Amendments of 1990, the Western Kentucky coal industry faces a difficult challenge in the years ahead. If electric utilities decide to switch to western sources for coal, Western Kentucky will be hard-pressed to make up the loss in coal sales since 90 percent of Western Kentucky coal is purchased by the utility industry.

Although the effect of the Clean Air Act on the coal industry is important, the coal industry

Coal and the KY Economy -sec

also has other obstacles to overcome, such as mine reclamation, a shortage of people studying mining engineering, and aging workforce and other environmental issues. With all of these obstacles, what does the future hold for the Kentucky coal industry?

Coal is still an abundant and reliable fuel. With the use of new technologies or scrubbers, Kentucky coal can be burned and still be in compliance with the laws. Kentucky coal can be used in an environmentally sound manner. If the coal industry can work together with utilities, they can promote the continued use to Kentucky coal and clean coal technologies. As a result, Kentucky coal will have a bright future.

Introduction

Economy is the careful management of resources such as income, materials or labor. Things that contribute to a healthy economy include employment, commerce, transportation and natural resources including energy. The mining and distribution of coal is an integral part of local and regional economies of Kentucky.

Coal and the Kentucky Economy

Of 160 million tons of coal mined each year in Kentucky, 80 percent is purchased by the electric utility industry. This coal is shipped by truck, barge and railroad to numerous electric generating stations in the Midwestern and southeastern United States. Some Kentucky coal (about four percent) is exported to Canada and Europe. The remainder is used by industry to produce heat and electricity or to manufacture various consumer products.

As a result of the success of the coal industry, a number of related industries flourish. Equipment manufacturers design and build machinery used in the mines. Local businesses provide craftsmen and services to the mine. Extensive transportation networks have been developed to move coal from mine to consumer. Bankers, lawyers, printers, retailers, etc., all conduct daily business with the mine. When you consider all of these businesses and people that are involved in the operation of a mine, you can see that mining contributes greatly to the Kentucky economy.

Uses of Coal: Coal is primarily used to fuel the electric utility industry; however, it is also used as a raw material in various manufacturing processes. The types of products manufactured from coal include: fuel, soda water, acetylene, synthetic rubber, briquettes, artificial silk, sugar substitute, linoleum, T.N.T. explosive, electrical insulation, street lighting, sulfuric acid, sulfur, paint pigments, smelling salts, fertilizers, laughing gas, ammonia, baking powder, rubber cement, fire proofing, carbolic acid, food preservatives, electric plugs, billiard balls, medicines, perfumes, mothballs, paint thinner, fungicides, insecticides, storage batteries, wood preservative, disinfectant, varnish, roofing and paving.

Employment and Income: Over 600 mines in Kentucky directly employ more than 23,000 people. Spin-off jobs are non-mining jobs that result from the activities and incomes generated by the mining operation. For example, the Caterpillar salesperson who sells mining equipment or the carpenter building houses in a mining community rely on the mine

and the miners for their livelihood. If the mine closes they would probably lose their jobs.

Mine jobs are especially important in bringing personal income into a community. In those counties where mining occurs, miners' salaries are typically two to three times greater than the average salary in the county. That income helps to pay for the schools, roads and services that the community needs.

An entire economy centered around mining, marketing and transporting coal often exists in more remote areas of the state. There are several areas where miners account for as much as 40 percent of employment in the county and 67 percent of total personal income. If local mines are closed, these communities would be in economic distress.

The Clean Air Act

In 1990, Congress passed amendments to the Clean Air Act that would curb three major threats to the nation's environment and the health of Americans: acid rain, urban air pollution and toxic air emissions. Title IV of the Amendments addresses the issue of acid rain by placing strict limits on electric utility emissions of sulfur dioxide and nitrogen oxide - thought to be the two leading causes of acid rain.

Phase I requires 110 power plants to make significant reductions in sulfur dioxide emissions by 1995. These plants include the largest emitters of sulfur dioxide in the country. In Phase II, all power plants across the nation are required to reduce sulfur dioxide emissions by the year 2000. Utilities in the United States presently emit 20 million tons of sulfur dioxide each year. These emissions will be reduced to 8.9 million tons annually after the year 2000.

These provisions are expected to have profound implications for Kentucky's coal industry. Western Kentucky coal generally has higher sulfur content compared to coal from western states and will emit greater amounts of sulfur dioxide when burned. Consequently, many utility companies will choose to switch to low-sulfur western coal in order to reduce their sulfur dioxide emissions. While clean coal technologies would allow utilities to continue burning Kentucky coal, they are not always the most economical choice.

The Future of Kentucky Coal: The Kentucky coal industry has many obstacles to overcome in the years ahead. Existing markets for Kentucky coal must be preserved through implementation of clean coal technologies and other measures that will allow high-sulfur coal to be burned in an environmentally safe way. In addition, new markets must be developed to replace those lost as a result of fuel switching by utilities. The coal industry and the electric utility industry must work together to ensure the continued use of one of Kentucky's most abundant resources - COAL.

Discussion:

1. What is the definition of economy?
2. List some components of a healthy economy:

Coal and the KY Economy -sec

- a.
- b.
- c.
- d.

3. List two ways that coal helps the state economy:

- a.
- b.

4.Explain two uses of Kentucky coal:

- a.
- b.

5. What is the Clean Air Act?

6. Why is the Clean Air Act important to Kentucky coal miners?

7. What do you think is the future of Kentucky coal?

Adapted from materials developed by the Illinois
Department of Commerce and Community Affairs,
Office of Coal Development and Marketing