



Examining the Tradeoffs:

Our area has the highest concentration of coal-fired power plants of anywhere in the U.S. Three more coal plants are proposed for our area. Are these job-creating new technologies to be embraced, or do these plants reflect an unhealthy shortsighted strategy?

A balanced presentation and discussion of the facts, costs, benefits, and potential consequences of these three proposed plants.

Presented by the
Public Life Foundation of Owensboro

...fostering broad and meaningful citizen participation
in community decisions and public policy

Public Forum

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Information

Coal & Economic Development

Coal: a primary energy resource

The U.S. economy relies heavily on energy from the burning of fossil fuels: petroleum (40 percent), natural gas (24 percent) and coal (23 percent). The remaining 13 percent comes from nuclear power, hydroelectric dams and various renewable sources.

In response to this demand, U.S. companies and governmental utilities burn a billion tons of coal per year. Nearly 50 percent of the electricity in the U.S. comes from more than 600 coal-fired power plants. In Kentucky, all but six percent of electricity comes from coal. (Federation for American Coal, Energy and Security – FACES)



Coal-fired power plants highly concentrated in our area

Because of our proximity to commercial rivers and coal reserves in the Illinois Basin (Indiana, Illinois and more than 35 billion tons in western Kentucky), our region has attracted the highest concentration of coal-fired power plants of anywhere in the U.S.

There are 18 of these coal plants in our tri-state area.

Air quality is also affected by other industries: steel, automotive, aluminum, etc. Approximately 20 percent of the world's aluminum is smelted in this area.



Plant

- TVA (Shawnee)
- Big Rivers (Reid)
- HMP & L Station 2
- Big Rivers (RD Green)
- OMU (Smith)
- Big Rivers (Coleman)
- Big Rivers (DB Wilson)
- KU (Green River)
- TVA (Paradise)
- Alcoa
- Cinergy (Gibson)
- Frank Ratts
- City of Jasper (Jasper 2)
- Vectren (Warrick)
- Vectren (AB Brown)
- AEP (Rockport)
- Ameren (Newton)
- Ameren (Hutsonville)

County

- McCracken
- Henderson
- Henderson
- Webster
- Daviess
- Hancock
- Ohio
- Muhlenberg
- Muhlenberg
- Warrick (IN)
- Gibson (IN)
- Pike (IN)
- Dubois (IN)
- Warrick (IN)
- Posey (IN)
- Spencer (IN)
- Jasper (IL)
- Crawford (IL)

Low-cost electricity has lured industry

Kentucky boasts of the lowest electricity rates in the nation – 60 percent of the national average. Economic development specialists say this gives our area a competitive edge in recruiting and sustaining heavy industries that use huge amounts of power. They point to manufacturing plants such as Century Aluminum, Alcoa, DANA, Toyotetsu, AK Steel and others that have been attracted to this area by the central location, river ports and low-cost electricity.

...but industry increasingly moves to other countries

However, U.S. manufacturing companies are finding it increasingly difficult to stay competitive with substantially lower labor and production costs in other countries. And locally, even with low-cost electricity and available industrial sites, prospects for manufacturing are unsettling in light of national-international trends, a lingering recession and the recent closings at General Electric and HON.

Shifting away from manufacturing

Energy demand may decrease as less emphasis is placed on recruiting heavy industry (that requires more low-cost electricity) toward a strategy of technology-based companies and support for entrepreneurs through a new Center for Business and Research.

Pressure to create jobs through “clean coal”

Elected officials at every level, under pressure to create jobs and reduce U.S. reliance on foreign oil, appear to be embracing the notion of “clean coal” and carbon sequestration technology as a way to keep the coal industry viable and to assure citizens concerned about health and the environment. Unfortunately, these technologies are experimental, expensive and consume a massive amount of energy.

Nonetheless, even if newer plants emit fewer toxic chemicals, since the older plants are not being phased out, the cumulative impact intensifies the emissions problem in our area.

Coal production creates primary, secondary jobs

With unemployment running nearly 10 percent in this area (Kentucky Office of Employment and Training), steps to create well-paying jobs appear to trump any negative consequences. As a result, a strong alliance of elected officials, community leaders, economic development groups and labor unions support the proposed coal plants.

Even though advances in technology are reducing the number of coal mining jobs, employment in the industry is significant: According to the Energy Information Administration, nearly 18,000 people are employed in coal mining in Kentucky, second only to West Virginia’s 20,000. In a nine-county area around Owensboro–Davies County, the average mining employment has been nearly 2,700 in recent years. Hourly workers earn from \$17–\$24 per hour depending on the position; salaried staff earn upwards of \$85,000 for engineering and foreman positions.

According to the Federation for American Coal, Energy and Security (FACES), every coal mining job creates 3.5 jobs elsewhere in the economy: equipment sales, housing, retail, services and more.

Shortcomings of jobs in the coal industry

Compensation has improved significantly in the coal industry, however:

Employment is often cyclical, characterized by “boom or bust” swings.



Coal mining continues to be one of our nation's most dangerous occupations. Since 1995, there have been 101 fatalities in Kentucky, 398 nationwide. Program cuts from state government shortfalls may reduce the capacity of mine safety inspectors to ensure that safety measures are in place.

Pneumoconiosis (or "black lung" disease) is caused by continuous exposure to coal mine dust. The disease kills an estimated 1,500 miners per year nationwide. In Kentucky, less than one in 20 applications for black lung Workers Compensation benefits is approved.

Some plants don't provide power to our area or use local coal

Merchant power plants are funded by investors and sell electricity in the competitive wholesale power market. Often this electricity serves areas far away and local coal is supplanted by lower sulfur coal from western states (as is the case with the Rockport, Indiana electric plant).

Traditional rate-based power plants are built and operated by electric utilities specifically to serve that utility's retail customers. Some also sell power on the market.

The Three Proposed Plants

More coal plants proposed

Three more coal plants are proposed for our area. They will all be merchant power plants.

| | |
|-----------------------------|--|
| Cash Creek | on the Henderson-Daviess County line along the Green River near Curdsville and Maple Mount |
| Kentucky NewGas | in Muhlenberg County along the Green River near Central City |
| Indiana Gasification | in Spencer County along the Ohio River near Rockport |

Coal-to-gas technologies planned

All three of the proposed ventures plan to use coal from this area.

The Cash Creek plant would convert coal into synthetic natural gas that would be burned to generate electricity to supply the plant. Excess gas and electricity would be sold on the open market.

Kentucky NewGas would generate substitute natural gas (SNG) through gasification of coal and petroleum coke, a waste product of the refining industry. The coal could be supplied from a nearby mine and petroleum coke would

be delivered to the site by barges. The SNG produced at the plant would be delivered to one of the three interstate natural gas pipelines located close to the facility.

Indiana Gasification would use a process called "methanation" to squeeze pipeline-quality natural gas out of high sulfur coal then sell the synthetic gas to utility companies.

Costs, financing and incentives

The Cash Creek plant investors – The ERORA Group (80 percent owned by Goldman Sachs and D.E. Shaw Group) and GE Energy Financial Services (20 percent) – project a \$1.97 billion private investment for construction. The corporation could qualify for up to \$150 million in state tax incentives.

The Kentucky NewGas plant is estimated to cost \$3 billion. Peabody-Conoco could qualify for up to \$250 million in incentives from the state of Kentucky, including refunds of sales, income and coal severance taxes from the project.

The \$2.2 billion Indiana Gasification is being developed by the Leucadia Corporation on a superfund site. Eighty percent of the project is to be financed through U.S. Department of Energy federal loan guarantees. The deal also includes a 30-year fixed price guarantee. Indiana utilities would be forced to purchase SNG produced at Rockport

Information | The Three Proposed Plants

from the state of Indiana. If the plant does not achieve \$400 million in savings over the 30 years from what natural gas would have cost, the company will turn the plant over to the state or pay the state \$400 million. Apparently the plan and contracts are still being negotiated.

| | |
|--|------------------------------------|
| Estimated total cost of the three projects: | \$7.17 billion |
| Estimated total cost of the three projects: | \$400 million plus loan guarantees |

Temporary and permanent jobs

Project leaders estimate that 1,500 workers will be employed during peak construction periods of the Cash Creek plant. Once operational, the plant will employ approximately 250 people with wages averaging \$23 per hour.

The peak construction work force for the Kentucky New-Gas project is estimated to reach 1,200. Approximately 500 people will be needed to operate the plant and provide coal for it.

The Indiana Gasification project is estimated to employ a peak construction work force of 1,000 with approximately 300 workers needed to operate it. Approximately 200 miners would be needed to provide coal for the plant.

| | |
|--|-------|
| Estimated total construction jobs for the three projects: | 3,700 |
| Estimated total operational jobs for the three projects: | 1,250 |

Impact on the unstable coal industry

Project leaders estimate that the Cash Creek plant would use 1.7 million tons of coal per year, although other estimates are much higher.

Approximately 2.5 million tons of coal would be used annually at the Kentucky NewGas plant.

The Indiana Gasification plant would use approximately 3.5 million tons of coal annually.

These projects would help stabilize the “boom and bust” cycles that typically have characterized the coal industry.

| | |
|--|---------------------------|
| Estimated total amount of coal to be used for the three plants: | 7.1 million tons annually |
|--|---------------------------|

Impact on government revenues

Governments at all levels stand to benefit from these ventures:

- city and county governments (of Henderson, Muhlenberg and Spencer Counties):
 - ◆ occupational taxes
 - ◆ net profits taxes
 - ◆ property
 - ◆ school taxes
 - ◆ insurance taxes
 - ◆ severance taxes on mined coal
- Owensboro-Daviess County would not likely see any measurable impact on government revenues, although there would be indirect economic benefits – for example, some workers at these plants may live in Owensboro and pay property taxes. Investments made in these plants would circulate in the regional economy through bank deposits, loans, increased spending, spin-off jobs and more.
- state governments (Kentucky and Indiana)
 - ◆ sales and use taxes on equipment purchased to build the plant
 - ◆ income taxes
 - ◆ corporate taxes
 - ◆ severance taxes
- federal government
 - ◆ income taxes
 - ◆ corporate taxes

Information | The Three Proposed Plants

Market conditions bring uncertainty

Despite the growing demand for energy, it is also plentiful. Some analysts question whether or not there is a market for the three coal plants proposed for our area. In 2008, the U.S. could produce 22 percent more electricity than was needed. The eagerness to build these plants could wane

since natural gas prices have dropped from \$13 to \$4.50 per thousand cubic feet and natural gas reserves have increased by 35 percent in the past two years. Prices are likely to remain low until the global economy recovers, supply levels off and demand is driven back up.

Health & Environmental Implications

Toxic emissions nearly three times worse here than six major U.S. cities – combined

Coal-fired power plants emit fine particle matter, sulfur dioxide, nitrogen oxide, carbon dioxide, mercury and more. According to the U.S. Environmental Protection Agency (EPA) Toxic Release Inventory, Owensboro-Daviess County and seven nearby counties released the following toxic emissions in 2008:

| | |
|-----------------------|--------------------------|
| Daviess County, KY | 2,166,980 pounds |
| Muhlenberg County, KY | 9,816,155 pounds |
| Hancock County, KY | 3,262,862 pounds |
| Henderson County, KY | 3,589,889 pounds |
| Ohio County, KY | 2,532,856 pounds |
| Spencer County, IN | 24,774,910 pounds |
| Perry County, IN | 89,512 pounds |
| Warrick County, IN | 8,353,766 pounds |
| TOTAL | 54,586,930 pounds |

Note: These include emissions from all industrial sources. Automobile emissions are not included.

The same inventory reports that the comparable toxic releases of New York City, Los Angeles, Chicago-Cook County, Atlanta-Fulton County, Philadelphia, Pittsburgh-Allegheny County, and Seattle-King County *combined* are 19,863,486 pounds – approximately one-third of local industrial emissions.



Older plants are the worst polluters

Forty-five percent of coal-fired power generation occurs in plants that are 25 years or older. Older plants emit up to 10 times more pollution than facilities built today. Many older plants have been upgraded; in our area, at least 10 of the 18 plants have scrubber technology.

Compliance could be endangered

Even though new plants are cleaner, they contribute to the problems. Additional coal plants in this area could push certain counties out of compliance with health-based air quality standards (sulfur dioxide, ozone, fine particles), thereby limiting the capacity to attract the very industries the power plants hope to serve.

A regional challenge

The coal plant emissions issue is more than a community problem. Air does not stop at county or state lines; there is no such thing as “our air.” A polluting plant in Henderson

Information | Health & Environmental Implications

County may affect the air quality of Daviess and Hancock counties more than where it is located.



Impact of coal plant emissions on health

Although estimates vary, each year coal-fired power plant emissions shorten the lives of hundreds of Kentuckians, cause many people to miss work, induce asthma attacks, increase cancer risk, and is consistently linked with heart attacks, lung disease, Sudden Infant Death Syndrome and other health problems. Autism has been linked to exposure to mercury.

Compared with other states, Kentuckians have the second highest rate of incidence of illness and disease from power plant pollution. Those who live within 30 miles of coal-fired power plants have the greatest exposure. In Kentucky, this represents 3.3 million people, 812,000 children and 44,000 people with asthma.

While the toxic effect of individual substances can be damaging, the cumulative effect of exposure to multiple toxins over a long period of time is particularly alarming and exposes children to the greatest risk.

According to the 2007 Kentucky Institute of Medicine's report, *The Health of Kentucky*, Daviess County has 51 percent more lung/bronchial cancer deaths than the national average: 83 deaths compared to 55 (per 100,000 population). In Daviess County, that translates to approximately 27 more deaths per year.

However, that same study reported that Daviess County is the eighth healthiest county in the state and that "In general, Kentucky is a healthy place to live and work." The report pointed to poor lifestyle choices as the source of most health problems. (The study did not examine environmental factors.)

The 1998 Partnership for Healthcare Information study found that youth in Evansville, IN were five times more likely to be hospitalized with asthma than youth in the Ft. Wayne, IN area. The determinable variable was the proximity to coal-fired power plants; there are no such facilities located in the Ft. Wayne area.

The 2009 Kentucky Cancer Registry lists Hancock County with the highest rate of invasive cancer in 30 western Kentucky counties.

Obviously, there are multiple factors affecting health and disease: smoking, poor diet, obesity, lack of activity, industry emissions, automobile exhaust, etc. But in their Nov. 2009 report, Physicians for Social Responsibility concluded that "coal contributes to four of the top five causes of mortality."

Climate change

There is broad scientific consensus that increasing concentrations of greenhouse gases are changing global climate and threatening the ecosystem, and that the immense amount of carbon dioxide that has been released into the atmosphere as a result of population growth, industry, automobiles, etc. is the principal cause.

According to the Center for Climate Strategies, Kentucky's greenhouse gas emissions are increasing at twice the rate of the rest of the nation: 33 percent in the state compared with 16 percent nationally. Without additional controls, by 2030, this could increase to 62 percent above the 1990 level.

Strip mining

Surface mining in the tri-state area is not as controversial as the mountaintop removal technique used extensively in



Appalachia, but it results in major alterations and degradation to the ecosystem. Reclamation cannot replace the damaged ecosystem, but in this area, the mined land can generally be re-contoured with preserved top soil to the satisfaction of many property owners. That's not to say that strip mining in this area is not without complaints and controversy: There is blasting (structural damage, noise), dust, road damage from heavy trucks, sediment flow and other unpopular consequences.

However, many property and mineral right owners support mining and benefit financially from royalties off production.

In 2006, there were 13 underground mines and 13 surface mines in western Kentucky that produced approximately 30 million tons of coal. (Kentucky Coal Facts, www.coaleducation.org)

Impact on river ecosystem

The three proposed coal-to-gas plants would require an enormous amount of water (tens of millions of gallons) per day from the Green and Ohio Rivers. Water would be discharged back into the river at significantly higher temperatures. Even when that temperature is within governmental regulations, it could damage the river's ecosystem by lowering the oxygen concentration that kills fish and throws off reproductive cycles.

The Cash Creek permit allows for 1,890,000 gallons of 89-degree wastewater to be dumped into the Green River every day, as well as oil and grease, cyanide, pH hardness and metals.



Deliberation

Those who support these proposed plants may say...

1. Unemployment in our region is unacceptably high at approximately 10 percent. Project sponsors estimate that these three proposed plants would employ 3,700 construction workers and 1,050 workers to operate the plants. Moreover, these would be steady, well-paying jobs. Each primary job would create 3.5 secondary jobs. These plants could stabilize the coal industry that is typically in a “boom or bust” cycle.

2. These plants will take advantage of the latest in emissions control technology. For instance, Kentucky NewGas project will emit less than five percent of the sulfur and nitrogen oxide of traditional coal-fired power plants, and carbon dioxide can be used in the oil industry or stored underground. The problem is with the old plants that have not been retrofitted since the new regulations have been in place.

Employees and the families of these plants want clean air as much as anyone.

3. Air quality may contribute to health problems, but emissions from industry are just one factor. There is also a correlation between heart and lung disease with obesity, smoking, and other factors. If people would take more personal responsibility, we would have a healthier community and region. Most people are willing to take the health risk from industry for a chance to have a good, steady job.

4. We are fortunate to have natural resources (coal, oil, natural gas, navigable rivers) in this region. We should take advantage of these assets to develop our economy and provide jobs.

5. Industries (e.g., aluminum, steel, automotive) have been and can be attracted to our area with the incentive of low energy costs brought about by power plants in our area. We should not give up on manufacturing jobs that generally pay much better than service jobs.

6. Clean coal technology from plants such as the three proposed for our area can make an important contribution toward the goal of energy independence and ending our reliance on foreign oil.

7. We simply cannot meet our current and projected energy needs without the use of fossil fuels. Alternative energy technologies (e.g., solar and wind) are important to pursue for the long-term, and conservation is important, but coal provides half the electricity for the U.S. and nearly all the electricity for Kentucky. We cannot change course.

Other:

Other:

Other:

Those who oppose these proposed plants may say...

1. We should not compromise our health and environment for jobs. Moreover, well-paying jobs can be created in developing sustainable forms of energy: solar, wind and more.

2. We already have a serious problem with the highest concentration of coal plants anywhere in the nation. Even with newer plants that have stronger pollution controls, with every new plant, we add to the cumulative impact. The older plants are not being shut down and are not likely to go off line as the newer plants are built, so the problems will be compounded.

This area is already out of compliance for many pollutants that these plants would produce (e.g., particulates, ozone, etc.).

3. The health threats are real, significant and emphasized by pediatricians who treat asthma patients and physicians who treat elderly persons for heart disease, emphysema or lung cancer. Coal plants are associated with high levels of mercury emissions affecting lakes, rivers and streams to the point where children and pregnant women are advised not to eat fish out of Kentucky waters.

4. Indeed, we should use these assets, but we should not abuse them. There are more economical and healthier alternatives to fossil fuels. Now that we know the harm from these fuels, we owe it to future generations to be more responsible and protect our air, land and water.

5. Even with historically low-cost energy in this area, the days of recruiting major industries and manufacturing facilities are unlikely. We now live in a global economy and U.S. business cannot compete with labor rates and lower costs in Mexico, China and other locations.

6. There may be less dirty coal technology, but coal is never clean. The best way to reach energy independence is by using our ingenuity and making a real commitment to the development of clean alternative energy sources, efficiency and conservation.

7. Clean alternative energy sources have not played a larger part because we have not invested in research and development significantly, nor have we offered the same degree of financial incentives that have been made available to coal, oil and gas companies. These proposed plants involve huge incentives and risks that cannot be justified.

Other:

Other:

Other:

Discussion Questions

- **What general information, if any, was particularly valuable to you?**
- **Which pro/con points do you agree/disagree with?**
- **If you had to pick one pro or con point, which do you consider to be most compelling?**
- **Are there other points, pro or con, that need to be added to the list?**
- **What should be the guiding principles that our leaders use in making these important decisions?**
- **Should we draw the line on coal plants in our area - after these three plants are built? ...after five more are built? ...ten more?**
- **Is our only choice to accept unhealthy conditions in this area for the jobs that could be created?**
- **How do we balance short-term circumstances with long-term strategies?**
- **Which policy options are you inclined to support?**
- **If you could wave a magic wand and make this come true: What would be the best possible outcome of this forum?**
- **Other closing comments?**

