State of Illinois
Rod R. Blagojevich, Governor

Illinois Department of Commerce and Economic Opportunity
Jack Lavin, Director

The Illinois Coal Industry

Report of the Office of Coal Development
June 2008

"Now is the time to turn up the volume on our message. . . that Illinois coal and clean coal technology are vital to any strategy to address the energy challenges of tomorrow."

Jack Lavin
Director, DCEO

dceo

THE ILLINOIS COAL INDUSTRY

JUNE 2008

REPORT OF THE

DEPARTMENT OF COMMERCE AND ECONOMIC OPPORTUNITY

OFFICE OF COAL DEVELOPMENT

dceo Illinois Department of Commerce and Economic Opportunity

Rod Blagojevich
Governor

Jack Lavin
Director

The Honorable Rod Blagojevich
The Honorable Tom Cross
The Honorable Emil Jones, Jr.
The Honorable Michael Madigan
The Honorable Frank Watson

RE: The Illinois Coal Industry Report

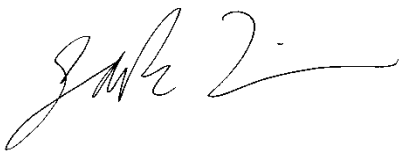
Dear Governor and Members of the Illinois General Assembly:

On behalf of the Illinois Department of Commerce and Economic Opportunity, I am pleased to submit the 2008 report entitled *The Illinois Coal Industry*. This report contains data and analysis for the 2006 and 2007 calendar years and is submitted in compliance with Section 1105/8(b)(5) of the Natural Resources Act.

In addition to chapters on Illinois coal production, Illinois coal producers, the geological references to Illinois coal resources, the history of coal mining in Illinois and utility markets, this report contains two chapters which describe the effects of sulfur dioxide emission legislation on the Illinois coal industry. The report also provides a profile of the transportation system for coal in Illinois and an overview of the programs provided by the Department of Commerce and Economic Opportunity's Office of Coal Development.

The Illinois coal industry has been a significant contributor to the Illinois economy for many generations. The industry continues to face many challenges, but the current period also offers significant opportunities to access new markets and benefit from the deployment of new clean-coal technologies that will foster sustained growth and long-term economic stability in the coal fields of this state. It is my hope that the information and analysis contained in this report serve as a guide for maintaining the economic viability of the Illinois coal industry for generations to come.

Sincerely,



Jack Lavin

Director

NOTE

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Copies of this report may be obtained from:

Department of Commerce and Economic Opportunity
Office of Coal Development
620 East Adams Street
Springfield, IL 62701-1615
(217) 782-6370
TDD: (217) 785-6055
http://www.illinoiscoal.biz

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FOREWORD

Coal mining has a rich and proud tradition in Illinois, and 2010 will mark the 200th year since the first shipment of coal, mined from the bluffs of the Big Muddy River in southern Illinois, was shipped down the Mississippi River to New Orleans. During those two centuries, coal mining has evolved on all fronts. Once a dangerous, back-breaking occupation – men and boys using pick axes, mules, wooden coal carts to mine the coal and canaries to test the air – it is today a well-paying, still physical but highly-mechanized pursuit in which teams of men and women carve tons of coal from the earth at the pull of a lever.

Coal, once used to heat homes, fuel street lamps and power locomotives, today is the primary feedstock for nearly half of the electricity generated in the United States. Meanwhile, new technologies are being deployed to use coal as the fuel of choice to produce everything from pipeline-quality synthetic natural gas, to low-sulfur diesel fuel, fertilizer and a variety of other chemical products.

Over its long history in Illinois, much has changed in the fundamental way coal is extracted from seams running deep beneath the earth. The once labor intensive mining industry has evolved into a largely capital intensive enterprise. Early in the 20th Century, a coal miner working 12-hour days produced at most a few tons per year. Today, an Illinois coal miner's annual output averages close to 10,000 tons. This increase in productivity comes with a price tag. Opening a mine once required only some drilling equipment and timbers for roof support, but now requires an investment in the vicinity of $300 million for computerized mining equipment and the infrastructure for proper ventilation and carrying coal to the surface.

Change is a Constant

Transformation and evolution are as much a part of producing coal as hard hats, miners' lamps and conveyor belts. Further along in this publication are charts and graphics that document the sometimes bruising economic history of the industry, and specifically coal mining in Illinois. Growth and contraction have come in spurts. Mines have opened one year and closed the next. Layoffs have been an unpleasant fact in the lives of coal miners

and mine owners. In the last two decades, production has slowed so much that the legacy of sons following fathers and grandfathers into the mines almost skipped an entire generation. Mine employment in Illinois has been reduced by 62 percent since 1990, and coal production has dropped by 48 percent.

The promise of full-scale revival remains uncertain. However, investment in Illinois Basin coal reserves continues to be strong, bolstered recently by a near doubling of spot market prices. Because Illinois has been aggressive in marketing its assets, the state leads the nation in attracting proposed "new coal" projects that plan to use coal gasification technology, including the U.S. government's flagship FutureGen near-zero emissions power plant. Illinois and its neighboring coal states are poised to meet higher demand forecasts in 2008 and beyond, whether that comes from a burgeoning export market such as Western Europe, from electric plants in the Southeast, newly outfitted with SO_2 scrubber technology, or from home-grown, coal-fueled facilities producing power, syngas or chemical fuels.

Just as the industry achieved important milestones in coping with environmental constraints on sulfur dioxide and other pollutants, coal advocates are preparing to meet the challenges posed by heightened public concern over global warming and coal's large contribution to greenhouse gas emissions. Additionally, there are signals that coal demand has increased across the globe. Illinois, with its ample reserve base, trained workforce and well-developed rail and barge delivery infrastructure, is likely to benefit significantly from new demand in more distant markets.

Unfortunately, the Bush Administration is attempting to halt FutureGen, while other projects promising to deploy advanced coal technology have been cancelled or delayed amid concerns about rising construction costs and uncertainty about forthcoming greenhouse gas regulations. Left to question is when new domestic demand for Illinois coal will manifest itself. Just as uncertain is when, and how the vast coal resources of Illinois and other producing regions will able to contribute to a more energy-secure future for the United States.

Those poised to meet current and future demand will be new players as the coal industry in Illinois undergoes its own transformation. Leaving the ranks of Illinois producers are the mainstays of the late 20th Century, industrial and energy giants such as Exxon-Mobil,

General Dynamics/Freeman Energy, Shell Oil and Kerr-McGee. In their place, Peabody Energy, the world's largest coal producer, has upped its stake considerably in Illinois mining. Cline Resource and Development Company, an aggressive new entrant in the Illinois Basin, that while low profile, already has opened one high-output Illinois mine and disclosed plans to initiate three or more additional operations.

During the period of this report Illinois also saw continuation of a trend toward geographic consolidation of coal mining in the state. Overall, Illinois coal production in both 2006 and 2007 remained near the five-year average of 32 million tons. Output in excess of 1 million tons was recorded for the first time in 2007 from all 11 coal-producing Illinois counties (seven in the southern one-third of the state, and Macoupin, Logan and Vermilion counties). Two Illinois mines closed in 2006 and three suspended operations in 2007, all because of unfavorable market conditions, geologic problems, or both. Two new mines opened in 2006 and ramped up production in 2007, helping to offset the closures with their combined output of nearly 2 million tons.

Setting the Bar for Safety

Illinois coal mines are as safe as any mines in the U.S. due to the perseverance and determination of coal miners, mine operators, and inspection teams. Today's miners still work in dark, often dangerous conditions, but ventilation and safety are mandated by law. The highly-regulated industry is monitored by State inspectors who visit the mines unannounced, checking dust levels, machine operability, escape routes, electrical systems, always looking for accidents waiting to happen. Illinois mines were fatality free in 2004, 2005, 2006, and 2007.

Bucking the Trends

Although progress has been slow, Illinois leads other coal regions with permits approved for two coal gasification facilities – the Taylorville Energy Center in Christian County and the Secure Energy syngas production facility in Decatur – and two major coal power projects under construction. Ground was broken in 2007 for the Prairie State Energy Campus, a 1,600 megawatt power station in Washington County, which is being developed by Peabody Energy and is owned by several municipal and rural electric power providers. A projected 6

million tons of coal per year for the plant will come directly from the nearby Lively Grove Mine, where development work is expected to begin in the summer of 2008.

Meanwhile, Springfield City Water, Light & Power (CWLP) is constructing a new pulverized coal power plant that, when completed in 2010, will be one of the cleanest coal-fueled generating units in the nation. The new 200-megawatt unit will replace 76 megawatts of power available from the utility's two aging Lakeside generators. The new CWLP Dallman 4 station will rely on a coal supply from a mine 20 miles away.

In addition to developing power facilities, Peabody remains the largest coal producer in Illinois. Knight Hawk Coal, American Coal, Alliance Coal and International Coal Group also have significant mining operations. The growth agent, however, is likely to be Cline Resource and Development Company, headquartered in West Virginia, which recently opened its first Illinois mine, Pond Creek, in Williamson County, and is pursuing other initiatives that also would use high-production longwall mining techniques. Pond Creek produced more than 1 million tons in 2007, and annual production is expected to ramp up to as much as 7 million tons. Other Cline properties in the permitting stage including Deer Run, Sugar Camp and Locust Grove, located in Montgomery, Franklin and Williamson counties, respectively, with annual production projected at 22 million tons.

Marketing targets for new Illinois mining capacity are expanding as U.S. clean air regulations have leveled the playing field for high-sulfur coal, such as that produced throughout the state. While the 1980s ushered in rigorous emissions limits for new power plants, older power facilities throughout the U.S. avoided installing SO_2 scrubbers for more than two decades. Nine Illinois power plants switched to lower sulfur Western coal between 1991 and 2007, resulting in an annual loss of 12.3 million tons of Illinois coal sales. In addition, Illinois coal sales to other states dropped 25.9 million tons in response to changes in air regulations and, to a lesser extent, price competition.

The transition that began with the Clean Air Act Amendments of 1990 will end when the latest round of federal and state sulfur and mercury reduction measures are fully implemented. The updated technology will make Illinois coal competitive, largely from a price standpoint, for plants throughout the eastern United States that can be supplied by barge or rail.

In 1991, a year after the Clean Air Act Amendments were signed, Illinois coal averaged $29.42 per ton at the mine site (FOB) but declined steadily throughout the next decade. The price would not return to that level for 15 years, until an average of $31.56 was posted for 2006. A study by Hill and Associates indicates the upward price trend will continue to a forecasted $38 a ton coal by the end of 2008. Spot prices at the time of this report were well above that level, reaching into the $45-$50 range.

Margins Remain Narrow

While higher prices are welcome, profit margins remain narrow in Illinois, as elsewhere in the industry, due to rising steel prices and the volatility of petroleum-based products used throughout the mining process. Mining operations are heavy users of diesel fuel (for surface mining vehicles, large truck-to-barge shipping and underground coal hauling cars) as well as petroleum-based products for machinery lubrication, roof bolting resins and coal cleaning plant chemicals.

Steel price increases are being absorbed to provide coal conveyor belt structure, roof support materials and cutting bits. Most equipment is powered with electrical cables, made of copper wire, that run throughout a mine. Prices change weekly, and fuel surcharges or steel surcharges have become a way of life.

Coping with Greenhouse Gas

Efforts are under way in Illinois to cope with the uncertainties stemming from discussions at the state, regional, national and international level on meaningful policies to reduce the output of greenhouse gases, specifically carbon dioxide from coal-fueled power plants. The unknowns, at the date of this publication, have triggered caution by investment bankers who would finance new coal facilities, and policymakers that resulted in large coal projects in Texas, Kansas, North Carolina, Florida and Nevada being cancelled or postponed.

As new policies to curb CO_2 emissions develop, Illinois is leveraging its superior geology to provide dependable locations for carbon capture and storage (CCS). Researchers at Illinois State Geological Survey are preparing pilot tests that will store one million tons of CO_2 in the Mt. Simon Sandstone formation, 6,000 – 8,000 feet below Illinois farm fields. Commonly used for decades to store natural gas, the Mt. Simon's potential for carbon dioxide storage is calculated to be a whopping 30 – 120 billion tons. As the Illinois Environmental Protection

Agency along with the U.S. EPA begin to develop storage guidelines, several energy companies and developers have expressed interest in using Illinois coal along with CCS for coal-to-liquids and coal-to-syngas projects, as well as advanced-technology electric plants along the lines of FutureGen.

Ready and Willing

Illinois coal miners and operators display great pride and resiliency as they battle the forces that threaten their existence. With 49 percent of the electricity in the United States generated from coal, and coal still the lowest price per Btu of any fossil fuel, producers will continue to strive to supply the much needed commodity.

Illinois' natural coal reserves represent a potential source of dramatic growth and prosperity for the central and southern Illinois counties that sit atop these resources. It is against that backdrop that this report is prepared, as well as a benchmark for the era when past struggles give way to an economic revival in the coal fields of Illinois.

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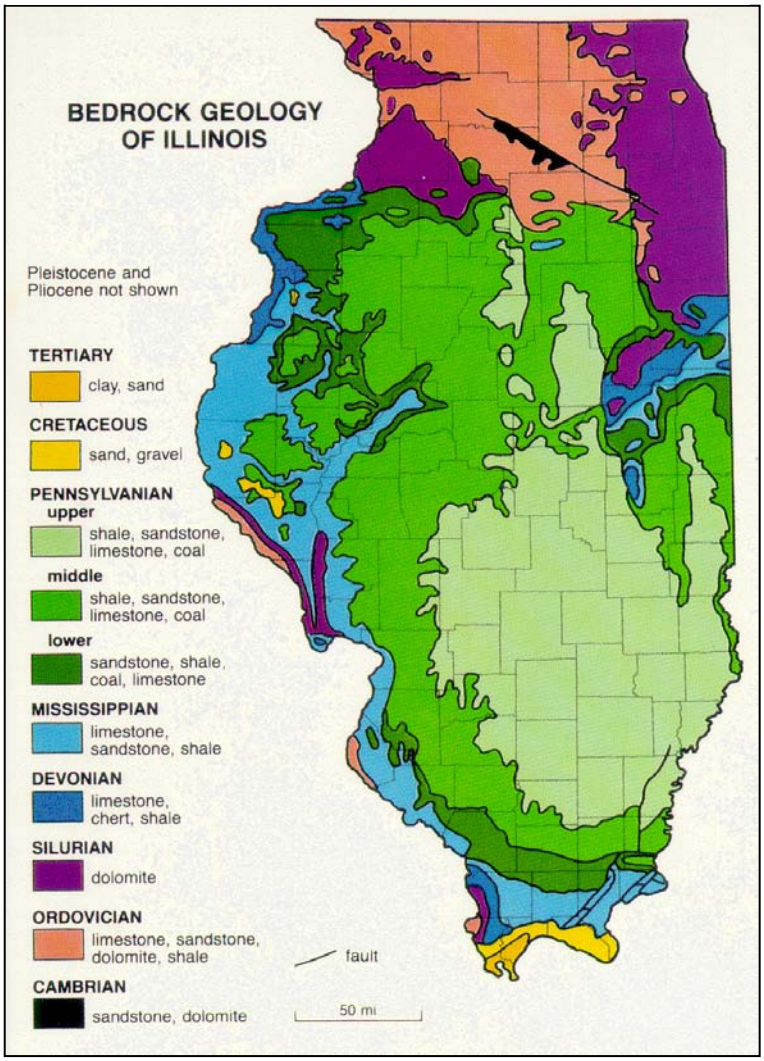
CHAPTER 1. ILLINOIS COAL RESOURCES

Illinois has the largest reported bituminous coal resources and the largest strippable bituminous coal resources of any state in the United States. Illinois has the third largest total coal resources of any state and is second only to Montana in terms of demonstrated reserve base.[1] About 36,800 square miles in Illinois are underlain by the coal-bearing sequence of rocks that constitute the Pennsylvanian System (Figure 1).

FIGURE 1. ILLINOIS MAP SHOWING PENNSYLVANIAN SYSTEM OF ROCK THAT CONTAINS COAL



Source: Bedrock Geology of Illinois. Map. Champaign, IL: Illinois State Geological Survey, undated.

Illinois' coal deposits began to form more than 300 million years ago during the Pennsylvanian Period, when the land that is now Illinois was near the Equator. Thick mats of plant debris accumulated on the floor of tropical swamps and were buried to form peat. Over millions of years, the layers of peat were compressed into coal. This process created more than 75 layers or "seams" of coal that range from a few inches up to ten feet thick. Some of the coal

[1]Jacobson, Russell J. "Coal Geology of Illinois" 2005 Keystone Coal Industry Manual 2005, p 632-643. Energy Information Administration (EIA) 2006 Annual Coal Report, Table 15.

seams cover thousands of square miles in Illinois and adjacent states, but most occur in small, more limited areas.

The Energy Information Administration (EIA) reported the following figures for Illinois bituminous coal reserves in its Annual Coal Report 2006.[2] The productive capacity, defined as the maximum amount of coal that can be produced annually as reported by mining companies (on EIA Form-7A), stands at 43,473,000 tons. Of that, 35,560,000 tons are from underground mines and 7,914,000 tons from surface mines. The total recoverable reserves, which is the quantity of coal that can be recovered from existing coal reserves at reporting mines, is 1,294,000,000 tons.

Illinois' demonstrated reserve base includes publicly available data on coal mapped and found at depths and in coalbed thicknesses considered technologically minable at the time of determinations. The demonstrated reserve base is 104.4 billion tons. The estimated recoverable reserves include the coal in the demonstrated reserve base considered recoverable (excluding coal estimated to be unavailable due to land use restrictions or currently economically unattractive for mining, and after applying assumed recovery rates). Illinois' estimated recoverable reserves are reported to be 37.9 billion tons. Of the estimated recoverable reserves, 27.9 billion tons are available by underground mining methods, and 10 billion tons are available through surface mining methods.

Seventeen coal seams have been mined in Illinois (Table 1). The coals are referred to by geographic names. However, several of the more important coals are also referred to by number -- the lower the number, the older the coal. Maps of the Illinois coalfields can be obtained by contacting the Illinois State Geological Survey (ISGS) or visiting the ISGS Web site at http://www.isgs.uiuc.edu/maps-data-pub/coal-maps.shtml. Most Illinois coal production comes from two coal seams, with 85 to 90 percent of the total production being from the Herrin No. 6 and the Springfield No. 5 seams. A small amount of coal is mined from the Davis, Dekoven, Friendsville and Murphysboro seams.

[2]United States. Energy Information Administration. Annual Coal Report 2006. By Fred Freme, under the direction of Thomas Schmitz and William Watson. <http://www.eia.doe.gov/cneaf/coal/acr/acr.pdf>. December 2007, Table 11 and Table 14.

The heating value of Illinois bituminous coal increases from about 10,000 Btu/lb in the northwestern part of the coalfield to about 15,000 Btu/lb in the southeastern part of the state. Illinois bituminous coal mined in 2007 ranged from 10,275 Btu/lb to 12,619 Btu/lb.[3]

According to the 2005 Keystone Coal Industry Manual[4], sulfur in Illinois coalbeds is commonly related to the character of the strata overlying the coal. Usually the coals overlain by marine strata have a sulfur content ranging from three to five percent. In certain non-marine areas when gray shale exceeds 20 feet in thickness above the coal, the sulfur content is less than 2.5 percent, commonly averaging 1.5 percent. The sulfur exists in two forms: organic and pyritic. The organic sulfur content of Illinois coals varies from a minimum of about 0.4 percent to a maximum of about three percent. Pyritic sulfur varies from nearly zero to as high as five percent. Essentially all coal shipped from Illinois mines is cleaned at preparation plants on the mine site, reducing the sulfur content of the final product by as much as one-third.

[3]"Coal Transaction Analyzer:1". October 2007. Platts COALdat 8.0. CD-ROM. McGraw-Hilll Companies, Inc. December 2007.
[4]Jacobson, Russell J. "Coal Geology of Illinois" 2005 Keystone Coal Industry Manual. 2005 ed. p.632-43.

TABLE 1. COAL SEAMS MINED IN ILLINOIS

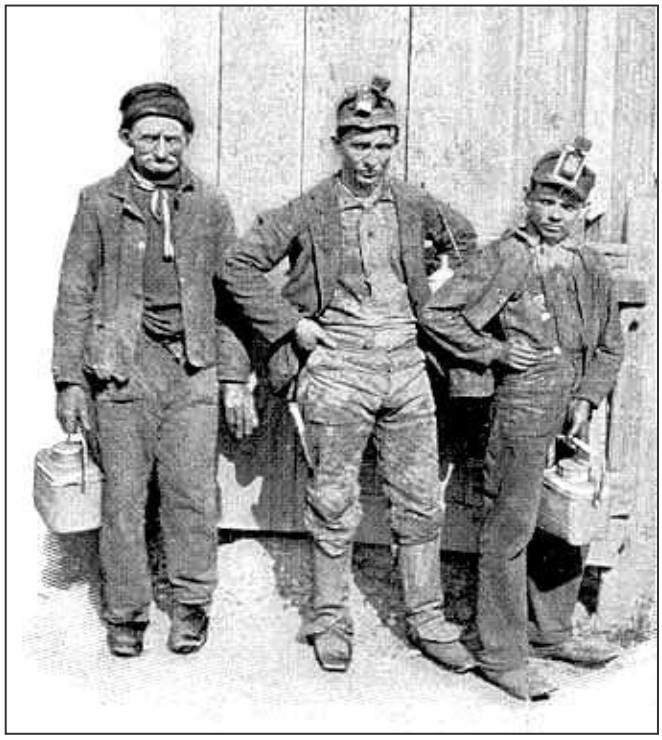
Correlation of coal seams and rock formations in the Illinois Basin							
Illinois		**Indiana**		**West Kentucky**		**Standardized Terms**	
Modesto Fm.		Shelburn Fm.		Sturgis Fm.	Coiltown (W. Ky. No. 14) Baker (W. Ky. No. 13) Paradise (W. Ky. No. 12)	Shelburn Fm.	
Carbondale Fm.	Danville (No. 7) Jamestown Herrin (No. 6) Springfield (No. 5) Summum (No. 4) Shawneetown Colchester (No. 2)	Dugger	Danville (VII) Hymera (VI) Herrin		Herrin Fm (W. Ky. No. 11) Briar Hill (W. Ky. No. 10) Springfield (W. Ky. No. 9)	Carbondale Fm.	Herrin Springfield Houchin Creek Survant Colchester
		Petersburg	Springfield (V) Houchin Creek Survant (IV)	Carbondale Fm.	Ruff Well		
		Linton Fm.	Colchester (IIIa)				
Spoon Fm.	Dekoven/Seelyville Davis Murphysboro New Burnside Bidwell Rock Island (No. 1)	Staunton Fm.	Seelyville (III) Buffaloville		Dekoven (W. Ky. No. 7) Davis (W. Ky. No. 6)		
					Manningtown (W. Ky. No.4)	Tradewater Fm.	
Abbott Fm.	Willis Reynoldsburg	Brazil Fm.	Minshall Upper Block Lower Block	Tradewater Fm.			
		Mansfield Fm.	Mariah Hill Blue Creek St. Meinrad Pinnick French Lick		Bell (W. Ky. No. 1b)		
Caseyville Fm.	Gentry			Caseyville Fm.	Main Nolin	Caseyville Fm.	

Jacobson, Russell J. "Coal Geology of Illinois" 2005 Keystone Coal Industry Manual. 2005, p.632-43

CHAPTER 2. HISTORY OF COAL MINING IN ILLINOIS

IN THE BEGINNING

The presence of coal in Illinois was first recorded on a map at a site along the Illinois River in northern Illinois by French-Canadian explorer Louis Joliet in 1673. The first recorded commercial sale of coal was in 1810 in Jackson County. Coal was mined from the bluffs of the Big Muddy River and sent down the Mississippi River to New Orleans. Surface mining efforts began in 1866 near Danville, Illinois. Horse-drawn plows and scrapers were used to remove overburden so the coal could be dug and hauled away in wheelbarrows and carts. Extensive underground mining took place in northern Illinois between 1864 and 1928.[5]



Generations of families worked together *(UMWA photo)*

During the 1800s, coal became the principal fuel used for locomotives. Coal was also used as heating fuel for households and to generate steam for steamboats. The coal boom of the late 1860s went hand-in-hand with the development of an extensive railroad network that allowed coal companies to ship their products cheaply to rapidly growing industrial cities such as Chicago and St. Louis.

[5]Joyce, Richard. The Illinois Labor History Society. "Early Days of Coal Mining in Northern Illinois". March 2003. <http://www.kentlaw.edu/ilhs/earlyday.htm>

A majority of the coal mining jobs were held by immigrants who came to Illinois in large numbers from Europe -- Irish, English, Scotch, Welsh, German, French, Belgian, Italian, Bohemian and Pole. In 1893, a state coal report stated that nearly 80 percent of the miners were recent immigrants. Child labor was common in the early 20th Century.

Inspecting mines to improve mine safety began in the 1870s. In 1891, Congress passed the first federal statute governing mine safety. The 1891 law was a relatively modest legislation that applied only to mines in U.S. territories. Among other things, it established minimum ventilation requirements at underground coal mines and prohibited operators from employing children under 12 years of age.

On November 13, 1909, a mine fire in Cherry, Illinois (near Peru) took the lives of 259 miners in the worst mine fire disaster in U.S. history. The irony was that the mine had been declared fireproof and was rated as one of the safest in the world. From the tragedy in Cherry, massive changes in laws occurred. It was the impetus for the first workers' compensation laws enacted in the U.S.[6]

Breaker boys worked long hours removing slate and slag from the coal moving through the chute. *(UMWA photo)*

In 1910, the Illinois legislature enacted strong regulations requiring mine owners to purchase and maintain fire-fighting equipment, and certification was required of miners performing certain jobs in the mines. The Cherry mine fire was a catalyst for the creation of the Bureau of Mines in 1910.

[6]Tintori, Karen. Trapped: The 1909 Cherry Mine Disaster. Atria Books. 2002.

During and after World War I, the chemical industry played a role in providing war materials, largely based on coal-derived chemicals. The destructive distillation[7] of coal produced gas to light street lamps of early 20th Century city dwellers. The process of heating coal to make coke, a raw material in the manufacture of high-carbon steel, produced a number of chemically useful gases and byproducts: coal tar, ammonia and benzene. Coal tar provided a source for synthetic dyes and the toluene for explosives. Coal coking furnaces provided the nitrogen for fertilizers and trinitrotoluene (TNT) explosives. These coal-derived chemicals were a byproduct of the Industrial Revolution.[8]

In the early 1920s, petroleum producers and chemical manufactures began to establish in-house research units to learn how to use petroleum and natural gas as a less expensive source than coal for organic raw materials. However, in 1923, coal was the engine of the chemical industry growth, and nearly 100,000 coal miners labored in Illinois mines. Illinois coal production, spurred by industrial development and railroad expansion, rose to an all-time high in 1925 of 100,012,299 tons.[9]

MID TO LATE 1900S

With the focus turning to petroleum and natural gas, coal output went into a general decline, dropping markedly during the Depression. It rose to meet the demands of World War II, but later decreased due to competition from oil and gas and the conversion of railroad locomotives from coal to diesel-electric power. Beginning around 1964, increased demand for utility coal raised the production level from 43 million tons to 52 million tons. Illinois coal production rose to and remained near 60 million tons until 1993, when only 42 million tons of coal were mined. By the end of the century, coal production had declined to 40 million tons.

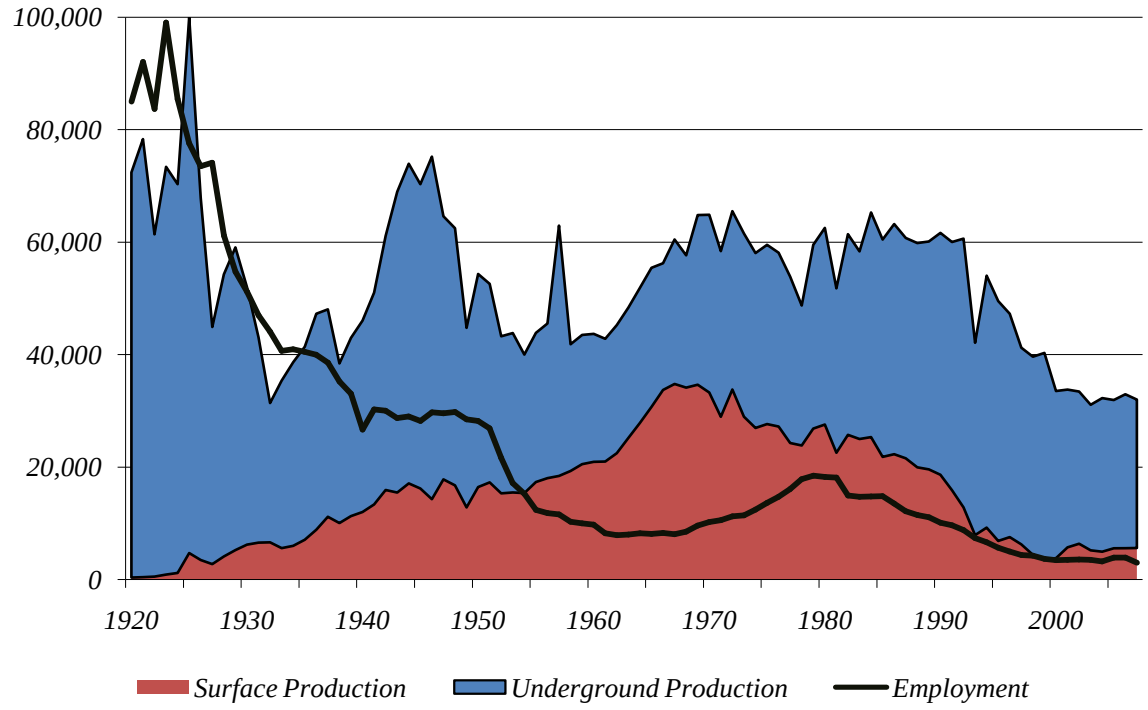
The demand for Illinois coal was constrained due to the enactment of clean air standards (see Chapter 6), a decline in the demand for coking coal and the development of significant

[7]Destructive distillation consists in heating the fuel to temperatures of several hundred degrees, then a few of the constituents pass over undecomposed, while the bulk of the material undergoes thermal decomposition, the gaseous and liquid products of which are to be found in the form of gas and tar.
[8]Reisch, Marc S. "From Coal Tar to Crafting a Wealth of Diversity". Chemical & Engineering News. p.12 January 1998. <http://pubs.acs.org/hotartcl/cenear/980112/coal.html> accessed June 2003.
[9]Illinois. Dept. of Natural Resources Office of Mines & Minerals. 1992 Annual Statistical Report.

nuclear electric power in the state. With reduced bituminous coal markets, Illinois producers were forced to tighten their belts.

The industry experienced more mine closures and layoffs. In 1990, Illinois had 42 operating mines, but only 20 were operating by the end of the century. During this same period, mine employment decreased 64 percent from 10,129 employees in 1990 to 3,675 employees in 1999 (Figure 2).[10]

FIGURE 2. ILLINOIS COAL PRODUCTION AND MINE EMPLOYMENT 1920 – 2007



Source: Illinois. Dept. of Natural Resources Office of Mines & Minerals. 2007Annual Statistical Report. Table 4

The price of bituminous coal also saw marked fluctuations during the last half of the 20th Century.[11] Coal was selling for $29.40 per ton in 1950. By 1970, the price of coal had decreased to $22.88 per ton. But, by 1980, the price had more than doubled, and coal was selling for $53.98 per ton. The industry saw a brief rebound. In 1980, 66 Illinois mines produced 62.5 million tons of coal. Market prices declined again and by 1990 coal prices

[10]Illinois. Dept. of Natural Resources Office of Mines & Minerals. 1992-2004 Annual Statistical Reports.
[11]United States. Energy Information Administration. Table 7.8 Coal Prices, 1949-2007.
<http://www.eia.doe.gov/emeu/aer/coal.html> accessed 23 May. 2008.

were $33.62 per ton. Prices continued to decline. By the end of the century, Illinois coal was selling for $23.24 per ton before delivery.

BEGINNING OF THE 21ST CENTURY

Mine operators looked for ways to decrease downtime and mine more efficiently. Several mines initiated the so-called "super unit". The super units have 8 to 14 entries, two continuous miners, two to three roof bolters, one face scoop, one outby scoop and three to five coal haulage cars. Output has increased as downtime, due to moving the continuous miner, was decreased. According to the Energy Information Administration, coal mining productivity, as calculated by dividing total coal production by the total direct labor hours increased from 2.94 tons per miner hour in 1990 to 3.7 tons per miner hour in 2006.[12]. Today Illinois coal mines produce approximately 10,000 tons of coal per mine per year on a tons-per-miner-hour basis. In 1990 coal miners produced approximately 6,087 tons per year per miner.

Mining equipment and coal mines have become more computerized. Instead of sitting in the cab of a continuous miner, miner operators stand outby and use remote control to extract coal from the face. Longwall operations are also fully computerized. The conveyor belts hauling coal out of the mine are monitored by computer systems that warn of spills and other potential hazards. Ventilation systems, preparation plants and truck and rail load out systems are also monitored by computer systems. Along with welding, hydraulics, and diesel mechanics, maintenance crews in today's mines must also have computer expertise.

In 2007, Illinois had 3,001 coal miners with an average age of 52. Training new miners to replace experienced miners as they retire is the goal of two state grants to community colleges.

Illinois mines were fatality free in 2004, 2005, 2006, and 2007. Mine safety is always a goal of Illinois coal operators and is the focus of several recent state grants to coal companies. President George W. Bush signed into law the Miner Act in 2006, the first major revision to the Federal Mine Safety and Health Act since 1977. The law requires underground coal mine

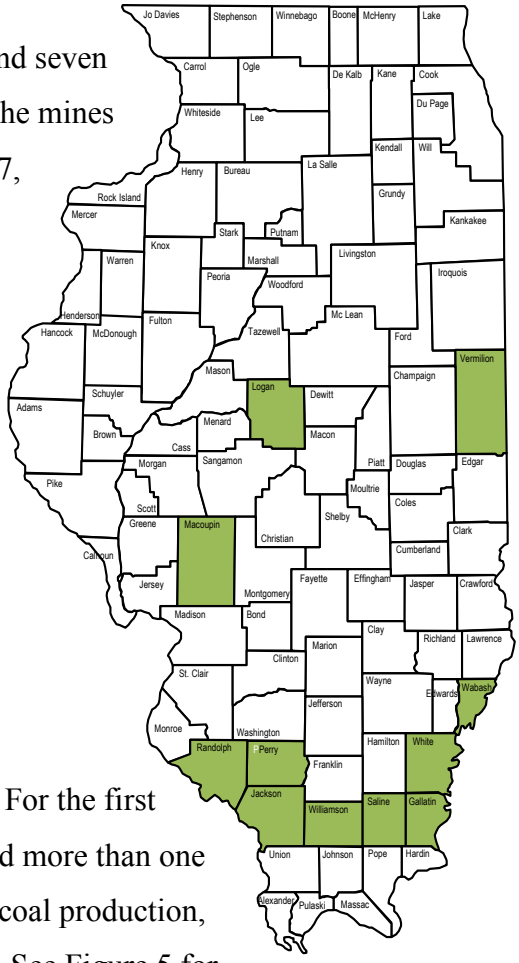
[12]United States. Energy Information Administration. Annual Coal Report 2006. p. 43. By Fred Freme. <http://www.eia.doe.gov/cneaf/coal/acr/acr.pdf> accessed May 2008.

operators to develop written emergency response plans, update communication and electronic tracking technology, and improve safety training for miners. It also increases the financial penalties for safety violations. In 2006, Governor Rod Blagojevich amended the Illinois Coal Mining Act requiring rescue chambers, wireless emergency communications devices, and wireless tracking devices to be provided in each underground mine in Illinois within 90 days of becoming available. In 2007, the U.S. Mine Safety and Health Administration increased the strength of seals used for sealing abandoned areas in underground coal mines to 120 psi.

CHAPTER 3. ILLINOIS COAL INDUSTRY 2006 /2007 PRODUCTION PROFILE

Twenty-two coal mines operated in 11 Illinois counties in 2006 (Figure 3). Market economics associated with rising operating costs forced the closing of two Illinois mines in 2006 and three in 2007. Two mines opened in 2006 and ramped up production in 2007 totaling nearly two million tons. Overall, coal production in both 2006 and 2007 remained near the five year average of 32 million tons.

FIGURE 3. 2006 / 2007 ILLINOIS COAL PRODUCING COUNTIES



In 2006, there were fifteen underground coal mines and seven surface coal mines in Illinois (Figure 4).[13] Together the mines produced 32,962,442 tons of coal. By the end of 2007, three underground mines were temporarily idled or classified as non-producing leading to a decrease in coal production to 32,015,323 tons.

Underground production stood at 27,378,728 tons in 2006 and 26,394,245 tons in 2007. In 2006, surface production was 5,583,718 tons. In 2007, surface production increased slightly to 5,621,078 tons.

PRODUCTION BY COUNTY

Illinois coal production reached a milestone in 2007. For the first time, every coal-producing county in Illinois produced more than one million tons of coal. More than one-third of Illinois' coal production, nearly 11.3 million tons, came from Saline County.[14] See Figure 5 for the production totals and rank of Illinois counties for both 2006 and 2007.

[13]Illinois. Dept. of Natural Resources Office of Mines and Minerals. 1999-2007Annual Statistical Reports.
[14]Illinois. Dept. of Natural Resources Office of Mines and Minerals. 2006 and 2007 Annual Statistical Reports.

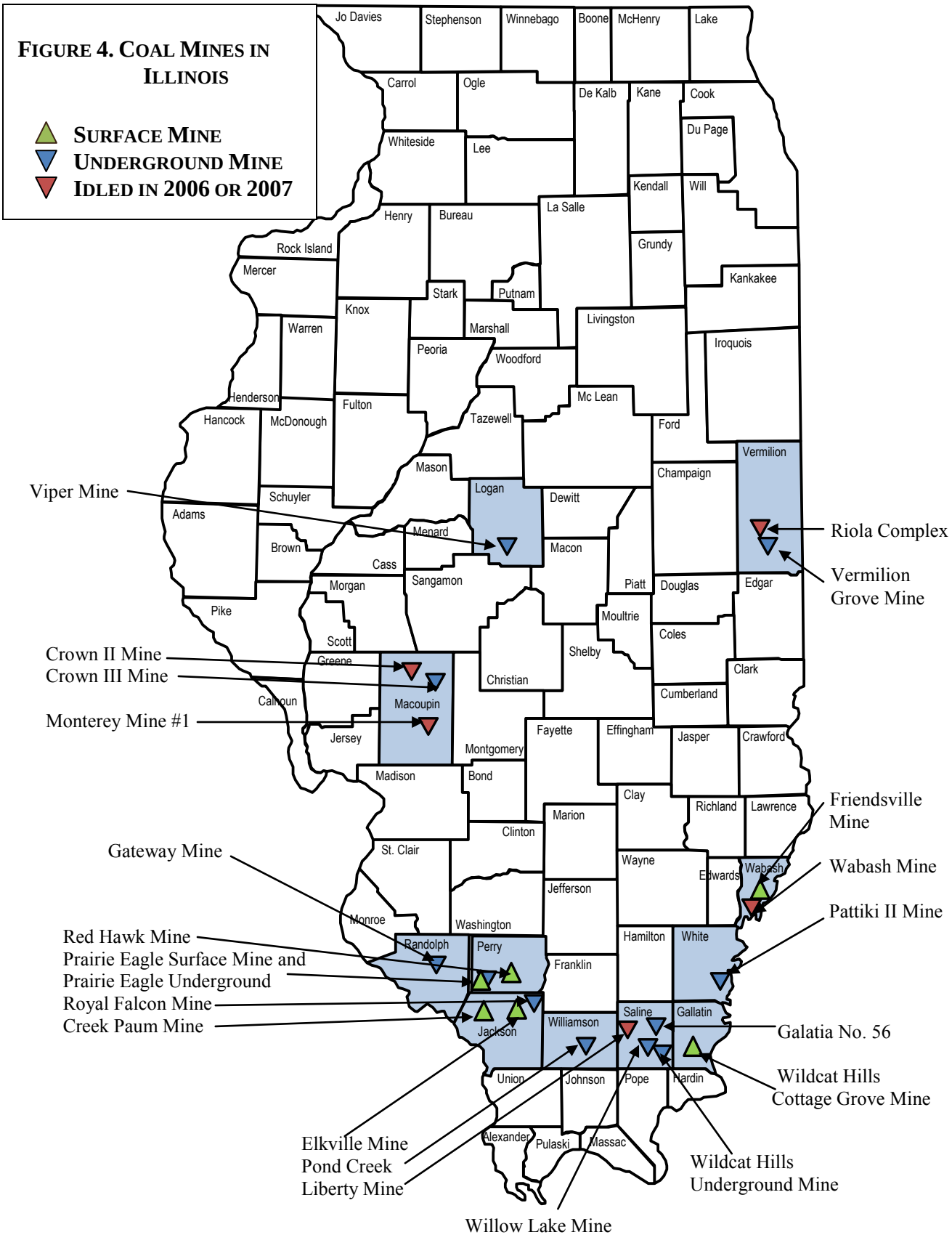


FIGURE 4. COAL MINES IN ILLINOIS
SURFACE MINE
UNDERGROUND MINE
IDLED IN 2006 OR 2007
Jo Davies
Stephenson
Winnebago
Boone
McHenry
Lake
Carrol
Ogle
De Kalb
Kane
Cook
Du Page
Whiteside
Lee
Kendall
Will
Henry
Bureau
La Salle
Grundy
Rock Island
Mercer
Kankakee
Stark
Putnam
Knox
Marshall
Livingston
Warren
Peoria
Woodford
Iroquois
Henderson
Fulton
Mc Lean
Hancock
McDonough
Tazewell
Ford
Vermilion
Mason
Champaign
Viper Mine
Schuyler
Logan
Dewitt
Adams
Menard
Macon
Riola Complex
Brown
Cass
Vermilion Grove Mine
Morgan
Sangamon
Piatt
Douglas
Edgar
Pike
Moultrie
Coles
Scott
Shelby
Crown II Mine
Greene
Clark
Crown III Mine
Christian
Calhoun
Macoupin
Cumberland
Monterey Mine #1
Jersey
Fayette
Effingham
Jasper
Crawford
Montgomery
Madison
Bond
Clay
Friendsville Mine
Richland
Lawrence
Marion
Clinton
Gateway Mine
St. Clair
Wayne
Edwards
Wabash
Wabash Mine
Jefferson
Pattiki II Mine
Monroe
Washington
Hamilton
White
Red Hawk Mine
Randolph
Perry
Prairie Eagle Surface Mine and
Franklin
Prairie Eagle Underground
Royal Falcon Mine
Saline
Gallatin
Creek Paum Mine
Williamson
Galatia No. 56
Jackson
Union
Johnson
Pope
Hardin
Wildcat Hills Cottage Grove Mine
Elkville Mine
Alexander
Pulaski
Massac
Pond Creek
Liberty Mine
Wildcat Hills Underground Mine
Willow Lake Mine

Saline County in southern Illinois has ranked number one in coal production and employment since 1995. Saline County is home to four underground coal mines: American Coal Company Galatia Mine, Nubay Mining LLC Liberty Mine, Arclar Company Willow Lake Mine and Wildcat Hills Underground Mine. In 2006, the four mines produced an all time high of 11,093,232 tons of coal and employed 1,366 workers. Saline County coal production was down slightly to 10,950,761 million tons in 2007 due partially to the closure of Nubay Mining Liberty Mine.

Macoupin County in west central Illinois has held the number two rank in coal production since 1997. Macoupin County is home to three underground coal mines: Monterey Coal Company Mine #1 and Freeman United Coal Mining Company Crown II Mine and Crown III Mine. The three mines produced 5,682,253 tons of coal in 2006. Coal production fell in 2007 to 4,519,029 tons with the idling of Crown II and Monterey Mine #1. Freeman United Coal Company was closed in September 2007. Springfield Coal Company purchased the Freeman mines and reserves and reopened Crown III Mine in September 2007. Monterey #1 Mine was closed by Exxon Mobile in December 2007. Exxon Mobile, the parent of Monterey Coal Company, is seeking buyers for Mine #1 at the time of this report.

White County in southeastern Illinois was third in terms of coal production in both 2006 and 2007. Pattiki Mine reached a record high coal production tonnage in 2007 when it produced 2,896,677 tons. Coal production in 2006 was 2,505,269 tons. All of the coal was produced by the underground White County Corporation Pattiki Mine.

In 2007, Randolph County in southwestern Illinois had the highest coal production in a decade as it reclaimed the fourth highest producing county. All of the coal was produced by Coulterville Coal Company Gateway Mine. Gateway Mine produced 2,467,600 tons of coal in 2006 and 2,674,914 tons in 2007.

Logan County nudged out Gallatin County for fifth place in 2006, but Gallatin County came out on top in 2007. Logan County in central Illinois produced 2,078,867 tons in 2006. Coal production decreased slightly in 2007 to 2,059,746 tons. All of the coal was produced from International Coal Group Viper Mine. Gallatin County in southeastern Illinois produced

2,046,454 tons in 2006. Production increased slightly in 2007 to 2,064,605 tons. All of the coal was produced from Arclar Company Wildcat Hills Cottage Grove Mine.

Jackson County ranked seventh in coal production with 1,811,214 tons in 2006 and 1,598,399 tons in 2007. Most of the coal was produced at Knight Hawk Coal Creek Paum Mine, a surface operation. Knight Hawk Coal opened the underground Royal Falcon Mine in Jackson County in 2007. The Elkville surface mine is operated by S Coal Company in Jackson County.

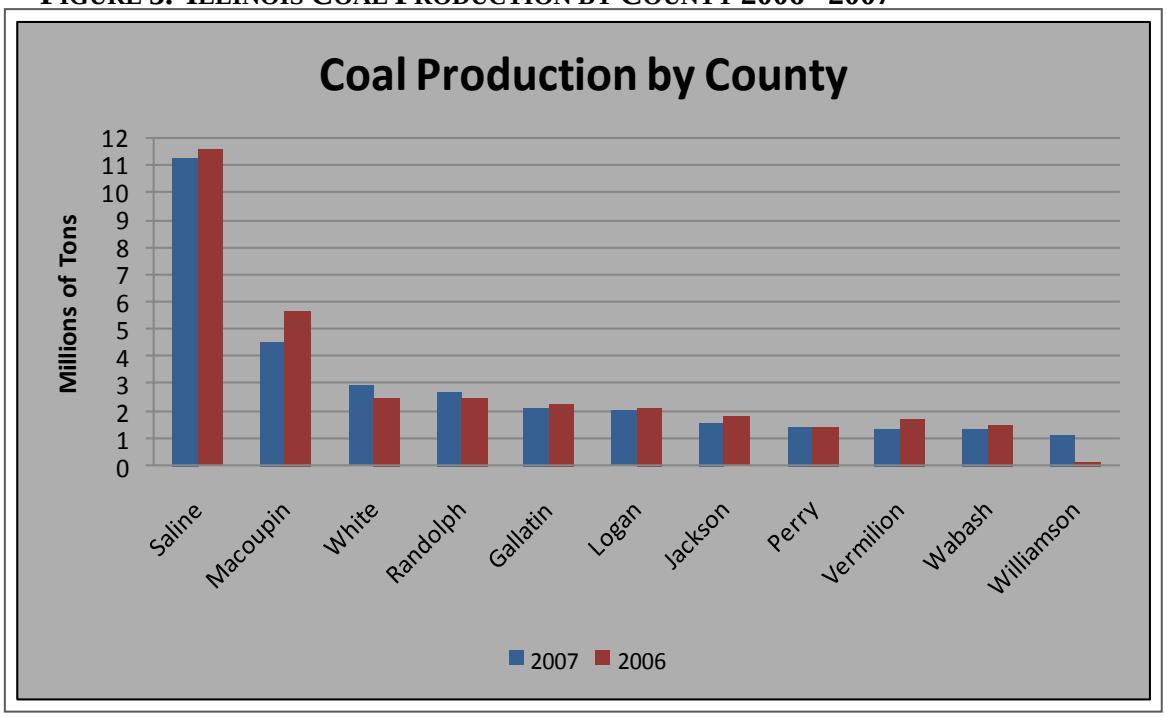
Perry County coal production reached over one million tons in 2006 for the first time since 1998 with the opening of Knight Hawk Coal Prairie Eagle Mine and Prairie Eagle Underground Mine. Knight Hawk Coal Company Red Hawk Mine produced 708,782 tons in 2006 and 644,670 tons in 2007. Total coal production in the county reached 1,449,240 tons in 2006 and decreased slightly in 2007 to 1,466,808 tons.

Coal production in Vermilion County decreased below 2005 levels with the closing of Black Beauty Coal Company Riola Mine in 2006. Coal production in Vermilion County reached 1,375,914 and 1,364,582 tons of coal in 2006 and 2007 respectively. The Riola Grove Mine produced 339,155 tons before it was temporarily idled in 2006. The remainder of the coal came from Black Beauty Coal Company Vermilion Grove Mine.

Wabash County produced 1,516,796 tons in 2006 from Wabash Mine and Vigo Coal Friendsville Mine. Most of the coal came from Foundation Coal Wabash Mine which produced 1,175,444 tons. Wabash Mine was idled after producing 386,217 tons in 2007. Vigo Coal Company Friendsville Mine significantly increased coal production to 341,352 tons in 2006 and to 937, 823 tons in 2007. Coal production in Wabash County fell to 1,324,040 tons in 2007.

Williamson County hit the one million ton mark for the first time since 1995. Coal production in Williamson County restarted in 2006 with the opening of Mach Mining Pond Creek Mine. Pond Creek produced 102,095 tons in 2006 and jumped to 1,073,763 tons in 2007.

FIGURE 5. ILLINOIS COAL PRODUCTION BY COUNTY 2006 - 2007



Overall, Illinois coal production remained above 32 million tons in both 2006 and 2007, in spite of the closing of two mines in 2006 and three in 2007. This was due to significant production increases at four Illinois coal mines -- Gateway, Galatia, Friendsville and Pattiki -- and the start-up of five mines -- Wildcat Hills Underground Mine, Prairie Eagle Surface Mine, Prairie Eagle Underground Mine, Pond Creek Mine and Royal Falcon Mine.

Coal employment in Illinois stood at 3,915 in December 2006. This was a slight decrease from 4,006 persons in 2005. By the end of 2007, Illinois had only 3,001 persons employed at Illinois coal mines. This twenty-five percent decrease was due largely to the closing of Freeman United Crown II Mine (212 persons), Foundation Coal Wabash Mine (283 persons), and Monterey Mine #1 (362 persons).[15]

ILLINOIS COAL PRODUCERS

Each year Illinois coal producers face daunting challenges in the areas of employee training and safety, changing geological conditions, increasing operational costs, volatile energy

[15]Illinois. Dept. of Natural Resources Office of Mines and Minerals. 2006 and 2007Annual Statistical Reports.

markets, and environmental reform affecting their consumers' economic decisions. The recent years of 2006 and 2007 have been no exception. Five mines, accounting for 7.8 million tons of production in 2005, were closed during 2006 and 2007.

Despite the closing of five mines, Illinois coal production in 2006 and 2007 remained near production levels for 2004 and 2005. Overall coal production increased at American Coal Galatia Mine, Coulterville Coal Gateway Mine, Knight Hawk Coal Red Hawk Mine, Vigo Coal Friendsville Mine, and White County Pattiki II Mine. In addition two new surface mines and four new underground mines were opened. Arclar Company opened Wildcat Hills Underground Mine in Saline County; Knight Hawk Coal opened Prairie Eagle Surface Mine and Prairie Eagle Underground Mine in Perry County, and Royal Falcon Mine in Jackson County; Mach Mining opened Pond Creek Mine in Williamson County.

Illinois coal miners and operators continue to display great pride and resiliency as they battle the forces that threaten their existence. The following section provides information on the coal mine operators in Illinois. See Table 2 for statistical information on Illinois mines.

AMERICAN COAL COMPANY -- GALATIA MINE

Galatia Mine in southeastern Illinois has been in operation since 1982. American Coal Company purchased Galatia Mine from Kerr-McGee Coal Corporation in June, 1998. At one time, Galatia Mine produced coal from both the Springfield No. 5 and Herrin No. 6 seams.

Galatia Mine, the largest underground mine in Illinois, consists of three portals: Galatia North Mine, New Era Mine and the New Future Mine. The American Coal Company complex produced 7.2 million tons in 2006 and 6.9 million tons in 2007. Coal is shipped by truck, barge and the Canadian National Railroad. For marketing information, please contact Ed Lane (859) 543-9220 or e-mail: elane@coalsource.com.

INTERNATIONAL COAL GROUP ILLINOIS, INC. -- VIPER MINE

International Coal Group Illinois (ICG) Viper Mine in Logan County was constructed by Shell Oil Company to provide a reliable, low-cost, long-term supply of coal to Springfield City Water, Light & Power (CWLP). The first truckload of coal was shipped in 1982. Coal is still shipped to CWLP, as well as, numerous other locations.

Viper Mine has grown from 500,000 tons per year to over two million tons of annual sales and has plans for continued growth. Coal is produced from the Springfield No. 5 seam. The mine has nearly 30 years of mineable, saleable reserves. The mine produces both steam and stoker coals and provides ash disposal for its customers. For marketing information, please contact Bob Gardiner 217-566-3056 or e-mail: bgardiner@intlcoal.com.

KNIGHT HAWK COAL LLC. -- CREEK PAUM MINE, PIONEER MINE, RED HAWK MINE, PRAIRIE EAGLE MINE, AND PRAIRIE EAGLE UNDERGROUND MINE

Knight Hawk Coal (KHC) runs under the tenets that it must be adaptive, streamlined and mobile. The company's growth in ten years demonstrates that this is a formula for success. What started as a 15-man operation extracting 260,000 tons of coal a year, today employs nearly 200 workers and sends to market three million tons of products yearly.

In August 2006, Arch Coal acquired a one-third interest in Knight Hawk in exchange for cash and coal reserves. This demonstrated the confidence the nation's number two coal producer has in Knight Hawk's capabilities and helped secure a brighter future for the company.

Knight Hawk Coal operates four surface mines: Creek Paum, Red Hawk, Pioneer, and Prairie Eagle. KHC also operates two underground mines: Prairie Eagle Underground and Royal Falcon. KHC also operates two recovery operations: Elk Land and Mine 21. Combined production from the Knight Hawk Coal mines reached 2.8 million tons in 2006 and nearly 2.7 tons in 2007.

KHC has invested significantly in distribution facilities, including Lone Eagle Dock on the Mississippi River and the Carbondale rail load out on the Canadian National (CN) Railroad. Knight Hawk has based its success to date on its ability to meet exact coal specification

characteristics. For marketing information contact: Andrew Carter, 618-426-3662, ext. 249 or e-mail: andrewcarter@knighthawkcoal.com.

MACH MINING LLC. -- POND CREEK MINE

One of the busiest coal mining firms in terms of new coal mine development in the U.S. in recent years has been privately held Cline Resource and Development Company headquartered in Beckley, West Virginia. Mach Mining, a subsidiary of Cline Resource and Development Company, began slope development at Pond Creek Mine in late 2006. Pond Creek Mine is located east of Johnston City, Illinois in Williamson County. The mine produced one million tons of coal in 2007 and projects seven million tons per year at full development. Coal is shipped via Canadian National Railroad to barges on the Ohio River. For marketing information contact: Michael Moran 704-846-8248 or e-mail: michaelfmoran@yahoo.com.

Three other Cline Resource and Development Company subsidiaries submitted Illinois mining permit applications in 2007. Hillsboro Energy, LLC submitted a permit application for an eight million ton per year mine in Montgomery County. Sugar Camp Energy, LLC, submitted a permit application for a seven million ton per year mine with longwall mining in Franklin County. Locust Grove Energy, LLC has submitted a permit application for a seven million ton per year mine with longwall mining in Williamson County.

PEABODY ENERGY -- VERMILION GROVE, WILLOW LAKE, GATEWAY, COTTAGE GROVE AND WILDCAT HILLS MINES

Peabody Energy is the largest mine operator in the Illinois Basin and is proud of its 120-plus-year history in the state. The Midwest operations include Arclar, Coulterville Coal and Black Beauty subsidiaries. Peabody has more than 1,000 employees and has developed five mines (Vermilion Grove, Willow Lake, Gateway, Cottage Grove, Wildcat Hills and Wildcat Hills Underground) in Illinois in the past five years, promoting resurgence in new mine development in the Illinois Basin. The company's Illinois operations and affiliates produced 10.4 million tons of coal in 2007. Coal is shipped primarily to electricity generators in the midwestern United States and to industrial customers for power generation.

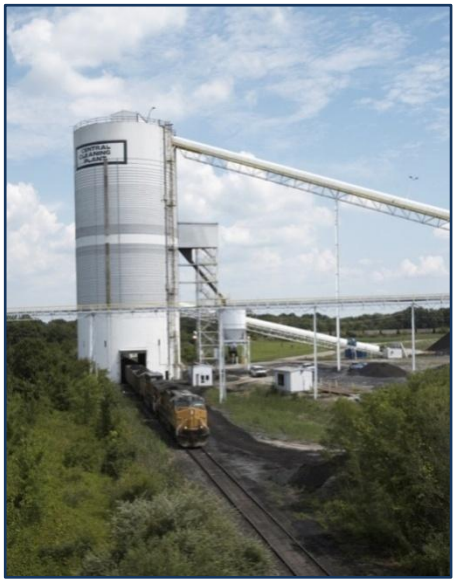
ARCLAR COMPANY operates Wildcat Hills surface and underground mining complex and Willow Lake underground mining complex located in Gallatin and Saline counties in southern Illinois. During 2007, these mines sold a combined 6.5 million tons of coal that was primarily shipped by barge to utilities.

Wildcat Hills, near Equality, in southeastern Illinois, is a surface operation that includes the Cottage Grove pit. The mine employs 193 persons and produced two million tons in 2007. Recent additions to Wildcat Hills include a new underground highwall mine, Wildcat Hills Underground, in Cottage Grove Pit #4. Wildcat Hills Underground employs 74 persons and produced 849,052 tons in 2007. Coal from Wildcat Hills is shipped from the Willow Lake Preparation Plant.

Willow Lake Mine, adjacent to Wildcat Hills Mine near Equality, is the second largest underground mine in Illinois. Coal is mined from the Springfield coal seam using the room-and-pillar method. In 2007, Willow Lake employed 446 persons and produced 3.5 million tons of coal.

BLACK BEAUTY COAL COMPANY operates the Vermilion Grove Mine in east central Illinois. Vermilion Grove is an underground mine that employed 168 persons and produced 1.4 million tons of coal in 2007.

COULTERVILLE COAL COMPANY operates the Gateway Mine in southwestern Illinois. The Gateway Mine, is the former Old Ben Zeigler #11 Mine. Peabody Energy purchased the mine in 2005. Gateway has 197 employees and produced 2.7 million tons of coal in 2007.



Gateway Mine shipped 2 million tons of coal by Union Pacific in 2007.

Site work has begun on Peabody's PRAIRIE STATE ENERGY CAMPUS, a 1,600 megawatt coal-fueled electricity generating station and mine-mouth coal mine in southwestern Illinois near Marissa. The facility will provide electricity for 1.5 million Midwestern families, create 450 new jobs and inject nearly $100 million in economic

benefits each year. Prairie State will be among the cleanest coal plants in America and is a model for new generation. Ground was broken for the project in October 2007. For marketing information on all Peabody subsidiaries contact Mike Siebers (314) 342- 7528 or e-mail: Michael.L.Siebers/STL/Peabody@PeabodyEnergy.com.

S COAL COMPANY -- ELKVILLE NO. 1 MINE

S Coal Company began surface mining operations at the Elkville Mine near Elkville, Illinois in late 2004. Three coal seams (Danville No. 7, Herrin No. 6 and Springfield No. 5) are being mined simultaneously. S Coal has three million tons of coal under permit and is producing approximately 400,000 tons per year. S Coal ships via truck and rail and has transportation plans in place to ship via barge on the Ohio and Mississippi Rivers. For marketing information, please contact Van Villines: scoal@hughes.net.

SPRINGFIELD COAL COMPANY LLC. -- CROWN III MINE (FORMERLY OWNED BY FREEMAN ENERGY)

Springfield Coal Company was formed by four former employees of Freeman United Coal Company, a subsidiary of General Dynamics, in 2007. General Dynamics, citing it wanted to leave the coal mining business and focus on other operations, put Crown II Mine and Crown III Mine on the market in December 2006. Springfield Coal Company purchased Crown II and Crown III in September 2007. As part of the purchase, Springfield Coal also acquired land and former mine locations in southern Illinois from General Dynamics.

Crown II and Crown III opened in 1976 and 1981, respectively. Both mines produce coal by the room and pillar method from the Herrin No. 6 seam. The two mines produced 2.3 million tons of coal in 2007 before closing in September. The Crown III Mine was reopened in September 2007. Coal is shipped via truck or Canadian National Railroad. Crown III backhauls ash for one of its customers. For marketing information, please contact Jennifer Robertson, Sales Manager at 217-698-3380 or e-mail: jrobertson@Springfieldcoal.com.

VIGO COAL COMPANY INC. -- FRIENDSVILLE MINE

Headquartered in Evansville, Indiana, Vigo Coal Company, Inc. is a 100 percent employee-owned company, participating in the Department of Labor Qualified Employee Stock Ownership plan. Vigo Coal provides mining services to Alcoa. Alcoa invested $45 million

to develop Friendsville Mine as a source of coal to power its aluminum smelter near Warrick, Indiana. Friendsville Mine is located in southern Illinois on Highway 15, 3.5 miles west of Mount Carmel.

In an effort to reduce the cost of bulk explosives, Vigo Coal Company found that the addition of coal mined at the Friendsville Mine, not only reduced explosive costs, but also appeared to actually enhance blasting performance. The Friendsville Coal Seam appears to contain inherent chemical and physical properties that enhance blasting performance. Vigo Coal increased coal production at Friendsville from 85,636 tons in 2005 to 341,352 tons in 2006 and to 937,823 tons in 2007. Coal is shipped to the Alcoa plant near Warrick, Indiana. For marketing information contact: Michael 'Mick' Fritz, VP of Sales and Marketing, (770) 712-7281 or E-mail: MFritz@CarboPrill.com.

WHITE COUNTY COAL LLC -- PATTIKI MNE

White County Coal, LLC has operated Pattiki Mine, an underground mining complex located near the city of Carmi, in White County, Illinois since 1980. The Pattiki complex utilizes continuous mining units employing room-and-pillar mining techniques to produce high-sulfur coal. The preparation plant has a throughput capacity of 1,000 tons of raw coal an hour.

Coal from Pattiki complex is shipped via the Evansville Western Railway, Inc. Two primary customers for coal produced at Pattiki have been Northern Indiana Public Service Company and Seminole Electric Cooperative for use in their scrubbed generating units. Coal produced by Pattiki is also shipped via rail to the Mt. Vernon transloading facility for sale to utilities capable of receiving barge deliveries. In 2008, Pattiki expects to ship a significant portion of its production to Corn Products, Tampa Electric and Vectren Corporation. For marketing information, please contact: Vicki Carleton 918-295-7608 or e-mail: Vicki.carelton@arlp.com.

FOUNDATION COAL, WABASH MINE near Keensburg in Wabash County operated from 1973 to March 2007 when it was closed by Foundation Coal Company.

MONTEREY COAL COMPANY, MINE #1 located in Macoupin County operated from 1970 to December 2007 when it was closed by its operator, ExxonMobil Corporation.

NUBAY MINING COMPANY, LIBERTY MINE near Equality, Illinois in Saline County, operated from 2001 to March 2006. Western Fuels Association permanently sealed the mine after its Liberty Coal subsidiary filed for Chapter 7 liquidation.

FREEMAN UNITED COAL COMPANY, CROWN II MINE in Macoupin County operated from 1976 until September 2007 when General Dynamics left the coal business and closed its Illinois mines. Springfield Coal Company purchased the Illinois mines and reserves from General Dynamics, but chose not to reopen Crown II.

TABLE 2. STATISTICAL INFORMATION ON ILLINOIS COAL MINES

Coal Operator	Mine Name	County	Mining Method	Coal Seam(s)	Thick (feet)	Depth (feet)	2006 Mine Jobs	2007 Mine Jobs	2003 (tons)	2004 (tons)	2005 (tons)	2006 (tons)	2007 (tons)
American Coal Co.	Galatia	Saline	Longwall	No. 5 No. 6	9.0 7.0	450 350	846	737	6,011,356	6,517,541	6,006,177	7,216,045	6,615,830
Ardar Company LLC	Wildcat Hills Cottage Grove	Gallatin	Surface	No. 6 No. 7 Allenby	4.5 2.0 2.0	50-100 70	189	169	2,532,710	2,747,473	2,643,037	2,046,454	2,064,605
Ardar Company LLC	Wildcat Hills Underground	Saline		No. 6	5.0	110	74	85				494,357	857,690
Ardar Company LLC	Willow Lake	Saline	Continuous	No. 5	5.0	270	446	395	2,854,150	3,448,395	3,689,660	3,578,887	3,477,241
Black Beauty Coal Company	Vermilion Grove	Vermilion	Continuous	No. 6	5.7	251	169	168	961,758	1,288,425	1,497,281	1,375,914	1,364,582
Coulterville Coal Company LLC	Gateway	Randolph	Continuous	No. 6	6.5	200	197	150	2,547,000	1,827,000	507,738	2,467,600	2,694,914
ICG Illinois, Inc.	Viper	Logan	Continuous	No. 5	5.8	280	251	254	2,135,236	2,135,333	2,325,392	2,078,867	2,059,746
Knight Hawk Coal, LLC	Creek Paum	Jackson	Surface	Murphyboro No. 5 No. 6	4.0 4.0 6.0	70-100	92	72	1,400,624	1,515,751	1,400,667	1,407,621	1,173,985*
Knight Hawk Coal, LLC	Royal Falcon	Jackson	Continuous	No. 6	10.0	165	0	18					19,441
Knight Hawk Coal, LLC	Prairie Eagle	Perry	Surface	No. 6	6.0	70	38	26				675,916	359,467
Knight Hawk Coal, LLC	Prairie Eagle Underground	Perry	Highwall	No. 6	6.0	120	14	26				64,542	446,557
Knight Hawk Coal, LLC	Red Hawk	Perry	Surface	No. 5 No. 6	2.0 6.0	110 80	27	35	44,070	504,621	675,455	708,782	660,784
Mach Mining, LLC	Pond Creek	Williamson	Longwall	No. 6	6.5	460	70	120				102,095	1,075,762
Monterey Coal Co.	Mine #1	Macoupin	Longwall	No. 6	6.8	330	362	70	3,008,333	3,050,760	3,007,815	2,766,831	2,133,879
S Coal Company	Elkville #1	Jackson	Surface	No. 6 No. 7	8.0 2.3	90 28	39	51		26,413	442,191	403,593	404,973

Coal Operator	Mine Name	County	Mining Method	Coal Seam(s)	Thick (feet)	Depth (feet)	2006 Mine Jobs	2007 Mine Jobs	2003 (tons)	2004 (tons)	2005 (tons)	2006 (tons)	2007 (tons)
Springfield Coal Company LLC. (formerly Freeman United Coal Company)	Crown II	Macoupin	Continuous	No. 6	6.0	320	212	5	1,368,273	1,369,460	1,565,265	1,325,500	855,724
Springfield Coal Company LLC. (formerly Freeman United Coal Company)	Crown III	Macoupin	Continuous	No. 6	7.5	365	249	259	2,169,104	1,894,839	1,871,490	1,589,922	1,529,426
Vigo Coal Company Inc.	Friendsville	Wabash	Surface	Friendsville	4.2	60	50	54	223,455	85,636	85,636	341,352	937,823
Wabash Mine Holding Co.	Wabash	Wabash	Continuous	No. 5	6.7	850	283	5	1,567,367	1,665,335	1,725,687	1,175,444	386,217
White County Coal LLC	Pattiki	White	Continuous	No. 6	7.6	900	303	302	1,821,876	2,450,288	2,635,320	2,505,269	2,896,677
TOTAL:							**3,915**	**3,001**	**31,091,613**	**32,279,112**	**31,939,625**	**32,962,446**	**32,015,323**

Source: Illinois. Dept. of Natural Resources Office of Mines and Minerals. 2006and 2007Annual Statistical Reports.
* Tonnage includes KHC Pioneer Mine.
Illinois Coal Seams: Danville (IL No. 7), Friendsville, Herrin (IL No. 6), Springfield (IL No. 5), Colchester (IL No. 2), Dekoven, Davis, Murphysboro)

Mines removed from above chart because of closure in 2006.

Nubay Mining	Liberty Mine	Saline	Continuous	No. 5	5	390	0	0	762,653	662,564	718,286	298,300	0
Black Beauty Coal Company	Riola Complex	Vermilion	Continuous	No. 6	5.4	257	0	0	824,018	1,006,638	921,329	339,155	0

ISSUES FACING ILLINOIS COAL PRODUCERS

Illinois coal producers have expressed frustration on a number of issues:[16]

- There are limited reserves available for meeting the electric utility needs for the future. There are "endless" tons of coal in Illinois but the thickness of the coal is less and the sulfur, ash fusion temperature, chlorine, etc. are much different than what has been mined in the past. The utilities expect the same characteristics in the future.
- There will have to be cultural changes in the future development of mines. Financing for coal gasification facilities will require coal mines and reserves that are dedicated long-term to the specific project.
- The price volatility of commodities used in mining impacts the cost of operations. Rising costs are occurring for: diesel fuel on surface operations, large truck to barge shippers, and underground haulage equipment and petroleum-based products such as, lubricants, oils, the resin used in roof bolting, the chemical used in preparation plant thickeners, conveyor belting and rubber tires.
- The cost and availability of steel and metal has surpassed almost every other supply. All of the conveyor structure, roof support, mining equipment, miner bits to cut the coal, and roof drill bits are made from steel and/or carbide. Most of the equipment is powered with electrical cables made of copper wire that run throughout the mine. Magnetite, used to make gravity separation in the preparation plant, is iron ore of which the cost is again constantly changing. Everything used in the industry has price changes weekly with either fuel surcharges or steel surcharges.
- According to the vendors supplying these materials, their cost are going up due to the demand for iron and steel in overseas markets leaving the U.S. to pay higher prices. While gas/oil prices have driven coal prices higher, coal producers wonder if it can continue to offset costs in the future.

[16]Gonet, Phil. "Re: Issues facing Illinois coal producers." E-mail to Polly Wise. 29 May 2008.

- There is a shortage and stiff competition for a skilled work force, especially for electricians and maintenance personnel and those with technical and supervisory competencies in the coal industry.

- Public and environmental negativity toward coal mining and coal use results in challenges at every step for coal mine operations and permitting. It also impacts decision making in the political and power generation sector.

- The Mine Safety and Health Administration are changing laws and policies so often it is difficult to know what is required, for example the requirements for mine seals. The S-MINER Act calls for further regulations at a time when the original MINER Act has not yet been fully implemented. The implementation of new laws, approval delays, and increased costs ultimately detract from mine site safety initiatives themselves.

- An ever-changing and unpredictable regulatory process & timeframes also includes climate change legislation nationally as well as on the State level. The U.S. needs a forward-thinking and committed U.S. energy policy that includes initiatives and support for clean coal, the construction of new coal-fueled, power plants and alternate coal use (gasification, coal-to-liquids, etc.) projects.

The Illinois Coal Association continues to lobby the Illinois legislature on these and other issues.

CHAPTER 4. ILLINOIS COAL TRANSPORTATION PROFILE

Key to success of the Illinois coal industry is one of the largest and most comprehensive transportation infrastructures in the United States. Three coast-to-coast interstates pass through Illinois. In addition, Illinois is at the center of the nation's rail network. With 7,196 miles of track, Illinois is second only to Texas in total rail miles. Illinois has 1,118 miles of navigable rivers, lakes and canals which provide a direct link to the Atlantic Ocean and the Gulf of Mexico.

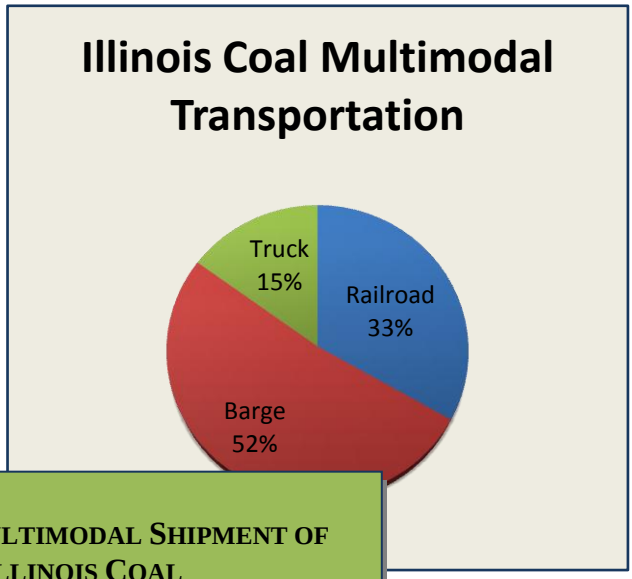
Illinois' 7,196 miles of railroad and 1,118 miles of navigable rivers make markets for Illinois coal easily accessible.

Map above shows major railroads carrying freight. Dark red lines show direct rail from Illinois mines to coal-fueled facilities in the north and south and to terminals on the Gulf of Mexico.

Map left shows inland waterways capable of transporting coal from southern Illinois mines to utilities in the north, east and south, as well as ports on the Gulf of Mexico.

In 2007, Illinois coal was transported by barge, railroad and truck to utilities, industrial facilities, and Gulf coast shipping ports in Alabama, Florida, Illinois, Indiana, Iowa, Kentucky, Louisiana, Michigan, Minnesota, Missouri, Ohio, Tennessee and Wisconsin.[17]

According to the Illinois Department of Natural Resources, 52 percent of Illinois coal is shipped by barge, 33 perc ent is shipped by rail and 15 percent is shipped by truck.



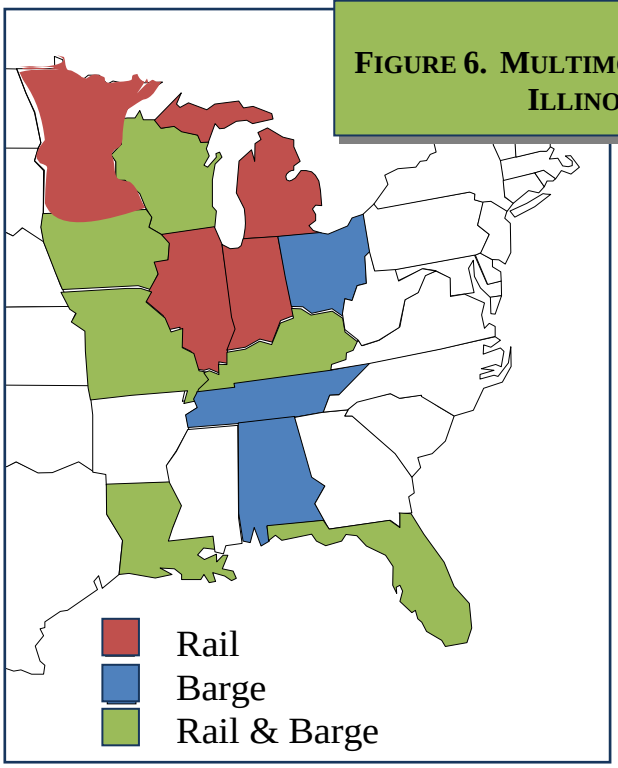


FIGURE 6. MULTIMODAL SHIPMENT OF ILLINOIS COAL

In 2007, 16.5 million tons of Illinois coal was transported from the mine site by rail or truck to barge terminals on the Mississippi and Ohio Rivers (Table 3).[18] An additional 10.6 million tons of coal was transported directly from the mine site to utilities and industrial facilities by rail. More than 4.8 million tons of coal was shipped by truck to railroads or by truck directly to the consumers.

Canadian National Railroad transported 47 percent of the coal. Evansville Western Railroad transported 16 percent. Norfolk Southern hauled 14 percent. Other rail haulers included CSX, Union Pacific and Burlington Northern Santa Fe.

[17]Coal & Transportation Analyzer. March 2008. Platts COALdat 8.0, CD-ROM. McGraw –Hill Co., Inc. May 2008.
[18]Illinois. Dept. of Natural Resources Office of Mines and Minerals. 2007Annual Statistical Report.

TABLE 3. MINES SHIPPING COAL BY RAIL IN 2007

Company Name	Mine Name	Railroad Name	Tonnage Shipped
American Coal	Galatia Mine	Canadian National	6,485,421
Black Beauty Coal	Gateway Mine	Union Pacific	2,061,800
Black Beauty Coal	Vermilion Grove	CSX Transportation	1,262,280
Knight Hawk Coal	Creek Paum Mine	Canadian National	73,923
Knight Hawk Coal	Prairie Eagle Mine	Canadian National	4,099
Knight Hawk Coal	Red Hawk	Canadian National	18,476
Monterey Coal	Mine #1	Norfolk Southern Union Pacific	1,197,399 338,483
Mach Mining	Pond Creek	Canadian National	1,075,762
Springfield Coal (formerly Freeman United)	Crown II	Burlington Northern Santa Fe	606,417
Springfield Coal (formerly Freeman United)	Crown III	Canadian National	937,130
Vigo Coal	Friendsville Mine	Norfolk Southern	961,662
Wabash Mine Holding Company	Wabash Mine	Norfolk Southern	386,217
White County Coal	Pattiki Mine	Evansville Western	2,888,986

Source: Illinois. Dept. of Natural Resources Office of Mines and Minerals. 2007 Annual Statistical Report.

Coal companies with access to rail or barge shipment supply Illinois coal to utilities outside of the Illinois Basin in addition to local utilities. Although no coal is loaded directly to barges from the mine site, barge haulage plays an important role in transporting coal from 12 Illinois mines (Table 4). Barges are used to transport Illinois coal to all states bordering Illinois and as far away as Mississippi, Alabama and Florida (Figure 6).

TABLE 4. MINES SHIPPING ILLINOIS COAL BY BARGE IN 2007

Company Name	Mine Name	Transloading Location	Mode Order
White County	Pattiki II	Mount Vernon Terminal	Rail to Barge
American Coal	Galatia No. 56-1	Cook Coal Terminal Peavey Ic-Bn Dock Cahokia Terminal Mcduffie Terminal	Rail to Barge
Knight Hawk Coal	Creek Paum Red Hawk Prairie Eagle Royal Falcon	Cora Coal Transfer Terminal Jader Fuel No. 1- Empire Dock	Truck to Barge
Arclar Coal	Willow Lake Wildcat Hills Wildcat Hills UG	Old Shawneetown Dock Jader Fuel No. 1- Empire Dock Power Dock	Truck to Barge
Coulterville Coal	Gateway	Port Walker Jader Fuel No. 1 – Empire Dock	Rail to Barge Truck to Barge
Mach Mining	Pond Creek	Cook Coal Terminal Mt. Vernon Terminal	Rail to Barge Truck to Barge
Monterey	Mine #1	Not available	Rail to Barge

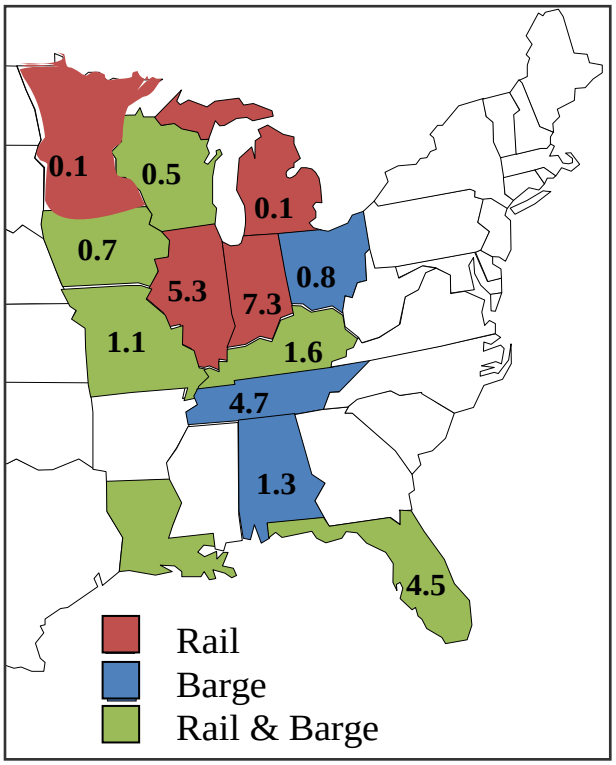
Sources: Coal & Transportaion Report by Supplier March 2008. Platts COALdat 8.0, CD-ROM. McGraw –Hill Co., Inc. Illinois. Dept.of Natural Resources Office of Mines and Minerals. 2007Annual Statistical Report.

In 2007, International Coal Group Viper Mine and S Coal Elkville Mine shipped coal solely by truck. The largest customers of these two mines are located within 25 miles of the mine sites. In order to enlarge their customer base, both mines are investigating the possibility of including rail haulage.

CHAPTER 5. MARKETS FOR ILLINOIS COAL

In 2007, Illinois coal producers supplied 28.8 million tons of coal to 48 locations in twelve states for utility and industrial use (Figure 7).[19] Indiana utilities, at 7.3 million tons, were the largest users of Illinois coal, followed by Illinois utilities and industrial users at 5.3 million tons. Utilities in Tennessee purchased 4.7 million tons, and those in Florida purchased 4.5 million tons. More than one million tons of coal was shipped to utilities in Kentucky, in Alabama and in Missouri. Utilities and industrial users in Ohio, Iowa, and Wisconsin purchased more than 500,000 tons. Over 100,000 tons of coal was shipped to utilities in Michigan and Minnesota.

FIGURE 7. 2007 MARKETS FOR ILLINOIS COAL



ILLINOIS MARKETS

Although Illinois has an abundance of bituminous coal, only 9.6 percent, or 5.3 million tons, of the coal used by Illinois utilities and industrial users in 2007 was mined in Illinois.[20] This was down from 6.6 million tons in 2006. Illinois coal is used by the following utilities in Illinois: AmerenEnergy Generating's Coffeen and Meredosia plants, Southern Illinois Power Cooperative, Springfield City Water, Light and Power and AmerenEnergy Resources' Duck Creek plant.

[19]Coal Transactions Analyzer: 1. March 2008. Platts COALdat 8.0, CD-ROM. McGraw – Hill Co., Inc. accessed 15 April 2008.
[20]Coal Transactions Analyzer: 1. February 2008. Platts COALdat 8.0, CD-ROM. McGraw – Hill Co., Inc. accessed 17 March 2008.

Springfield, City Water, Light and Power Company (CWLP) is the only utility that is served solely with Illinois coal. Since 1989, CWLP has purchased an average one million tons of coal per year from central Illinois mines. The majority of coal used at Southern Illinois Power Cooperative (SIPC) also comes from Illinois mines. SIPC used an average 694,000 tons per year since 1989. However, annual Illinois coal use at SIPC has increased an average 328,000 tons since 2005. Illinois coal use at SIPC reached one million tons in both 2006 and 2007.

AmerenEnergy Generating purchased 1.1 million tons of Illinois coal for use at the Coffeen and Meredosia plants in 2007. Between 1998 and 2005 AmerenEnergy Generating purchased an average 2.7 million tons annually. AmerenEnergy Resources purchased 473,000 tons of Illinois coal for use in the Duck Creek plant in 2007. This is down significantly from the average two million tons purchased annually between 1998 and 2004 for use at the Duck Creek and Edwards plants. The reduction of coal used at the Duck Creek plant in 2007 was due to retrofitting the scrubber. Illinois coal use is expected to resume at Duck Creek when the construction is completed.

Large industrial users of Illinois coal in Illinois include: Archer Daniels Midland Company in Decatur and Peoria, A.E. Staley Manufacturing in Decatur, and Bestfoods Corn Products in Bedford Park. Archer Daniels Midland uses an average 1.7 million tons per year. A.E. Staley and Bestfoods Corn Products International use an average 331,000 tons and 356,490 tons annually.

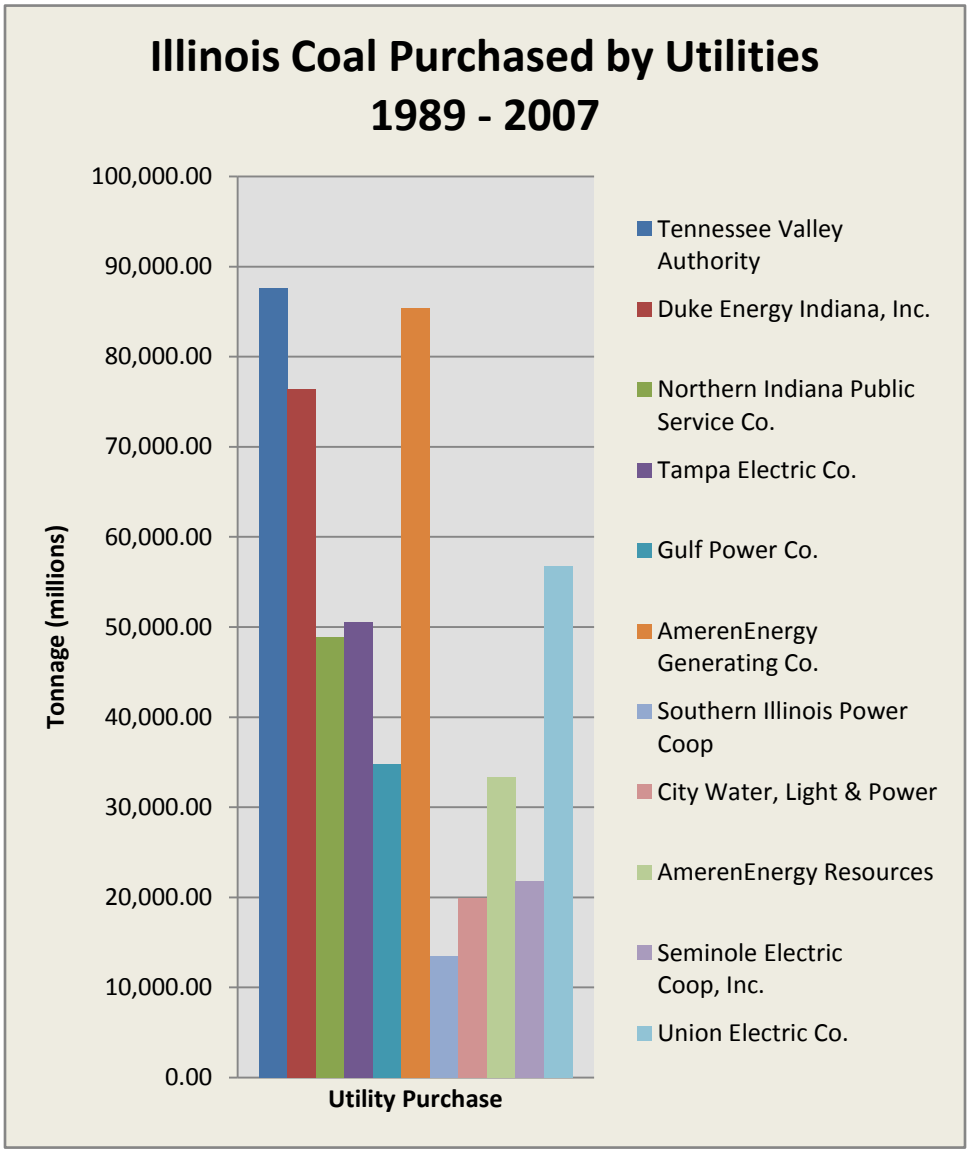
TOP EIGHT CONSUMERS OF ILLINOIS COAL IN 2007

The top eight utility users of Illinois coal in 2007 were as follows: Tennessee Valley Authority, 6.9 million tons; Duke Energy Indiana, 3.2 million tons; Northern Indiana Public Service, 2.4 million tons; Tampa Electric Company, 2.0 million tons; Gulf Power Company, 1.7 million tons; Alcoa Power Generating, 1.3 million tons; AmerenEnergy Generating Company, 1.0 million tons; and Southern Illinois Power Cooperative, 1.0 million tons. Utilities using between 960,000 and 500,000 tons of Illinois coal in 2007 include: CWLP, Seminole Electric Cooperative, Cincinnati Gas and Electric Cooperative, and Union Electric.

CONTINUOUS UTILITY MARKETS SINCE 1989

Eleven utilities have purchased Illinois coal annually since 1989.[21] These utilities include: Tennessee Valley Authority (TVA), AmerenEnergy Generating, Duke Energy Indiana, Tampa Electric, Northern Indiana Public Service Company (NIPSCO), Gulf Power, Ameren-Energy Resources, Seminole Electric Cooperative, Cincinnati Gas and Electric Company, CWLP and Southern Illinois Power Cooperative. Figure 8 shows the amount of Illinois coal purchased by each utility from 1989 – 2007.

FIGURE 8. MARKETS FOR ILLINOIS COAL SINCE 1989



[21]Coal Transactions Analyzer: 1. February 2008. Platts COALdat 8.0, CD-ROM. McGraw – Hill Co., Inc. 17 March 2008.

Tennessee Valley Authority and AmerenEnergy Generating Company have each purchased more than 80 million tons of Illinois coal since 1989. Duke Energy Indiana is the third largest consumer of Illinois coal, purchasing more than 70 million tons since 1989. Union Electric and Tampa Electric have each purchased more than 50 million tons. Northern Indiana Public Service Company has purchased 48.9 million tons of Illinois coal since 1989.

PRODUCER OPTIONS AVAILABLE TO CONSUMERS

Illinois coal producers strive to provide an ideal product for their customers. All Illinois coal producers use coal preparation plants to wash and size coal before shipping. Six producers are equipped to provide stoker coal (Table 5). Two producers have blending capabilities. Four coal producers backhaul ash for customers.

TABLE 5. OPTIONS AVAILABLE BY PRODUCER

Source: Illinois. Dept. of Natural Resources Office of Mines and Minerals. 2007 Statistical Report. *Mines closed in 2007.

Mine Name	Shipping mode used in 2007	Ash Backhaul	Stoker (% of product)	Washed (% of product)	Blended (% of product)
Creek Paum Red Hawk Prairie Eagle Prairie Eagle UG Royal Falcon	Truck, barge, CN	Yes	Available	85%	100%
Crown II*	Truck, BNSF	No	15%	85%	
Crown III	Truck, CN	Yes	15%	85%	
Elkville #1	Truck	Yes	Available	100%	
Friendsville	Truck, NS				
Galatia	Truck, barge, and CN	No		100%	
Gateway	Truck, UP	No	1.6%	100%	
Monterey No. 1*	Truck, NS and UP, and barge	No		100%	
Pattiki	EW and barge,	No		100%	
Pond Creek	CN				
Vermilion Grove	Truck, CSX	No		90%	
Viper	Truck	Yes	Available	100%	
Wabash*	NS	No		100%	
Wildcat Hills	Truck, Barge	No		100%	
Willow Lake	Truck, Barge	No		100%	50%

Rail Road Abbreviations: Burlington Northern Santa Fe (BNSF); Canadian National (CN); CSX Transportation (CSX); Evansville Western (EW); Norfolk Southern (NS); Union Pacific (UP)

CHAPTER 6. CLEAN AIR REGULATIONS AFFECTING COAL-FUELED POWER PLANTS

CLEAN AIR ACT OF 1970

The Clean Air Act (CAA) was signed by President Richard Nixon in 1970. Under the CAA, the United States Environmental Protection Agency (EPA) set limits on how much of a pollutant can be in the air anywhere in the United States. The law allows individual states to have stronger pollution controls. However, states are not allowed to have weaker pollution controls than those set for the whole country.

Under Phase I, new generating units (those built after August 17, 1971) were subject to New Source Performance Standards (NSPS) which imposed a maximum allowable emission rate of 1.2 pounds of sulfur dioxide (SO_2) per million Btus. These NSPS units were able to meet the emission standard in whatever way they chose. In Phase II of the federal regulation, new sources were required to remove a certain percentage of SO_2 from flue gases.

CLEAN AIR ACT AMENDMENTS OF 1990

In November 1990 President George H. Bush signed into law sweeping revisions to the Clean Air Act. Building on Congressional proposals advanced during the 1980s, the amendments imposed emission standards on existing fossil-fueled generating units. The revisions were designed to curb three major threats to the nation's environment and to the health of millions of Americans: acid rain, urban air pollution, and toxic air emissions. The 1990 Amendments also called for establishing a national permits program to make the law more workable, and an improved enforcement program to help ensure better compliance with the Act.

Specifically the 1990 Clean Air Act Amendments (CAAA)[22], also referred sometimes as the Clean Air Act:

- encourage the use of market-based principles and other innovative approaches, like performance-based standards and emission banking and trading;
- provide a framework from which alternative clean fuels will be used by setting standards in the fleet and a California pilot program that can be met by the most cost-effective combination of fuels and technology;
- promote the use of clean low-sulfur coal and natural gas, as well as innovative technologies to clean high-sulfur coal through the acid rain program;
- reduce enough energy waste and create enough of a market for clean fuels derived from grain and natural gas to cut dependency on oil imports by one million barrels/day;
- promote energy conservation through an acid rain program that gives utilities flexibility to obtain needed emission reductions through programs that encourage customers to conserve energy.

FRAMEWORK OF CLEAN AIR ACT AMENDMENTS

STATE IMPLEMENTATION PLANS Under the Clean Air Act Amendments (CAAA) states were to develop state implementation plans (SIP) that explain how each state will do its job under the Clean Air Act. A state implementation plan is a collection of the regulations a state will use to clean up polluted areas. The states must involve the public, through hearings and opportunities to comment, in the development of each state implementation plan. The EPA must approve each SIP, and if a SIP isn't acceptable, EPA can take over enforcing the Clean Air Act in that state. The 1990 Clean Air Act also provided for interstate commissions on air pollution control, which develop regional strategies for cleaning up air pollution.

AIR PERMIT PROGRAM The 1990 Clean Air Act devised a permit program for larger sources that release pollutants into the air. Under the program, permits are issued by states or, when a state fails to carry out the Clean Air Act satisfactorily, by EPA. The permit includes information on which pollutants are being released, how much may be released, and what kinds of steps the

[22]U.S. EPA Clean Air Act. Home page. October 2005. <http://www.epa.gov/oar/caa/overview.txt>. accessed 11 July 2008.

source's owner or operator is taking to reduce pollution, including plans to monitor (measure) the pollution. The permit program ensures that all of a source's obligations with respect to its pollutants are contained in one permit document, and that the source will file periodic reports identifying the extent to which it has complied with those obligations. Each permit issued to a facility is for a fixed term of up to five years.

TITLE IV: THE ACID RAIN PROGRAM The 1990 Clean Air Act Amendments include an innovative program to reduce acid air pollutants (all referred to here as "acid rain") caused mainly by pollutants from coal-fueled power plants. Sulfur in coal becomes SO_2 when coal is burned. Power plants also release nitrogen oxides (NO_x).

All power plants under the acid rain program were required to install continuous emission monitoring systems (CEMS), machines that keep track of how much SO_2 and NO_x the plant is releasing. A power plant's program for meeting its SO_2 and NO_x limit appears on the plant's permit, which is filed with the state and EPA.

MARKET APPROACHES FOR REDUCING AIR POLLUTION The CAAA have many features designed to clean up air pollution as efficiently and inexpensively as possible, letting businesses make choices on the best way to reach pollution cleanup goals. These flexible programs are called market or market-based approaches. For instance, the acid rain clean-up program includes pollution allowances that can be traded, bought and sold.

If a company reduces its releases of a hazardous air pollutant by about 90 percent before EPA regulates the chemical, the company will get extra time to finish cleaning up the remaining ten percent. This early reduction program is expected to result in a speedy reduction of the levels of several important hazardous air pollutants.

PHASE I & II OF THE ACID RAIN PROGRAM FOCUS ON SULFUR DIOXIDE REDUCTIONS The regulatory regime changed from a prescriptive emissions standard to a tradeable permits system. Reductions in SO_2 releases are obtained through a program of emission (release) allowances. EPA issues allowances to power plants covered by the acid rain program. Each allowance is

worth one ton of SO_2 released from the smokestack. To obtain reductions in SO_2 pollution, allowances are set below the current level of SO_2 releases.

In 1995, Phase I of the ARP required 263 generating units to reduce SO_2, NOx and PM. In 2000, every fossil-fueled plant greater than 25 MW was included in Phase II of the ARP.

One goal of the acid rain program was to result in a permanent ten-million ton reduction in SO_2 emissions from 1980 levels. To achieve this, EPA allocated allowances in two phases. Phase I, effective January 1, 1995, applied directly to the 263 largest, dirtiest existing generating units, located at 110 power plants – those units that had been "grandfathered" out of prior federal standards on new sources. It required the power plants to reduce their emissions to a level equivalent to the product of an emissions rate of 2.5 lbs of SO_2/mmBtu times an average of their 1985-1987 fuel use.

Plants that used certain control technologies to meet their Phase I reduction requirements were eligible to receive a two-year extension of compliance until 1997. The new law also allowed for a special allocation of 200,000 annual allowances per year each of the five years of Phase I to power plants in Illinois, Indiana and Ohio.

Phase II of the program started in 2000 and extended the market to essentially every fossil-fueled plant greater than 25 MW. It required approximately 2000 utilities to reduce their emissions to a level equivalent to the product of an emissions rate of 1.2 lbs of SO_2/mm Btu times the average of their 1985-1987 fuel use. In both phases, affected sources were required to install systems that continuously monitor emissions in order to track progress and assure compliance.

COMPLIANCE METHODS Utilities may choose any of the following ways to meet the standard annual emissions allowance limit:

- Fuel switching or blending — using a cleaner fuel or choosing lower sulfur coal
- Obtaining additional allowances through buying or trading

- Installing flue gas desulfurization equipment, commonly referred to as scrubbers
- Using previously implemented controls
- Retiring units emitting more than the allowable amount
- Boiler repowering with cleaner technology such as circulating fluidized bed boilers
- Substituting Phase II units that meet targets for those units that don't meet targets
- Compensating with Phase II units at other facilities by running them more often than units that don't meet targets.

SULFUR DIOXIDE ALLOWANCES UNDER THE ACID RAIN PROGRAM Plants may only release as much SO_2 as they have allowances. The Acid Rain Program allows utilities to trade allowances within their systems and/or buy or sell allowances to and from other affected sources. If a plant expects to release more SO_2 than it has allowances, it has to get more allowances, perhaps by buying them from another power plant that has reduced its SO_2 releases below its number of allowances and therefore has allowances to sell or trade. Allowances can also be bought and sold by "middlemen", such as brokers, or by anyone who wants to take part in the allowances market. Allowances can be traded and sold nationwide. Each source must have sufficient allowances to cover its annual emissions. If not, the source is subject to a $2,000 /ton excess emissions fee and a requirement to offset the excess emissions in the following year.

The acid rain program provides bonus allowances to power plants for (among other things) installing clean coal technology that reduces SO_2 releases, using renewable energy sources (solar, wind etc.) or encouraging energy conservation by customers so that less power needs to be produced.

NITROGEN OXIDE REQUIREMENTS The Acid Rain Program also includes specific requirements for reducing emissions of nitrogen oxides (NO_x), based on EPA regulations issued not later than mid-1992 for certain boilers and 1997 for all remaining boilers. When fossil fuels burn at sufficiently high temperatures, NO_x is formed. Reducing NO_x releases reduces both acid rain and smog formation.

Illinois is one of a number of states under federal mandate to reduce overall NO_x emissions by the so-called NO_x SIP call. As such, Illinois has adopted a NO_x emissions trading program. The

purpose of the program is to reduce NO_x emissions using a market-based cap and trade program. The program applies to emissions of NO_x from Electrical Generating Units (EGUs) and large industrial boilers and turbines whose primary purpose is to generate process steam rather than electricity (non-EGUs) during the ozone season beginning in 2004.

NO_x emissions from large EGUs may not exceed 30,701 tons in each ozone season. NO_x emissions from large non-EGUs may not exceed 4,882 tons in each ozone season. As part of the NO_x Trading Program, EGUs and non-EGUs are allocated NO_x allowances.

The Illinois EPA offered additional Early Reduction Credits (ERCs) for sale to those EGUs that made qualifying early reductions of NO_x in 2003. Previous ERCs were already distributed for reductions made by EGUs in 2001 and 2002. Each ERC allowance was sold for $2,000. Illinois is under federal directive to cap its NO_x emissions from large EGUs and large non-EGUs commencing in 2004.

PARTICULATE MATTER (PM) CONTROLS The Clean Air Act identifies six common air pollutants that are found all over the United States. Particulate matter is the general term used for a mixture of solid particles and liquid droplets in the air. It includes aerosols, smoke, fumes, dust, ash and pollen. The composition of particulate matter varies with place, season and weather conditions. Particulate matter is characterized according to size - mainly because of the different health effects associated with particles of different diameters.

Fine particulate matter is particulate matter that is 2.5 microns in diameter and less. It is also known as $PM_{2.5}$ or respirable particles because it penetrates the respiratory system further than larger particles. $PM_{2.5}$ is a criteria pollutant. Particles with a diameter of ten micrometers are known as PM_{10}.

Electrostatic precipitators and fabric filters are commonly used for high-efficiency control of coal-based boiler particulate emissions. These technologies can provide greater that 99.9 percent control of primary particulates, 99 percent control of PM_{10} and over 95 percent control of $PM_{2.5}$.

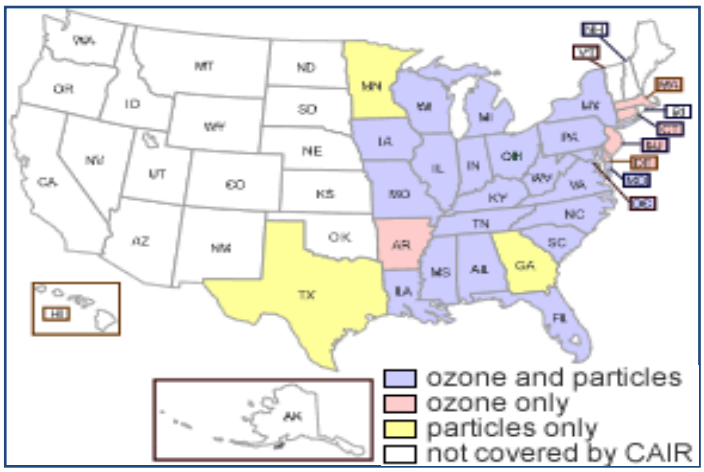
According to the U.S. EPA web-site, all coal-based boilers over 100 MW in Illinois have electrostatic precipitators.[23]

ATTAINMENT VS. NONATTAINMENT OF CRITERIA POLLUTANTS EPA establishes national ambient air quality standards for each of the criteria pollutants. These standards apply to the concentration of a pollutant in outdoor air. If the air quality in a geographic area meets or is cleaner than the national standard, it is called an attainment area; areas that don't meet the national standard are called nonattainment areas. The following counties in Illinois were designated as nonattainment areas for $PM_{2.5}$ Standard in June 2008: Cook, DuPage, Grundy (Partial (P)), Kane, Kendall (P), Lake, McHenry, Will, Madison, Monroe, Randolph (P) and St. Clair.[24]

CLEAN AIR INTERSTATE RULE

The Clean-Air Interstate Rule (CAIR), previously known as the Interstate Air Quality Rule was proposed in January 2004. Finalized on March 10, 2005, CAIR is designed to reduce emissions of SO_2 and NO_x contributors to the formation of fine particulates and ground level ozone.

Three separate cap and trade programs make up the Clean Air Interstate Rule (CAIR)[25]: an annual SO_2 reduction program to reduce fine particulate matter formation ($PM_{2.5}$), an annual NOx reduction program also to reduce $PM_{2.5}$formation, and a seasonal NOx reduction program to reduce ozone formation.



Region Regulated by CAIR

[23]U.S. EPA Clean Air Markets Data and Maps. Facility Attributes and Contacts. Quick Reports. Unit Characteristics. June 2008. <http://camddataandmaps.epa.gov/gdm/index.cfm>. accessed 27 June 2008.
[24]U.S. EPA. Greenbook. Currently Designated Nonattainment Areas for All Criteria Pollutants. June 2008. <http://www.epa.gov/air/oaqps/greenbk/ancl.html>. accessed 28 June 2008.
[25]U.S. EPA. Clean Air Interstate Rule. June 2008. <http://www.epa.gov/cair/>. accessed 28 June 2008.

Affected facilities include fossil fuel-fired electric generating units (EGUs) greater than 25 megawatts (MW) and co-generation units greater than 25 MW where one-third of the electric output is for sale. Large (>250mmBtu/hr) industrial boilers can opt into CAIR and non-EGUs that are currently participating in the NOx State Implementation Plan (SIP) can participate in the CAIR ozone season program.

A significant difference between CAIR and Clean Smokestacks Act (CSA) is that CAIR requires only SO_2 and NOx reductions from a region comprised of 28 mostly eastern states and the District of Columbia compared to nationwide in the CSA. Because emissions can be transported through air currents across state lines, impacting air quality in other "downwind" states, the regulation seeks to cap emissions in these selected states to improve state and regional air quality.

CAIR establishes State budgets for SO_2 and NOx and requires States to submit SIP revisions that implement these budgets in States that EPA concluded did contribute to nonattainment in downwind states. Under CAIR, the states can achieve their required emission reductions either by having affected power plants in their states participate in an EPA-administered, interstate cap-and-trade system, or by implementing their own measures, including those that may target other sectors. States have the flexibility to choose which control measures to adopt to achieve the budgets, including participating in the EPA-administered cap-and-trade programs.

EPA approved a revision to the Illinois SIP that fully meets the CAIR requirements for Illinois.[26] Therefore, as a consequence of the SIP approval, EPA will also withdraw the CAIR Federal Implementation Plans (CAIR FIPs) concerning SO_2, NOx annual, and NOx ozone season emissions for Illinois. In the SIP revision Illinois meets CAIR requirements by participating in the EPA-administered cap-and-trade programs addressing SO_2, NOx annual, and NOx ozone season emissions. The direct final rule became effective December 17, 2007.

[26]U.S. EPA. 40 CFR Part 52 [EPA–R05–OAR–2007–0376; FRL–8477–4] Approval of Implementation Plans of Illinois: Clean Air Interstate Rule.

CLEAN AIR MERCURY RULE

The EPA finalized the Clean Air Mercury Rule (CAMR) on March 15, 2005, implementing a cap-and-trade program for mercury (Hg) emissions from utility power plants. Unlike the CAIR rule, the mercury rule is national in scope, setting nationwide emissions cap applicable to all coal-fueled boilers with a capacity exceeding 25 megawatts.

Fourteen states and five environmental groups challenged the EPA's suite of rules in 2005.[27] In February 2008, a panel of the U.S. Court of Appeals for the District of Columbia vacated the Clean Air Mercury Rule because it removed power plants from a regulatory list requiring the toughest Clean Air Act safeguards against toxic pollution.[28] The panel ruled that the cap-and-trade program was a weaker standard that failed to reduce mercury emissions from each power plant in the country, achieved weaker reductions at plants required to do something, and would have taken effect well beyond dates mandated in the Clean Air Act.

Illinois chose to adopt a more stringent rule than the U.S. Environmental Protection Agency's Clean Air Mercury Rule in favor of a state-specific plan to cut emissions from coal-fueled power plants by an average of 90 percent by 2009.[29] In November 2006, the Illinois Pollution Control Board adopted regulations that require each Illinois power-generating company to reduce mercury emissions by 90 percent across its entire fleet, with each individual plant achieving a reduction of at least 75 percent. Reductions for each individual plant then must reach 90 percent by 2012. The mercury rule - including multi-pollutant agreements with Midwest Generation, Ameren and Dynegy - is among the most stringent pollution reduction plans by any state in the nation, and is one of the most far-reaching environmental agreements in the State's history.

[27] U.S. EPA Clean Air Mercury Rule. Fact Sheet - Reconsideration of the Clean Air Mercury Rule. 5 April 2007. < http://www.epa.gov/camr/fs20051021a.html/>. accessed 11 July 2008.
[28] U.S. EPA Mercury. Home page. Mercury News. February 2008. 25 June 2008. < http://www.epa.gov/mercury/> accessed 28 June 2008.
[29] Great Lakes Directory News Articles. 11 Dec. 2006. Illinois Gov. Blagojevich Announces Historic Agreement With Midwest Generation To Reduce Power Plant Pollutants And Deliver Dramatic Clean Air Benefits. Illinois Governor's Office. <http://www.greatlakesdirectory.org/il/121106_great_lakes.htm>. accessed 28 June 2008.

Midwest Generation, Ameren and Dynegy all agreed to install mercury control equipment by 2009 on at least 94 percent of their Illinois power plants. The remaining six percent of plants will install controls able to meet the standards by 2012.

Illinois has one of the most stringent mercury rules in the nation.

These agreements require reducing not only mercury but other pollutants -- sulfur dioxide and nitrogen oxides -- also far surpassing federal standards. The mercury rule achieves more than 90 percent mercury reductions by 2015, while federal rules only require a 78 percent by 2018. The rule also achieves between a 65 percent and 80 percent reduction in sulfur dioxide reductions by 2019, while the federal rule only requires a 34 percent by 2019. Combined, these reductions establish Illinois as a national leader in reducing power plant pollution. The Illinois EPA estimates that the state's coal-fueled power plants emit about 3.5 tons of mercury into the air every year.

PENDING CLIMATE CHANGE LEGISLATION

Limiting greenhouse gas emissions, including carbon dioxide from coal-fueled power plants, is influencing decisions with energy companies, policymakers and financial institutions across the country. In April 2007, the U.S. Supreme Court ruled that the U.S. Environmental Protection Agency (EPA) has the authority to regulate carbon dioxide and that EPA's current rationale for not regulating this gas is inadequate. Following the ruling a series of announcements led to stalled investments in new coal projects.[30] Progress Energy announced a two-year moratorium for the construction of new coal-fueled electric generating facilities in the southeast. Just weeks before, TXU Corporation, a Dallas-based energy company, abandoned plans for eight of eleven proposed coal-fueled power plants, catalyzing the shift from coal-based to renewable energy development in Texas.

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[30] Earth Policy Institute. Eco-Economy Updates. The Beginning of the End for Coal. 2 April 2008. <http://www.earth-policy.org/Updates/2008/ Update70_timeline.htm>. accessed 19 June 2008.

Within months of the Supreme Court ruling, policymakers in Washington, Florida, Nevada, California, Kansas, and other states had gone on record opposing new coal-fueled power plants citing concerns over uncertainty surrounding future carbon costs. Citigroup and Merrill Lynch downgraded the investment ratings of Peabody Energy Corporation, Arch Coal, Foundation Coal Holdings, and Consol Energy, prominent U.S. coal companies. Investment banks Morgan Stanley, Citi, and J.P. Morgan announced that any future lending for coal-fueled power plants will be contingent on the utilities demonstrating economic viability under future carbon costs.

In December 2007, the FutureGen Alliance announced that Mattoon, Illinois would be the site of FutureGen, the world's first, near zero-emissions, power plant with carbon sequestration. In January 2008, the U.S. Department of Energy pulled its support from FutureGen, and announced it was instead supporting a larger number of smaller carbon sequestration projects throughout the country.

Shortly after, Bank of America announced that it will start factoring in a cost of $20 - 40 per ton of carbon emissions in its risk analysis when evaluating loan applications from utilities. The federal government, also, suspended a low-interest loan program for rural utilities seeking assistance for new coal-fueled power plants.

CLIMATE CHANGE LEGISLATION There are three leading climate change bills being deliberated in Congress at the time of this writing. America's Climate Security Act (Lieberman-Warner Bill S. 2191)[31] and the Low Carbon Economy Act (Bingaman-Specter Bill S. 1766)[32] were submitted in 2007. Senator Barbara Boxer, Chair of the Senate Committee on Environment and Public Works, introduced the Manager's Amendment[33] to the Lieberman-Warner Bill in May 2008. All three bills formulate a cap and trade program for reducing greenhouse gases (GHG) using a combination of an auction and allocations.

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[31] The Library of Congress. THOMAS Home. Bills, Resolutions. Search Results. 18 October 2007. <http://thomas.loc.gov/cgi-bin/bdquery/z?d110:SN02191:@@@D&summ2=m&>. accessed 5 June 2008.

[32] United States Committee on Energy and Natural Resources. Featured Items. Bingaman/Specter Climate Change Bill. Related Files. Low Carbon Economy Act Two Pager. <http://www.energy.senate.gov/public/_files/**LowCarbonEconomyAct**TwoPager0.pdf>. accessed 5 June 2008.

[33] World Resources Institute Publications. Summary of S2191 Lieberman-Warner Climate Security Act of 2008. 21 May 2008. <http://www.wri.org/publication/summary_lieberman_warner_climate_security_act_2008_substitute_managers_amendment>. accessed 5 June 2008.

REQUIRED PARTICIPANTS IN CAP AND TRADE PROGRAM The Lieberman-Warner Bill includes industrial or electrical generating facilities that emit more than 10,000 CO_2 equivalents of GHG in any year and any facility that imports petroleum or coal-based transportation fuel or non-fuel chemicals the use of which will emit more than 10,000 CO_2 equivalents of GHG assuming no capture and permanent sequestration of that gas. The Bingaman-Specter Bill regulates CO_2 emissions at the point of production by requiring natural gas processing plants and petroleum refineries to submit allowances for their carbon content. GHG emissions from coal are regulated at the point of fuel consumption. Like the Bingaman-Specter Bill, the Manager's Amendment focuses regulation on natural gas processors and oil refineries, and includes entities that consume more than 5,000 tons of coal.

GHG TARGET REDUCTIONS The Lieberman-Warner Bill proposes to achieve a 17 percent reduction in GHG emission levels (below 2000 levels) by 2025 and a 42 percent reduction by 2050.[34] The Manager's Amendment reduces greenhouse gas emissions between 2012 and 2050 by about two percent per year from 2005 levels. Emissions from covered facilities will be reduced 19 percent below current levels by 2020, and 71 percent by 2050. It is estimated to reduce total US emissions from all sources, capped and non-capped, by up to 66 percent by 2050. The Bingaman-Specter Bill proposes to reduce U.S. GHG emissions to 2006 levels by 2020 and 1990 levels by 2030. The Bingaman-Specter Bill also calls for a Five-Year Review Process that requires a reassessment of domestic action in light of efforts by U.S. major trade partners and relevant scientific and technological developments. If there is sufficient international progress in reducing global GHG emissions, the President could recommend changes in the U.S. program designed to achieve further reductions that are at least 60 percent below current levels by 2050.

CAP AND TRADE ALLOWANCES All three bills would encourage trading of marketable allowances to facilitate cost-effective GHG abatement. The Lieberman-Warner Bill enlists banking and borrowing as its cost-containment mechanisms. Borrowed allowances must be repaid at a rate of 1.1 times. The Bingaman-Specter Bill includes a price cap or safety valve

[34]Richards, Kenneth R., Richards, Stephanie Hayes. The Evolution and Anatomy of Recent Climate Change Bills in the U.S. Senate: Critique and Recommendations Draft. 5 June 2008.

where covered facilities could bank or purchase extra allowances, but does not include a provision for borrowing allowances. The Manager's Amendment allows borrowing but uses an annual interest rate of ten percent. It also has provisions for a cost-containment auction in addition to the regular auction of allowances.

OFFSETS Both the Lieberman-Warner Bill and the Bingaman-Specter Bill recognize several types of activities considered as offsets: terrestrial carbon sequestration in agriculture and forestry projects, carbon capture and geologic storage; and capture and destruction of non-CO_2 GHGs that might be otherwise released into the atmosphere.

The Lieberman-Warner Bill recognizes both offsets and international credits, as well as early actions and CCS. The Bingaman-Specter Bill would provide allowances for emission reductions and carbon sequestration that do not fall under the cap. It would allow facilities to use an unlimited number of domestic offsets to cover their emissions. Both bills require the President to establish the regulations for an offset program.

The Manager's Amendment increases the opportunities for off-budget offset projects in which rewards are intended to be in direct proportion to the actual reductions of the projects. It has added farm management and land use change as well. The bill directs the Administrator to develop a list of categories that are eligible for offset credit and to develop methodologies for each category that can be used to assess reductions or sequestration associated with the project. It also provides for testing of the methodologies used in domestic offset programs for agricultural, forestry and land-use projects. Up to 15 percent of covered facilities' total compliance with the carbon caps can come in the form of offsets. In addition, the bill allows U.S. facilities to meet up to 15 percent of their GHG reduction obligations by reducing GHG emissions overseas, subject to specific rules.

DISTRIBUTION AND AUCTION OF ALLOWANCES Both the Lieberman-Warner Bill and Bingaman-Specter Bill and the Manager's Amendment allocate allowances under a pollution cap-and trade program. Allowances are distributed through a combination of auction and allocation, or "grandfathering". Approximately 24 percent of the allowances are auctioned and the remainder is allocated at the onset. The percentage of allowances auctioned increases to 53 percent by

2030 in the Bingaman-Specter Bill. The percentage of allowances auctioned in the Lieberman-Warner Bill increases 1 to 3 percent per year until 2036, after which the amount would remain at 73 percent auctioned.

Differing percentages of allowances are allocated to facilities for early action; to states for rewarding energy efficiency, early adoption of stringent emission targets, and expenditures on low-income home energy assistance; as incentives for geological CCS; for domestic agricultural and forestry terrestrial sequestration projects; as incentives for reduced deforestation and increased reforestation in foreign countries; to electric cooperatives and regulated utilities; and to facilities in the electric utilities and industrial sector.

The Bingaman-Specter Bill does not allocate a percentage to forest carbon activities, but it reserves allowances for new entrants in the manufacturing and electric power markets unlike the Lieberman-Warner Bill. Under the Bingaman-Specter Bill facilities that capture and store carbon automatically receive a credit for every ton of CO_2 sequestered. Facilities built or retrofitted by 2030 receive bonus allowances for each ton of CO_2 sequestered during the first ten years of operation.

The Manager's Amendment is similar to the Lieberman-Warner Bill in terms of how allowances are allocated. However, it provides fewer allowances for auction and more allowances for early reduction and for states. The Manager's Amendment also adds several categories for allocations for improvements in building, appliance, and manufacturing efficiencies, as well as, a clean commercial fleets program and a cellulosic biofuel program. The Manager's Amendment reserves allowances for new entrants in the manufacturing and electric power markets. The bill provides bonus allowances for the geological sequestration of CO_2, although less than those offered by the Lieberman-Warner Bill.

USE OF AUCTION REVENUES Both the Lieberman-Warner Bill and the Bingaman-Specter Bill plan to earmark revenues from allowance auctions to help low-income families adapt to the rising energy costs associated with legislation, to fund development of low emissions technologies, and to help preserve species and habitats threatened by climate change. The

Lieberman-Warner Bill also earmarks a small portion of revenues to retrain workers displaced from some jobs and needed to fill other jobs because of this climate change legislation.

The Manager's Amendment dedicates a percentage of revenues to a Deficit Reduction Fund established at the U.S. Treasury. It reduces the amount of money going for low-income families and low emissions technologies, while increasing the amount going to retrain workers impacted by climate change legislation and energy efficiency programs.

MANAGER'S AMENDMENT ADDITIONS The Manager's Amendment includes the following additional provisions for climate change legislation:

- A minimum price below which the government will not sell allowances at auction;
- Requires that estimation methodologies adopted under the offsets must be independently reproducible when tested by teams of experts; and
- Creates a relationship between pending climate change legislation and the Clean Air Act.

Greenhouse gas legislation has far-reaching implications on the coal industry, the cost of electricity, the advancement of energy-related technologies and energy choices in the future. The Manager's Amendment provides transition assistance for fossil-fueled electricity generators, states that rely heavily upon manufacturing and coal, and financial relief for consumers to help them transition to a low-carbon economy.

Delays and shortfalls in projects like FutureGen have highlighted the need for significant funding for CCS technology to begin flowing as soon as possible. In order to expedite the widespread commercialization of CCS technology, the Manager's Amendment moves one percent of the auction proceeds forward for early funding for this technology. The amendment provides three percent of allowances for the geological sequestration of CO_2 and addresses legal issues raised by CCS including ensuring the regulation of underground CO_2 storage and pipelines[35].

[35]Larsen, John. Zyla, Kate. Heilmayr, Robert. Summary of S.2191 – Lieberman-Warner Climate Security Act of 2008 Manager's Substitute Amendment. 23 May 2008.<http://www.wri.org/publication/summary_lieberman_warner_climate_security_act_2008_substitute_managers_amendment>. accessed 5 June 2008.

CHAPTER 7. REGULATORY IMPACTS ON THE ILLINOIS COAL INDUSTRY

Illinois has 21 coal-based power plants generating 16,240 megawatts (MW) of electricity. These plants are operated by eight utility companies: Midwest Generation EME, LLC [36](six plants/ 5,621 MW), Dynegy Midwest Generation (five plants/3,275 MW)[37], AmerenEnergy Generating (four plants/2,957 MW)[38], Dominion Energy Services Company (one plant/1,319 MW), AmerenEnergy Resources (two plants/1,221 MW), Electric Energy, Inc (one plant/1,099 MW), Springfield City Water, Light and Power Company (1 plant/458 MW) and Southern Illinois Power Cooperative (one plant/290 MW).

Illinois coal sales dropped 52 percent from 1990 to 2007 as utilities switched to low-sulfur coal to comply with the CAAA.

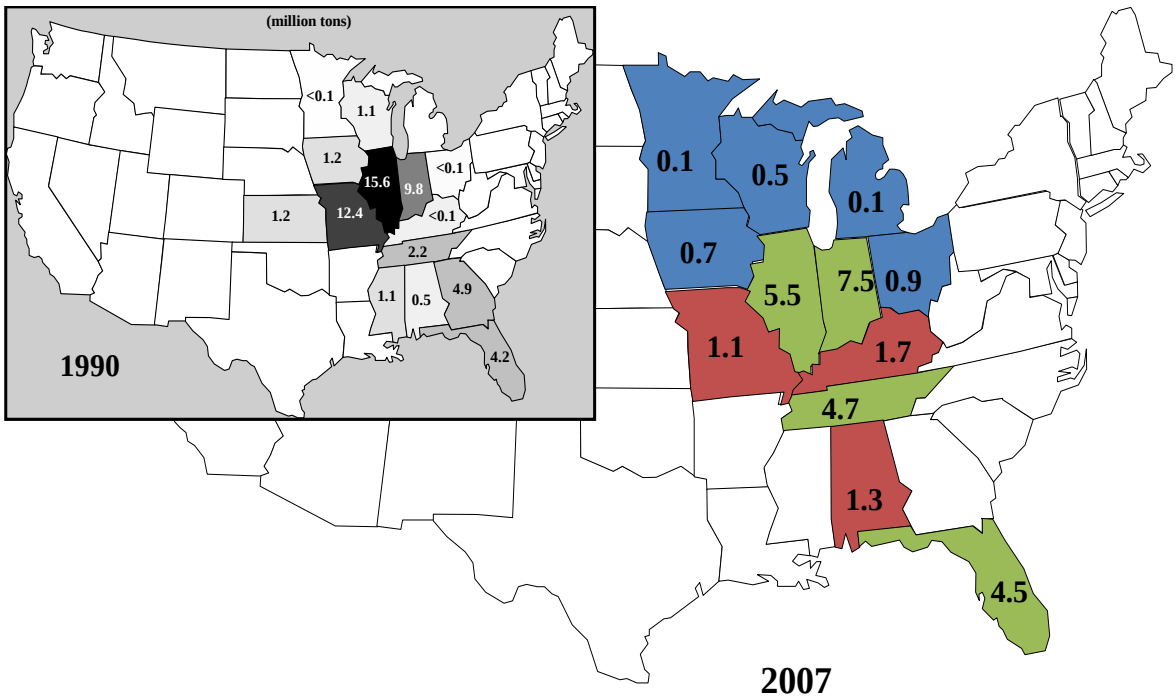
The operators of most large Illinois coal-fueled power plants chose to fuel switch to reduce SO_2 emissions. Illinois coal sales to Illinois power plants dropped from 15.6 million tons in 1990 to 3.3 million tons in 2007.[39] In addition, Illinois coal sales to utilities and industrial plants in other states dropped 52 percent, or 25.9 million tons, due largely to changes in air regulations and price competition (Figure 9).

Coal consumers, producers and transporters all took advantage of economy of scale through the 1990s to 2007.[40] Corporations, such as AmerenEnergy, bought smaller utilities and formed subsidiaries. The larger corporations were able to shed high-cost, long-term contracts and enter into more flexible, risk-sharing supply agreements. Consumers developed ways to blend smaller amounts of higher-Btu bituminous coal with high volumes of cheaper, low-sulfur Western coals.

[36]Edison International. Home page. Midwest Generation Facility Fact Sheets. January 2005. <http://www.edison.com/ourcompany/mwg.asp>. accessed 12 June 2008.
[37]Dynegy. Home Page. About Dynegy. Power Generation Facilities. 2008.<.http://www.dynegy.com/about_ dynegy/power_generation_facilities.asp>. accessed 12 June 2008.
[38]AmerenEnergy Generating Marketing. Generating Facilities. 2008. <http://www.ameren.com/AEM/ADC_AEM GenerationPlants.asp>. accessed 12 June 2008.
[39]Coal Transactions Analyzer: 1. February 2008. Platts COALdat 8.0, CD-ROM. McGraw – Hill Co., Inc. March 2008.
[40] United States. Dept. of Energy. Energy Information Administration. The U.S. Coal Industry in the 1990's: Low Prices and Record Production. By Richard Bonskowski. Sept. 1999. <http://www.eia.doe.gov/cneaf/coal/special/coalfeat.htm>. accessed 16 April 2004

Large coal operators, such as CONSOL and Foundation Coal increased production at profitable mines in Appalachia and closed marginally economical or geologically deteriorated mines, such as Rend Lake and Wabash in Illinois. Oil companies, Exxon Mobile and General Dynamics, closed their Illinois mines in 2007. As deregulated railroads consolidated, they increased profits by facilitating longer-distance coal runs to Midwestern and Eastern utilities using large unit trains with high-capacity cars (100 tons or greater) and by offering improved trackage, rates and cycle times from Western coalfields. All of these factors played a role in changing Illinois coal markets.

FIGURE 9. CHANGES IN ILLINOIS COAL MARKETS 1990 - 2007



Source: Platts COALdat 8.0, CD-ROM. McGraw – Hill Co., Inc. Feb. 2008.

ILLINOIS COAL USE AT ILLINOIS PLANTS DECREASED

Coal usage in Illinois has doubled. Lower priced, low-sulfur coals, primarily from the Powder River Basin (PRB) of Wyoming, continue to make inroads in Midwestern and Eastern power

plant markets. In 2006, Wyoming coal producers sold 54.9 million tons of coal to Illinois power plants. Wyoming coal sales dropped in 2007 to 49 million tons.[41]

Since 1990, coal consumption in Illinois has doubled while indigenous coal sales have plummeted.

In all, nine Illinois power plants have switched from Illinois Basin coal to PRB coal to comply with the CAAA (Table 6). In 2007, Illinois power plants used 52,151,780 tons of coal from out-of-state (Table 7). Plants using all or a portion of Illinois coal in the boilers were located in the following counties: Montgomery, Morgan, Fulton, Williamson and Sangamon. Plants using almost entirely out-of-state coal were located in the following counties: Jasper, Crawford, Peoria, Vermilion, Massac, Tazewell, Randolph, Mason, Madison, Putnam, Christian, Will, Lake and Cook.

ELECTRIC ENERGY INC. Electric Energy, Inc. (EEI) generates 800 MW of coal-fueled power and 44 MW with natural gas in Joppa, Illinois.[42] As an independent producer, EEI sells its power output to its shareholders, Ameren which owns 80 percent of EEI and Kentucky Utilities (a subsidiary of LG&E Energy), which owns the remaining 20 percent. Electric Energy switched to low-sulfur coal at the Joppa facility to comply with the SO_2 emission requirements of the CAAA. In 1994, the Joppa facility used 1 million tons of Illinois coal and 3.1 million tons of Wyoming coal. In 2007, Joppa used 4.9 million tons of Wyoming coal and no Illinois coal.

[41]Coal Transactions Analyzer: 1. April 2008. Platts COALdat 8.0, CD-ROM. McGraw – Hill Co., Inc. accessed 4 May 2008.
[42]Ameren. About Us. 2008. <http://www.ameren.com/AboutUs/>. 12 June 2008.

TABLE 6. PERCENTAGE OF ILLINOIS COAL USAGE AT ILLINOIS POWER PLANTS

Operator	Plant	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007
Midwest Generation	Fisk	0	0	0	0	0	0	0	0	0	0
Midwest Generation	Crawford	0	0	0	0	0	0	0	0	0	0
Midwest Generation	Waukegan	0	1	0	0	0	0	0	0	0	0
Midwest Generation	Powerton	0	0	0	0	1	0	1	1	0	0
Midwest Generation	Will County	0	0	0	0	0	0	0	0	0	0
Midwest Generation	Joliet	0	0	0	0	0	0	0	0	0	0
AmerenEnergy Generating	Hutsonville	0	0	0	0	0	2	0	0	0	0
AmerenEnergy Generating	Newton	53	39	0	0	1	0	0	0	0	
AmerenEnergy Generating	Coffeen	100	100	100	97	92	94	81	98	23	23
AmerenEnergy Generating	Meredosia	92	100	100	100	100	21	20	20	20	25
AmerenEnergy Resources	Duck Creek	100	100	100	100	100	95	100	100	100	100
Ameren Energy Resources	Edwards	15	40	88	65	62	73	43	2	0	0
Dynegy Midwest Gen.	Wood River	64	39	40	7	24	0	0	0	0	0
Dynegy Midwest Gen.	Havana	0	0	0	0	0	0	0	0	0	0
Dynegy Midwest Gen.	Hennepin	91	100	0	0	0	0	0	0	0	0
Dynegy Midwest Gen.	Vermilion	51	0	100	100	88	98	82	6	0	0
Dynegy Midwest Gen.	Baldwin	100	100	0	0	0	0	0	0	0	0
Dominion Energy Services	Kincaid	100	3	0	0	0	0	0	0	0	0
Electric Energy Inc.	Joppa	50	2	0	0	0	0	0	1	0	0
CWLP	Springfield	100	100	100	100	100	100	100	100	100	100
SIPCO	Marion	100	100	100	100	100	100	95	82	84	77

TABLE 7. ILLINOIS COAL-FUELED POWER PLANTS

Plant Operator	Plant Name	EIA 2002 Nameplate Capacity MW	County	Total Illinois Tons 1990 (000s)	Total Out-of-State Tons 1990 (000s)	Total Illinois Tons 2007 (000s)	Total Out-of-State Tons 2007 (000s)
AmerenEnergy Generating	Coffeen	1,005.4	Montgomery	1,746.4	0	728.3	2,459.4
AmerenEnergy Generating	Meredosia	564.0	Morgan	477.4	40.1	281.7	821.48
AmerenEnergy Generating	Newton	1,234.8	Jasper	1,074.9	960.2	0.0	4,998.9
AmerenEnergy Generating	Hutsonville	153.0	Crawford	0	213.4	0.0	502.9
AmerenEnergy Resources	Edwards Station	780.3	Peoria	189.0	1,80.0	0.0	2,725.1
AmerenEnergy Resources	Duck Creek	441.0	Fulton	861.0	0	475.9	0.0
Dynegy Power Corporation	Baldwin	1,892.1	Randolph	3,995.2	0	0.0	7,775.3
Dynegy Power Corporation	Vermilion	198.8	Vermilion	196.9	190.1	0.0	517.0
Dynegy Power Corporation	Havana	718.0	Mason	0	495.8	0.0	2,009.1
Dynegy Power Corporation	Wood River	650.1	Madison	472.2	265.3	0.0	1,665.3
Dynegy Power Corporation	Hennepin	306.3	Putnam	629.7	58.6	0.0	1,230.6
Electric Energy, Inc	Joppa	1,099.8	Massac	1,756	1,721.5	0.0	4,904.1
Dominion Energy Services Co.	Kincaid	1,319.0	Christian	2,335.0	0	0.0	3,910.7
Midwest Generation EME, LCC	Joliet (9&29)	1,827.0	Will	0	1,503	0.0	4,158.7
Midwest Generation EME, LLC	Powerton	1,785.6	Tazewell	0	1,969.0	0.0	5,125.6
Midwest Generation EME, LLC	Will County	1,268.8	Will	0	856.0	0.0	3,408.8
Midwest Generation EME, LLC	Waukegan	914.7	Lake	0	850.0	0.0	2,919.6
Midwest Generation EME, LLC	Crawford	805.0	Cook	0	254.4	0.0	1,634.5
Midwest Generation EME, LLC	Fisk	662.8	Cook	0.0	400.2	0.0	1,094.0
Southern Illinois Power Coop.	Marion	272.0	Williamson	739.0	0.0	1,007.7	290.7
Springfield City Water, Light & Power	Dallman & Lakeside	482.1	Sangamon	922.0	0.0	957.2	0.0
Total Tons in 000s				**15,394.7**	**9,858.6**	**3,450.8***	**52,151.78**

Users of less than 100,000 tons annually and industrial users were not included.
Source: Coal Transactions Analyzer:1. March 2008. Platts COALdat 8.0, CD-ROM. McGraw – Hill Co. accessed April 2008

DOMINION ENERGY SERVICES Dominion, one of the nation's leading energy companies, owns the Kincaid Power Station in Kincaid. The Kincaid plant was originally built by Commonwealth Edison as a minemouth plant in 1967-1968. It has two 659 MW cyclone-fired boilers. The facility used 1.4 million tons of Illinois coal annually until 1995, when it was switched to Powder River Basin (PRB) coal because of the CAAA. Dominion Energy purchased the plant in 1998. In 2007, the facility used 3.9 million tons of Wyoming coal. Dominion is planning Prairie Fork Wind Farm to supplement the power generation capacity of Kincaid Power Station for the future.[43]

MIDWEST GENERATION EME, LLC Chicago-based Midwest Generation (MWGen) is an independent power producer which operates 12 electric power generating facilities in Illinois and one in western Pennsylvania. MWGen was created in December 1999 upon acquisition of all of the Commonwealth Edison (ComEd) fossil-fueled generating units. It generates electricity to sell to the open wholesale market and has the capability to generate enough electricity to meet the needs of more than 11 million households.

The six MWGen coal-fueled plants in Illinois have a nameplate capacity of 7,263 MW. Two of the plants are in Chicago, three are in the southwest suburbs, and one is located in central Illinois. The Midwest Gen plants include: Crawford, Fisk, Joliet, Powerton, Waukegan and Will County.

Coal use at the MWGen plants has increased more than threefold since 1990 when it used 5.8 million tons of coal.[44] Coal used doubled from 1990 to 1995 when 11.9 million tons of coal was used. By 2000, MWGen plants were using 16.2 million tons of coal. In 2007, the plants used 18.3 million tons of Western coal.

MWGen signed an agreement with IEPA in 2006 to dramatically improve air quality and protect public health by slashing mercury, sulfur dioxide and nitrogen oxide emissions from its fleet of six Illinois plants. Under the agreement, MWGen's parent company, Edison

[43] Dominion Prairie Fork Wind Park. 2008. <http://www.dom.com/prairiefork/index.jsp> accessed 3 June 2008.
[44] Coal Transactions Analyzer: 1. March 2008. Platts COALdat 8.0, CD-ROM. McGraw – Hill Co., Inc. accessed March 2008.

Mission Group, has also agreed to explore developing new wind power projects and to explore building new "clean coal" power generation plants.

DYNEGY MIDWEST GENERATION Dynegy, Inc. has 3,503 MW of generating capacity at its five Illinois plants: Baldwin, Havana, Hennepin, Vermilion and Wood River. In 1999 Dynegy used 5.4 million tons of Illinois coal. To comply with the CAAA, Dynegy switched to lower sulfur coal at all of the Illinois plants. In 2000, they used 849,260 tons of Illinois coal and 7.8 million tons of Western coal.

Dynegy acquired Illinois Power, parent company of Baldwin Power Station, one of the largest sources of air pollution in the nation in 2000. In May 2005, the Environmental Protection Agency and the State of Illinois entered into a major CAAA New Source Review settlement with Illinois Power Company and its successor, Dynegy Midwest Generation, to resolve violations at the Baldwin Generating Station. As part of the settlement Dynegy agreed to undertake $15 million in Supplemental Environmental Projects (SEPs) and commit more than half a billion dollars over a ten-year period to emission control.

In 2006 as part of the SEP, the State purchased Bohm Woods, 92 acres of forested land in Madison County, with $1.5 million in funds provided by Dynegy. In March 2007, Dynegy deeded 1,135 acres of undeveloped land, across the river from Dynegy's Vermilion power station near Oakwood, to the State of Illinois.[45] The Vermilion property is valued at $2.25 million. According to company officials, Dynegy has reduced sulfur dioxide and nitrogen dioxide emissions at Baldwin and its other Illinois-based facilities by 90 percent. In 2007, Dynegy used 13.2 million tons of coal Western coal.[46]

AMEREN CORPORATION In December 1997, Union Electric and CIPSCO Incorporated, parent of Central Illinois Public Service Company, merged, creating Ameren Corporation and its principal operating companies—AmerenUE and AmerenCIPS.[47] Ameren Corporation, a

[45]Illinois Dept. of Natural Resources Press Releases. IL Attorney General Lisa Madigan. 13 July 2007 <http://dnr.state.il.us/pubaffairs/2007/July/landmark.html>. accessed 3 June 2008.
[46]Coal Transactions Analyzer: 1. February 2008. Platts COALdat 8.0, CD-ROM. McGraw –Hill Co., Inc. accessd 12 March 2008.
[47]Ameren. About Us. 2008. <http://www.ameren.com/AboutUs/> accessed 12 June 2008.

Fortune 500 company, is headquartered in St. Louis, Missouri with additional office locations throughout Illinois.

In May 2000, Ameren transferred the five former AmerenCIPS power plants, representing 2,900 megawatts of generation, to AmerenEnergy Generating Company, a newly created, nonregulated company. In 2003, Ameren Corporation grew with the acquisition of CILCORP Inc., parent company of Central Illinois Light Company (CILCO). The following year, the company grew again when it acquired Illinois Power Company, now known as AmerenIP.

With a total of 14 power plants in Illinois and Missouri, Ameren companies' net generating capacity is more than 12,600 MW, including Ameren's 80 percent share of the Electric Energy Inc. coal-fueled plant near Joppa. The Illinois plants include 3,698 MW of generating capacity at Coffeen, Meredosia, Newton, Hustsonville, Edwards Station, and Duck Creek.

Historically, the AmerenEnergy Generating Company was almost entirely fired with Illinois coal. With the passage of the CAAA, AmerenEnergy began trial burns with low-sulfur coals. In 2007, Ameren used one million tons of Illinois coal and nearly 8.8 million tons of Western coal at the Illinois plants.

SPRINGFIELD CITY WATER, LIGHT AND POWER City Water, Light & Power (CWLP) is the supplier of electricity for Springfield, Illinois residents and businesses. CWLP's Electric Division facilities include the Dallman and Lakeside coal-fueled power plants, three diesel generators, two sulfur dioxide (SO_2) scrubbers serving the three Dallman plants, a maintenance facility and a waste water treatment plant.[48] A selective catalytic reduction (SCR) system, which significantly reduces nitrogen oxides (NOx) emissions from the Dallman plants, was completed and placed in service in May 2003.

CWLP is in the process of constructing a new pulverized coal power plant that, when completed in 2010, will be one of the cleanest coal-fueled generating units in the nation.

[48] City Water, Light and Power. Electric Division. 7 May 2008. <http://www.cwlp.com/electric_division/electric.htm>. accessed 12 June 2008.

Dallman 4, the new 200 MW unit employing a Foster Wheeler pulverized coal boiler, will replace 76 MW of old coal-fueled technology—the utility's two Lakeside turbine generators. The new generating station is expected to cost approximately 20 percent less to operate per megawatt-hour than the most efficient of the three existing Dallman units.[49]

Dallman 4 will employ a number of environmental control technologies, including low NOx burners for the boiler, a selective catalytic reduction system for additional NOx removal, powder activated carbon injection for mercury removal; a fabric filter baghouse to remove fine particulate, a wet flue gas desulfurization unit (scrubber) for the removal of SO_2 and a wet electrostatic precipitator to remove acid mist and ultra-fine particulate from the flue gas. By utilizing state-of-the-art cooling towers, CWLP will be able to avoid discharging high-temperature water from the plant into Lake Springfield. This equipment will assist CWLP in its goal of becoming one of the most environmentally friendly, primarily coal-fueled, electric utilities in the nation.

The pollution control measures, as well as several other program enhancements being planned by the utility, will enable CWLP to cut greenhouse gas emissions sufficiently to meet the goals of reducing CO_2 emissions to below 1990 levels and complying with the State of Illinois' proposal to reduce mercury emissions 90 percent by 2009. As part of its commitment to protect the environment, CWLP will make pollution control improvements to the existing Dallman units, increase its investment in consumer energy efficiency programs, and purchase up to 120 MW of wind power each year.

SOUTHERN ILLINOIS POWER COOPERATIVE Southern Illinois Power Cooperative (SIPC) is a generation and transmission cooperative serving three distribution cooperatives over 170 square miles. In 2003, SIPC replaced three 1948 era, 33 MW cyclone boilers with one circulating fluidized-bed boiler (CFB) and added a selective catalytic reduction (SCR) system to Unit 4. The CFB is designed for maximum flexibility and uses 1.1 million tons of Illinois coal and coal refuse per year. The unit is also capable of firing petroleum coke, wood refuse and tire-derived fuel. The plant is in compliance with new source performance clean

[49] City Water, Light and Power Electric Division. New Power Plant Under Construction. 7 May 2008. <http://www.cwlp.com/electric_division/generation/new_plant_under_construction1.htm>. accessed 12 June 2008.

air standards. While the new boiler was under construction, SIPC also added additional pollution control equipment to Unit 4. Taken together, these improvements allow SIPC to meet environmental standards and insure that the plant will continue to operate well into the future. The new unit and Unit 4 burn local coal and carbon.

THE EFFECT OF EMISSION REGULATION ON UTILITY COMPANY STOCK

A Boston University study found that the shares of 35 electric generating companies owning Phase I power plants did not noticeably fall in value after the announcement of the CAAA. In fact, the shares increased in value during June and July of 1989. In contrast, stock prices of 11 of the 12 coal mining companies fell after the CAAA were announced. The expected profits of electric generating companies did not fall because the regulated price of electricity was typically allowed to increase with costs. In the electricity industry, the costs of the CAAA were expected to be borne entirely by consumers in the form of higher prices.[50]

CHANGES IN RAILROAD DELIVERY COSTS

A 2004 paper by Busse and Keohane[51] showed that the SO_2 emission allowance trading program coincided with a shift in the delivered prices of low-sulfur coal from the Powder River Basin (PRB) to power plants subject to the Clean Air Act Amendments of 1990. The implicit zero-distance or "railhead" price rose by roughly six dollars per ton – a dramatic increase over the prior railhead price. At the same time, estimated transportation rates fell by about six mills[52] per ton-mile, controlling for variable transportation costs. The net effect was to increase the "constant-cost" delivered price of PRB coal for plants within approximately 1000 miles while lowering it on the extensive margin. The study further points to price discrimination as a key factor in explaining the low prices of low-sulfur coal. By raising the delivered price of PRB coal at some power plants and lowering it at others, the

[50]Kahn, Shulamit and Knittel, Christopher. University of California Davis. Department of Economics Working Papers. "The Impact of the Clean Air Act Amendments of 1990 on Electric Utilities and Coal Mines: Evidence from the Stock Market." June 2002. <www.econ.ucdavis.edu/faculty/knittel/papers/kahnknittel.pdf>. 14 Sept 2005.

[51]Busse, Meghan R. and Keohane, Nathaniel O. University of California Energy Institute. Center for the Study of Energy Markets Working Paper Series. "Market Effects of Environmental Regulation: Coal, Railroads, and the 1990 Clean Air Act." 17 September 2004. <http://www.ucei.berkeley.edu/PDF/csemwp137.pdf >. Accessed 29 August 2005.

[52]A monetary cost and billing unit used by utilities; it is equal to 1/1000 of the U.S. dollar (equivalent to 1/10 of 1 cent).

railroads were able to benefit from the allowance market, taking advantage of its effects on the demand for low-sulfur coal. The results of the study present a benefit from a market-based environmental regulation relative to a traditional standards-based approach. By making low-sulfur coal demand more elastic, the tradeable permits program appears to have provided railroads with an incentive to lower their prices over a wide range instead of raising them, making pollution abatement less expensive than it would otherwise have been.

ILLINOIS COAL PRODUCTION DECREASED

The U.S. Department of Energy reported coal production in the Interior Region[53] dropped in 2000 by 19.0 million short tons.[54] Every major coal-producing state in the region had lower production levels in 2000. The greatest decline in tonnage was registered in Illinois where production ceased at two major mines, Peabody Coal Company Marissa Mine and Arch Coal Conant Mine, which accounted for 5.8 million short tons of production in 1999. Overall, Illinois coal production dropped from 40.3 million tons to 33.5 million tons in 2000 as production declined at other mines as well. Coal production has held somewhat steady at 32 million tons per year since 2004.

ILLINOIS COAL MINE EMPLOYMENT LEVELS DECREASED

When the Clean Air Act Amendments went into effect in 1996, Illinois mines employed 5,008 persons, less than half of the 10,129 employed in 1990. By 2000 employment levels had dropped an additional 30 percent to 3,461.

In 2007, employment at Illinois coal mines reached its lowest level since the state began tracking mine statistics in 1925. There were 3,001 coal mining jobs at the end of 2007. This figure represents a 70 percent reduction in coal mining jobs since 1990. Five mines, employing 1,106 persons, closed in 2006 and 2007. During the same time period, four underground mines and one surface mine opened, employing 175 workers. These five mines will require more employees as mining advances and production increases.

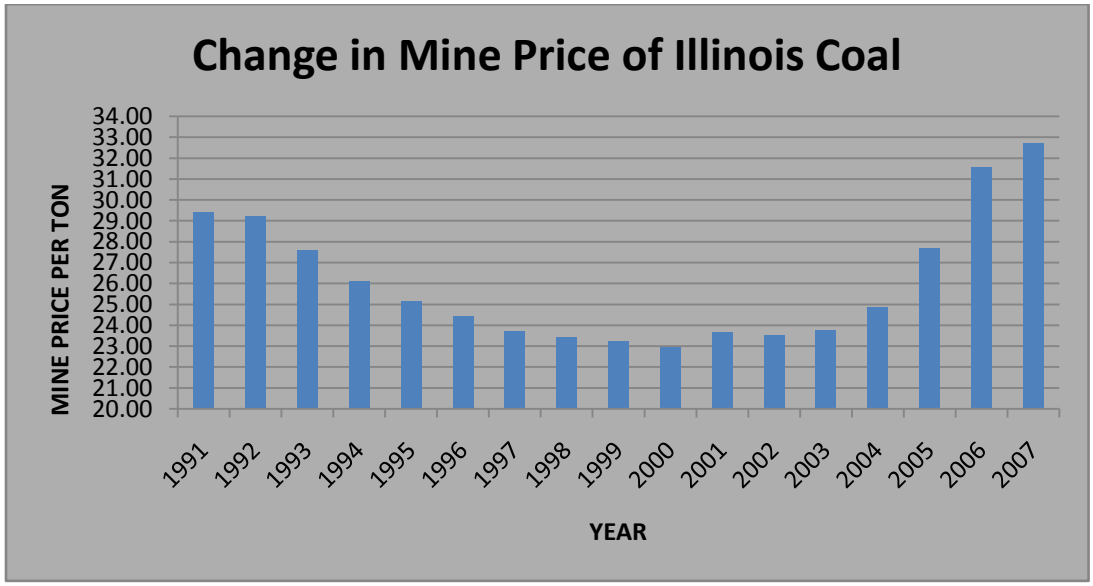
[53]Interior Region includes Illinois, Indiana, Western Kentucky, Texas, Louisiana, and Mississippi.
[54]U.S. Dept. of Energy. Energy Information Administration. Coal Industry Annual 2000 p. x-xi.

ILLINOIS COAL PRICES DECREASED

Not only did Illinois coal production decrease, but Illinois coal operators saw a 22 percent decrease in the price of coal at the mine site (Figure 10). Between 1991 when Phase I of the CAAA went into effect and 2000, the average price of Illinois coal before shipping decreased $6.48 from $29.42/ton in 1991 to a low of $22.94 in 2000.[55]

Coal operators saw declines in revenues as the demand for Illinois high-sulfur coal decreased. Utilities were able to negotiate lower contract prices on new coal contracts than on previous contract agreements. In 2006 coal prices surpassed 1991 prices due in part to volatile natural gas prices, higher demand for coal in China and India, and tight supply in the U.S. markets due to an increased export market.

FIGURE 10. CHANGE IN ILLINOIS COAL PRICES 1991 - 2007



ILLINOIS MINE CLOSURES

The drop in coal sales between 1994 and 2007 forced several Illinois mines to close. Mines producing more than one million tons per year that closed between 1994 and 2005 due to adverse market conditions include: Peabody Coal Mine #10 in Christian County, Peabody Coal Marissa Mine in Washington County, Exxon Coal Monterey #2 in Clinton County,

[55] Energy Information Administration. Annual Energy Review. Coal Prices 1949 – 2007. <http://www.eia.doe.gov/emeu/aer/coal.html> accessed 25 June 2008.

Zeigler Coal Mines #24 and #26 in Franklin County, Freeman United Coal Orient #6 Mine in Jefferson County, Arch of Illinois Kathleen Mine in Perry County, and Amax Coal Delta Mine in Williamson County. Mines producing more than one million tons per year that closed in 2006 and 2007 include: Foundation Coal Wabash Mine in Wabash County, Exxon Coal Monterey #1 Mine in Macoupin County, Freeman Energy Crown II Mine in Macoupin County and Black Beauty Coal Riola Mine in Vermilion County. A list of all Illinois coal mines that closed since 1994 can be found in Table 8.

THE ECONOMIC IMPACT OF THE LOSS OF COAL MINING JOBS IN ILLINOIS

The loss of coal mines and coal mining jobs negatively impacted the economic structure of southern Illinois. Although mining salaries doubled between 1980 and 2007, from $22,000 per year to $45,500 per year, the total payroll of the coal mining industry decreased more than 60 percent during the same time period (Table 9).

TABLE 9. CHANGES IN TOTAL PAYROLL WITH THE LOSS OF COAL MINING JOBS

	1980	1990	2007
Mining Industry Employment	18,284	10,129	3,001
Production (Millions of tons mined/yr.)	62.5	61.6	32.01
Average Mining Industry Yearly Salary	$22,000	$35,000	$45,500
Total Payroll	$402,248,000	$354,515,000	$136,545,500

Sources: Illinois. Dept. of Natural Resources Office of Mines & Minerals. 2007Annual Statistical Report: Table 4.
Illinois. Illinois Census Report 1980, 1990 and 2007

Add to this the number of jobs related to the coal industry and the impact increases further. Every coal mining job supports approximately six spin-off jobs in rural Illinois. When the mines closed miners could either retire, collect unemployment, relocate, or participate in job training programs to learn other skills. The decrease in tax revenues affected the communities that supported the working miners. The loss of jobs and tax revenues had a negative impact on communities such as Sparta, DuQuoin, Pinckneyville, Mt. Vernon, Benton, Marion, Centralia, Taylorville, Virden, Girard, Carlinville, and Mt. Carmel.

TABLE 8. ILLINOIS COAL MINES THAT HAVE CLOSED SINCE 1994

Coal Operator	Mine Name	County	Mining Method	Coal Seam(s)	Thick. (feet)	Depth (feet)	1994 Mine Jobs	1994 (tons)	Tons last year of operation	Year Closed	Reason for Closing
Peabody Coal	Mine #10	Christian	Continuous	6	7.2	380	20	1,456,788	1,456,788	1994	market conditions brought about by CAAA
Peabody Coal	Marissa	Washington	Continuous	6	6.5	200	418	4,065,151	3,394,719	1998	market conditions brought about by CAAA
Illini Energy Resources	Razorback	Jackson	Surface	6	7.5	70	0	0	100,762	2000	Reserves depleted
Exxon Coal	Monterey #2	Clinton	Continuous	6	7.0	330	397	3,006,741	1,700,977	1997	market conditions brought about by CAAA
Zeigler Coal	Old Ben #24	Franklin	Longwall	6	6.8	650	277	2,076,000	499,406	1996	market conditions brought about by CAAA
Zeigler Coal	Old Ben #25	Franklin	Longwall	6	7.5	600	3	1,475,749	1,475,749	1994	market conditions: low coal price & low demand
Zeigler Coal	Old Ben #26	Franklin	Longwall	6	8.5	650	283	3,050,000	3,136,000	1996	Reserves depleted
Mid-State Coal	Rapatee	Fulton	Surface	6	3.5	67	87	498,666	204,949	1997	Reserves depleted
Freeman United Coal	Orient #6	Jefferson	Longwall	6	5.5	722	234	1,431,347	1,112,371	1996	Market conditions
Arch of Illinois	Captain	Perry	Surface	5, 6, 7	9.7	50	190	2,450,424	1,241,603	1998	Reserves depleted
Arch of Illinois	Conant	Perry	Continuous	6	6.0	150	166	1,652,633	2,435,616	1999	Contract issue
Arch of Illinois	Horsecreek	Perry	Surface	5, 6, 7	10.1	127	20	322,261	322,261	1994	
Arch of Illinois	Kathleen	Perry	Continuous	6	6.2	113	161	1,630,053	1,630,053	1994	market conditions
Consolidation Coal	Burning Star #2	Perry	Surface	6	5.7	80	44	673,811	673,811	1995	market conditions
Consolidation Coal	Burning Star #4	Perry	Surface	5, 6	9.5	70	290	2,547,921	2,127,096	1997	Reserves depleted
Zeigler Coal	Spartan	Randolph	Continuous	6	6.0	200	175	1,654,000	2,090,000	1997	Reserves depleted
Triad Mining, Inc.	Cedar Creek	Schuyler	Surface	2	2.5	20	47	605,969	417,043	1997	
Amax Coal	Delta	Williamson	Surface	6, 7	7.0	120	159	1,387,598	521,454	1997	market conditions
CONSOL Energy	Rend Lake	Jefferson	Longwall	6	8.0	733	454	2,706,334	1,682,614	2002	adverse geologic and market conditions
Arclar	Eagle Valley	Gallatin	Continuous	5/Davis	4.5/3.5	450	132	1,092,620	209,250	2002	Reserves depleted
Horizon Natural Resource	Zeigler #11	Randolph	Continuous	6	6.5	220	179	1,780,000		2003	Bankruptcy of parent company Purchased by Peabody Energy and reopened in 2005 as Gateway Mine
Freeman United Coal	Industry	McDonough	Surface	2	2.3	50	91	433,884		2004	Reserves depleted
Jader Fuel	Mine #4	Gallatin	Surface	No. 5 Dekoven	7 / 2.5	15-125	29	316,122	1,387,384	2001	Sold to Illinois Fuels and renamed I-1 Mine
Illinois Fuel Co., LLC	I-1 Mine	Saline	Surface	Davis Dekoven No. 5, No. 6 Briar Hill	4.0 3 4.4, 3 2	130 105 140/35 90	Previously Jader Fuel Mine No. 4		529,982	2003	Adverse geological conditions and financial difficulties.

Coal Operator	Mine Name	County	Mining Method	Coal Seam(s)	Thick. (feet)	Depth (feet)	1994 Mine Jobs	1994 (tons)	Tons last year of operation	Year Closed	Reason for Closing
Illini Energy Resources	Razorback II	Perry	Surface	No. 5 No. 6	3.5 7.0	90 70	Opened in 2000				Sold to Knight Hawk Coal, renamed Red Hawk
Brushy Creek Coal	Brushy Creek	Saline	Continuous	No. 6	5.7	250	258	1,322,958	680,309[b]	2000	Adverse geologic conditions in the No. 6 seam and poor market conditions; Reopened as Liberty Mine in 2002; closed again in 2006.
Old Ben Coal Co.	Zeigler No. 11	Randolph	Continuous	No. 6	6.5	220	179	1,780,000	1,827,000	2004	Parent company filed for bankruptcy and closed
Arclar	Big Ridge	Saline	Continuous	No. 5	6.0	300	129	1,341,973	1,658,073		Mine closed due to fire; 194 employees
S Coal	Cambria #1	Jackson	Surface	No. 5 No. 6 No. 7	1.5 8 3.5	120	Opened in 2001		90,942	2004	Depleted reserves
Black Beauty Coal	Riola Complex	Vermilion	Continuous	No. 6	5.4	257	Opened in 1995by Catlin Coal Company		921,329	2006	Reserves depleted
Foundation Coal	Wabash Mine	Wabash	Continuous	No. 5	6.7	850	688	3,993,838	1,175,444	2007	Adverse geological conditions
Freeman Energy	Crown III	Macoupin	Continuous	No. 6	7.2	360	124	1,204,281	1,589,922	2007	Reserves near depletion;
Monterey Coal	Mine #1	Macoupin	Longwall	No. 6	6.8	330	351	2,141,641	2,766,831	2007	Market conditions

Source: Illinois. Dept. of Natural Resources Office of Mines and Minerals. 1994 - 2007Annual Statistical Reports.

THE EFFECTS OF THE CLEAN AIR ACT AMENDMENTS ON ILLINOIS AIR QUALITY

A 2001 report on environmental health published by the Pacific Research Institute[56i] states, "The steady improvement in air quality in most American cities is one of the greatest environmental success stories of recent decades." The report goes on to say, "Yet because this improvement has come in small increments — one to three percent a year — at any given moment the improvement tends to go unnoticed and unappreciated. Polls consistently find that Americans believe that air quality has gotten worse and will continue to get worse in the future."

In terms of the Air Quality Index (AQI), air quality during 2006 was either good or moderate more than 97 percent of the time throughout Illinois.[57] There were no days when air quality in some part of Illinois was considered Unhealthy. This compares with two Unhealthy days in 2005. There were eight days (five for 8-hour ozone and three for $PM_{2.5}$) when air quality in some part of Illinois was considered Unhealthy for Sensitive Groups. This compares with 32 Unhealthy for Sensitive Groups days in 2005.

Illinois air quality trends for the criteria pollutants are continuing to show downward trends or stable trends well below the level of the standards. Percentage changes over the ten year period 1997 – 2006 are as follows: particulate matter (PM_{10}) -- eight percent decrease, sulfur dioxide -- 36 percent decrease, nitrogen dioxide -- six percent decrease, carbon monoxide -- 32 percent decrease, lead -- 30 percent decrease, and ozone -- ten percent decrease.

ILLINOIS – SUSTAINABLE ENERGY PLAN

The Sustainable Energy Plan proposed by Governor Blagojevich in early 2005, requires progressive reductions in load growth using demand-side conservation measures and the use of renewable energy such as wind, biomass, solar, and other sources. A study[58] found the Renewable energy (RE) and energy efficiency (EE) goals consistent with Illinois' 2005

[56]Hayward, Steven F., and Julie Majeres. 2002. Index of Leading Environmental Indicators, 7th Edition. Pacific Research Institute, April 2002. p48.
[57]IEPA, Annual Air Quality Report 2006. Dec. 2007. <http://www.epa.state.il.us/air/air-quality-report/2006/index.html>. accessed 24 June 2008.
[58]U.S. Department of Energy. Energy Efficiency and Renewable Energy./GO-102007-2503, December 2007 Illinois – High-Level Commitment Key to Air Quality Success. <www.nrel.gov/docs/fy08osti/42165.pdf>. accessed June 2008.

Sustainable Energy Plan could achieve significant benefits to state employment, income, and economic output, as well as fuel displacement and air emissions reductions. The RE and EE measures of the Sustainable Energy Plan will displace significant fossil fuel generation within Illinois and the Seven State Area. It also showed that the majority of fuel displaced in Illinois will come from coal-fueled power plants, with 13,897 GWh being displaced for the period between 2007 and 2013. An analysis showed that the Sustainable Energy Plan could reduce emissions of NOx, SO_2, Hg, and CO_2. However, for capped pollutants, this effect would likely reduce allowance costs while emissions stayed the same.

On August 28, 2007, Governor Blagojevich signed legislation creating a Renewable Portfolio Standard and an Energy Efficiency Portfolio Standard for Illinois based on the Sustainable Energy Plan—but with even more aggressive goals, which should lead to even greater air emissions reductions.

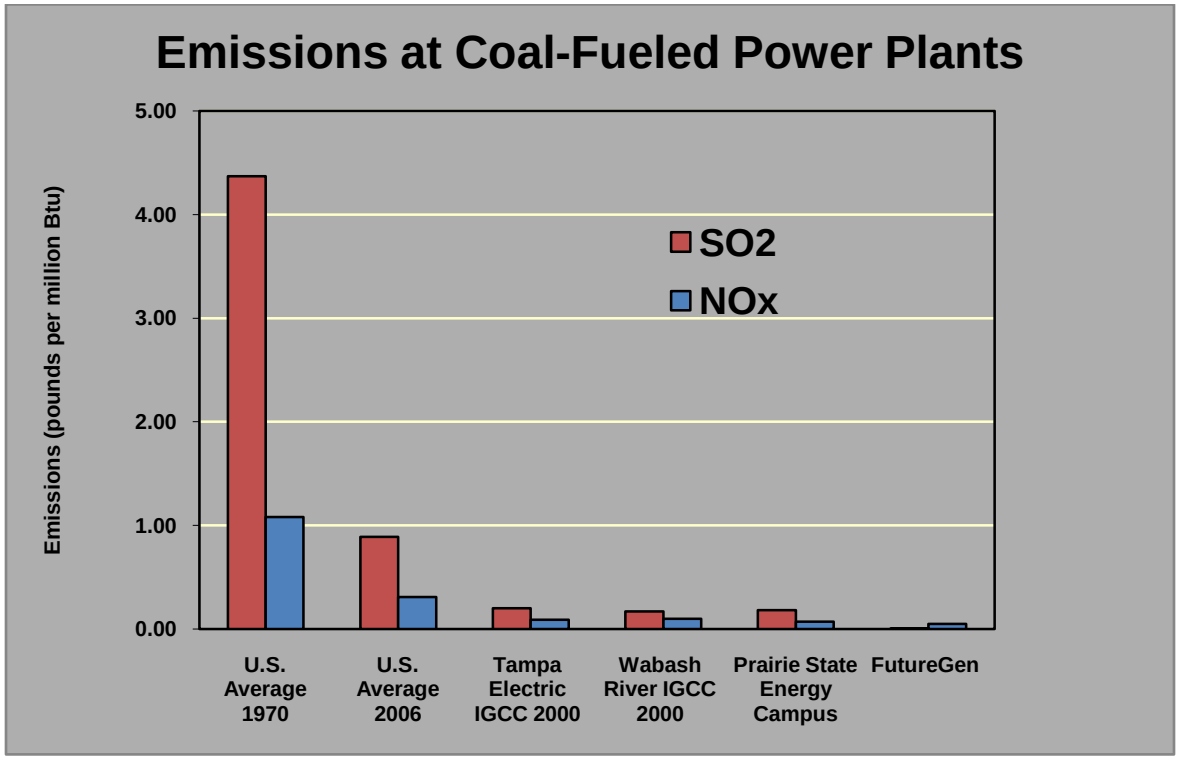
CLEAN COAL TECHNOLOGY ADVANCING

Research and development of new cleaner coal technologies have progressed since the CAAA took effect. State-of-the-art technologies such as Fluidized Bed Combustion (FBC) and advance Pulverizered Coal (PC) plants have made significant improvements in efficiency and emission control. A new PC plant constructed today versus one constructed 40 years ago will control 95+ percent of SO_2 emissions and 80+ percent of NO_x emissions. A comparison of emissions from recently built or proposed power plants show similar emission outputs for integrated gasification combined cycle (IGCC) technology in terms of SO_2 and NO_x emissions (Figure 11).

Prairie State Energy Campus will have SO_2 and NO_x emissions as low as, or lower than, the only two operating IGCC plants in the United States. Moreover, a U.S. Department of Energy Clean Coal Technology Project[59] at Jacksonville Electric Authority Northside Generation Station in Tampa, Florida showed that Circulating Fluidized Bed Combustion (FBC) technology can control SO_2 to 0.04 lbs/million Btu, NO_x to 0.06 lbs/million Btu and particulates to 0.004 lbs/million Btu from Illinois No. 6 coal. These emissions are significantly below current New Source Performance Standards.

[59]Office of Fossil Energy. U.S. Dept. of Energy. Clean Coal Today. DOE/FE-0491. Issue No. 64. Fall 2005.

FIGURE 11. EMISSIONS FOR EXISTING AND PROPOSED COAL-FUELED POWER PLANTS IN ILLINOIS AND THE UNITED STATES.



Sources: U.S. EPA. Emissions Scorecard 2001. and U.S. Department of Energy 2002 Annual Energy Outlook. National Energy Technology Laboratories. CCPI/Clean Coal Demonstrations. Wabash River Coal Gasification Repowering Project. Project Fact Sheet. <http://204.154.137.14/technologies/coalpower/cctc/summaries/wabsh/wabashrdemo.html> accessed 17 July 2008. Prairie State Energy Campus. Home page. Community Brochure. <http://www.prairiestateenergycampus.com/index-mainspace-nn.html> accessed 17 July 2008. E-mail from David Brown FutureGen Alliance to Polly Wise. 17 July 2008. Note: FutureGen rates presented are the maximum rates.

STATE LEVEL COAL TECHNOLOGY RESEARCH AND DEVELOPMENT PRIORITIES

The Illinois Clean Coal Institute (ICCI) in Carterville is the technical arm of DCEO's Coal Research and Development Program. Research priorities[60] for FY2008 include: carbon management, advanced coal mining technologies, coal preparation and other production business practices, coal gasification, power generation, flue gas cleaning, mercury emissions and other air toxins, coal chemistry, coal bed methane, and commercialization and technology transfer.

One of the major challenges facing coal powered utilities is meeting the impending restrictions on greenhouse gas emissions. For existing facilities, this challenge can best be met by improved combustion efficiencies which result in the reduction of carbon dioxide

[60]Illinois Clean Coal Institute, Three-and Ten-Year Goals and Objectives Relative to Funding Coal Research and Development and Demonstration Projects. March 2007.

emitted per kilowatt of electricity. An option for new construction includes integrated gasification combined cycle facilities coupled with carbon dioxide sequestration.

Currently, research in coal gasification includes a determination of the Illinois coal reserves available for gasification, carbon management in coal gasification, analysis of permitting issues for coal gasification plants located in Illinois, study of water usage in coal gasification, and the effects of coal properties on the downstream systems of coal gasification installations. This area also covers the production of chemical intermediates, oxyfuel technologies, and fuels from syngas and improved methods for the removal of impurities from syngas. A major addition this year is the investigation of synergies in the production of biofuels such as ethanol and biodiesel and coal gasification.

The last decade has seen a substantial decrease in funding on both the federal and state level for coal research programs. Numerous well-established programs nationwide have been severely curtailed in the last few years, and many coal researchers have moved on to other areas in order to secure research funding. This "brain-drain" issue in academia, independent and industrial research groups and the coal industry is of great concern to the ICCI. The ICCI believes there are many issues in basic coal research that remain unresolved, or require a fresh look at the start of the 21st Century, capitalizing on the enhancement of analytical instruments developed over the last 20 years.

The ICCI actively promotes the movement of technology developed under its funding towards commercialization. Development projects are directed towards technology and concept development that can be implemented in the shorter term to assist Illinois utilities and coal companies in complying with Clean Air Act regulations and, in the longer term, to maximize the use of Illinois coal as the fuel of choice for new power plants. Goals for the Coal Technology Program include:

- Implementing technologies that will lower carbon dioxide emissions by improved efficiencies in coal combustion and/or improve the methods of sequestration.
- Developing the most promising advanced emission control technologies to a stage where utility demonstration is justified.

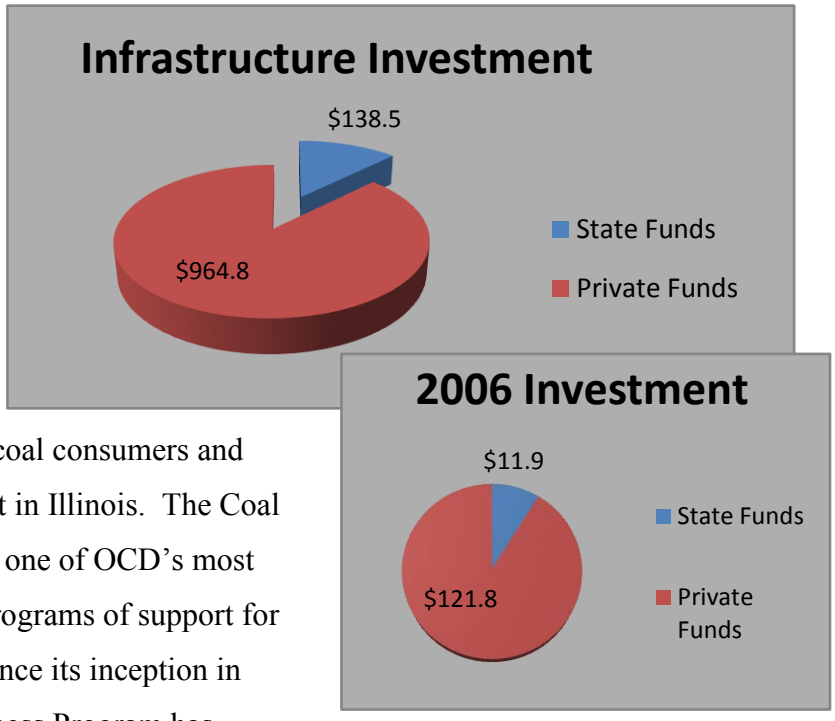
- Providing a menu of development technologies that can be used by appropriate industry groups to identify potential commercial opportunities.
- Developing several technologies for the use of coal combustion by-products to the commercialization stage.
- Bringing at least one multi-pollutant control technology for the burning of Illinois coal to the commercial stage.

CHAPTER 8. STATE OF ILLINOIS SUPPORT FOR THE COAL MINING INDUSTRY

DCEO's Office of Coal Development (OCD) provides technical and financial support to Illinois' coal and energy industries. Investment within the Illinois energy sector is stimulated through financial incentives provided by OCD grants. Each year OCD awards funding for basic research and development on coal and its utilization, as well as commercial-scale demonstration of promising coal utilization technologies. Education and marketing programs develop and convey appropriate messages about the importance of Illinois coal in the state's job development efforts and in meeting domestic and international energy needs.

COAL COMPETITIVENESS PROGRAM

Fiscal Year 2007 (FY2007) marks the 11th year of the Illinois Coal Competitiveness Program aimed at making Illinois coal more competitive in domestic and offshore markets. This program encourages coal producers, coal consumers and support industries to reinvest in Illinois. The Coal Competitiveness Program is one of OCD's most effective and far-reaching programs of support for the Illinois coal industry. Since its inception in 1996, the Coal Competitiveness Program has leveraged $964.5 million in private investment. The program provides incentives to businesses to deploy state-of-the-art coal utilization technologies or improve and expand the coal mining and transportation systems within Illinois. In FY2007, OCD awarded $11.9 million in state funds for 23 coal production, transportation and end use



infrastructure projects. These grants leveraged $121.8 million of private investment in infrastructure improvements and expansions across Illinois.

The Illinois Coal Competitiveness Program exemplifies successful cooperation between the public and private sectors. Each project, in addition to bringing immediate benefits to the communities and businesses involved in coal mining, lays the groundwork for the long-term recovery and growth of the Illinois coal industry. Notable projects funded in FY2007 include:

- **Knight Hawk Coal, LLC** in Jackson County received a grant of $2,000,000 towards the startup costs of the new Royal Falcon Mine. Grant funds were used to purchase underground mining equipment, construct a heavy media preparation plant and bathhouse, develop a boxcut, and purchase a slope belt to transport coal to the preparation plant. The total cost of this project was $32,280,000. This mine will produce 1.2 - 2.0 million tons of low-sulfur coal annually, with sufficient reserves for twenty years of operation.

Development underway at Knight Hawk Coal Company's Royal Falcon

- **Prairie State Generating Company, LLC** in Washington County received two grants for a total of $833,000. The first grant supported the construction of a distribution substation and overhead electrical power lines at the new 1600 MW Prairie State Energy Campus and adjacent underground coal mine. The total cost of this project is $2,052,500. The second grant provided for upgrades at the Baldwin Substation needed to connect the proposed Prairie State Energy Campus to the electrical grid. The total cost of this project was $2,112,500.

- **Shawneetown Regional Port District** in Gallatin County received a grant of $700,000 to construct a coal loading facility on the Ohio River. Equipment purchases included a coal dump hopper, an end loader, a bulldozer, 1,700 lineal feet of 48" wide

coal beltline with supporting structures, a barge loading structure and three working barges. The total cost of this project was $6,700,000.

COAL EDUCATION AND MARKETING PROGRAM

OCD strives to heighten awareness and understanding of the importance of the coal industry to the socioeconomic structure of Illinois and to create a positive image for the mining and use of coal to provide for our state's energy needs. In its day-to-day operations OCD promotes coal educate and promote awareness of the benefits of Illinois coal to educators, state legislators, coal industry and utility professionals and communities throughout Illinois.

The Tenth Annual Illinois Coal Education Conference was held at Rend Lake Resort in southern Illinois with 104 educators attending. The four-day conference included lectures, tours and hands-on activities that correlated to the Illinois State Learning Standards. Topics addressed during the conference included the formation and geology of coal, land reclamation, clean coal technology, generating electricity, coal and the environment, economics of coal, coal bed methane, sequestration of carbon dioxide, the FutureGen near-zero emissions power project, and a historical look at coal mining. Educators toured a surface mine, an underground coal mine and a power plant. Teachers used the information they gathered from the conference to write lesson plans that will introduce coal to their students.

Teachers beginning their tour of an underground coal mine in Southern Illinois

OCD worked diligently gathering data and lobbying for FutureGen, a prototype 275 MW fossil fuel, power plant that will combine electricity and hydrogen production with near-zero emissions, including greenhouse gases. Two sites in Illinois, Mattoon and Tuscola, were selected as finalist sites by the FutureGen Industrial Alliance in the initial selection process in July 2006. Sites were judged on availability of coal and water resources, geologic storage potential for carbon dioxide, appropriate infrastructure and strong

community support. The FutureGen for Illinois team worked closely with the cities of Mattoon and Tuscola, as well as Patrick Engineering of Springfield, to complete a final Environmental Impact Statement (EIS) and Best and Final Offer for submission to the Alliance.

In December 2007, the FutureGen Alliance chose Mattoon, Illinois as the site to host FutureGen. The U.S. DOE pulled funding for the project in January 2008. However, state officials, Mattoon regional officials and state and federal legislators are continuing to work with the FutureGen Alliance and Congress to keep the project moving forward.

COAL RESEARCH PROGRAM AND COAL DEVELOPMENT PROGRAM

In support of the Illinois coal industry, OCD oversees the largest state-sponsored coal research and development program in the United States. Laboratory-scale research projects initiate and advance technologies in the areas of coal combustion systems, coal residuals management and coal preparation. Development projects include technology maturation, technology transfer and commercialization projects. Development-scale projects selected for funding must show promise for advancing clean-coal technologies from research through the proof-of-concept stage and on to the near-commercial demonstration stage.

The program is administered by OCD and is under the technical oversight of the Illinois Clean Coal Institute (ICCI), in Carterville, Illinois. In FY2007, OCD awarded $4.1 million in state funds for 22 research projects and $3.1 million for 4 development projects. The program's success continues to gain the interest of Illinois coal and electric utility companies.

COAL DEMONSTRATION PROGRAM

During fiscal years 1982 through 2005, the state of Illinois has provided more than $140.9 million to bring advanced coal utilization technologies to commercial readiness. With funding for the Illinois Coal Demonstration Program provided through the Coal and Energy Development Bond Fund, the Capital Development Bond Fund and the General Obligation Bond Fund, 29 projects have been funded to date. In addition to leveraging

significant public and private investment dollars, each project returns near- and long-term benefits to the state of Illinois that include economic growth, cleaner air and energy conservation.

The following projects exemplify efforts to bring state-of-the-art advanced clean coal technologies to commercial readiness while providing near-term benefits to the state and local communities. The technologies demonstrate proven means of complying with the Clean Air Act Amendments of 1990 and other environmental regulations when burning Illinois coal. Additionally, they provide alternatives to imported oil and gas, by developing processes that gasify coal to produce electricity, synthetic natural gas, hydrogen gas and low-sulfur diesel fuel.

COAL REVIVAL PROGRAM

The Coal Revival Program, initiated in FY2002, provides financial assistance in the form of grants to assist with the development of new, coal-fired electric generation capacity, coal gasification and integrated gasification- combined cycle facilities in Illinois. To date, no grants have been issued. However, the office is negotiating with a number of projects that could become eligible in the next 12 months.

FISCAL YEAR 2007 IN SUMMARY

Overall, Fiscal Year 2007 presented promising developments in the Illinois coal industry. Illinois coal production increased by one million tons to nearly 33 million tons. Four new or expanded mines were funded through the Coal Competitiveness Program. Mattoon, Illinois locations was chosen by the Industrial Alliance as the site for FutureGen, the nation's first near-zero emissions coal-fired power plant. Coal research and development projects show advances in coalbed methane recovery operations, carbon sequestration technology, and monitoring mercury emissions. Engineering and design studies are underway for using Illinois abundant coal resources in the production of electricity, synthetic natural gas, fertilizer and diesel fuel. Together, DCEO, the Blagojevich administration and the Illinois coal industry are working together to see that Illinois coal plays a prominent role in providing energy security for Illinois and beyond.

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