The Fiscal Impact on State Revenues of Extending the Ohio Coal Tax Credit

Staff Research Report No. 150
Legislative Service Commission
June 28, 2002

Ohio Legislative Service Commission
State House
Columbus, OH 43215

Senate Members

Richard H. Finan
Chairman

Gregory L. DiDonato

Randy Gardner

Bill Harris

Leigh Herington

Jay Hottinger

Doug White

House Members

Larry Householder
Vice-Chairman

Gary Cates

Patricia Clancy

Dean DePiero

Ray Miller

Jon M. Peterson

James P. Trakas

James W. Burley
Director

Research Staff

Jean J. Botomogno, Economist/Budget Analyst

This publication is a report of the research staff of the Legislative Service Commission required by Amended Substitute House Bill 94 of the 124th General Assembly. The report consists of information relating to the subject matter as prepared by the research staff. It does not purport to represent the findings and opinions of any member of the Legislative Service Commission. The Commission has taken no position in regard to the material contained in this report.

Table of Contents

THE FISCAL IMPACT OF EXTENDING THE OHIO COAL TAX CREDIT

Introduction and Summary

Section 200 of Am. Sub. H.B. 94 of the 124th General Assembly requires the Legislative Service Commission to study the fiscal impact on state revenues of extending the Ohio coal tax credit for two years under section 5733.39 of the Revised Code. The credit is currently scheduled to expire for coal burned after December 31, 2004.

In an effort to address this requirement, the report is organized as follows:

Part One examines coal production, supply, and use in Ohio. Part One also discusses the importance of coal in electricity generation in Ohio.

Part Two describes the Ohio coal tax credit and estimates the credit's fiscal cost.

Part Three discusses factors that influence future coal production and use, and their potential fiscal impact on the Ohio coal tax credit.

The fiscal cost of the Ohio tax credit is dependent on Ohio coal production and consumption by its largest consumer, the electric generation industry. Coal production declined during the 1990s but that trend reversed in CY 2000 and CY 2001. The electric industry is currently in transition from a regulated ratemaking process towards deregulation where markets determine electricity prices and profits. Those changes will affect purchases of Ohio coal. An extension of the Ohio coal tax credit by an additional two years affecting FY 2006 and FY 2007 will reduce state revenues. LSC believes that an annual cost of $72.0 to $83.9 million per year is a reasonable estimate for the $3 per ton tax credit under current conditions. However, a combination of favorable federal or state tax incentives and the installation of new pollution control equipment might increase total demand for Ohio coal and boost the cost of the Ohio coal tax credit beyond these estimates.

Part One: Coal Production, Supply, and Use in Ohio

Ohio coal production and supply

The coal industry has undergone dramatic changes over the last decades. Between CY 1989 and CY 2000, the number of mines and coal production in Ohio decreased substantially. Ohio's share of U.S. total supply declined from 3.4 percent in CY 1989 to 2.0 percent in CY 2000. Table 1 shows coal production in the major coal-producing states between CY 1991 and CY 2000. During that time, Ohio's production declined from 30.5 million tons to 22.3 million tons, and its national ranking in coal production fell from tenth to fourteenth place.

Table 1: Major Coal-Producing States:
Coal production in thousands of short tons

Coal-Producing State	1991	1996	2000	Average Annual Percent Change	
				1996-2000	1991-2000
Alabama	27,269	24,637	19,324	-5.9	-3.8
Arizona	13,203	10,442	13,111	5.8	-0.1
Colorado	17,834	24,886	29,137	4.0	5.6
Illinois	60,258	46,656	33,444	-8.0	-6.3
Indiana	31,468	29,670	27,965	-1.5	-1.3
Kentucky	158,980	152,425	130,688	-3.8	-2.1
Montana	38,237	37,891	38,352	0.3	0.0*
New Mexico	21,518	24,067	27,323	3.2	2.7
North Dakota	29,530	29,861	31,270	1.1	0.6
Ohio	**30,569**	**28,572**	**22,269**	**-6.0**	**-3.4**
Pennsylvania	65,381	67,942	74,619	2.4	1.5
Texas	53,825	55,164	49,498	-2.7	-0.9
Utah	21,945	27,507	26,656	-0.8	2.2
Virginia	41,954	35,590	32,834	-2.0	-2.7
West Virginia	167,352	170,433	158,257	-1.8	-0.6
Wyoming	193,854	278,440	338,900	5.0	6.4
U.S. Total	995,984	1,063,856	1,073,612	0.2	0.8

Source: Energy Information Administration (EIA)-Coal Production Reports

Between CY 1991 and CY 2000, Wyoming had the largest annual increase in production (about 6.4 percent). Colorado, New Mexico, Utah, and Pennsylvania also increased their coal production. Illinois had the largest annual decline in coal production (about 6.3 percent). The other states with declining production between CY 1991 and CY 2000 were Alabama, Indiana, Virginia, and

Texas. Among the remaining coal producing states, production slightly changed in Arizona, Montana, North Dakota, Texas, and West Virginia.

Year after year, coal tonnage shipped from western suppliers to consumers in the Appalachia Region and the Midwest inched upward. Western U.S. coal shipments to utilities in the Midwest nearly doubled, increasing to 62 percent of total shipments from 36 percent between CY 1979 to CY 1995,[1] despite their lower heating values and high moisture content. In Ohio, coal shipments from Wyoming increased from 0 to 2.7 million tons between CY 1995 and CY 2000. The share of Western U.S. coal to total U.S. production increased to 47.5 percent in CY 2000, up from 34.4 percent in CY 1991. Coal from western suppliers is cheaper to produce (which makes it affordable), and lower in sulfur content (which makes it valuable in attempts to control sulfur dioxide (SO2) emissions). For many operators in Ohio, coal mining has become marginally profitable or unprofitable. As prices fall, marginal, inefficient mines close.[2] As electricity producers (coal producers' main customers) navigate the Clean Air Act Amendments (CAAA) requirements, they strive for the least costly strategies to achieve their business targets. Fifty-two percent of the 261 generating units at electric utilities that were mandated to reduce SO2 emissions in Phase I of the CAAA chose to switch fuels, selecting low sulfur coals as the least costly solution.[3] This directly influenced local coal production and suppliers who saw their markets stagnate or decline in Ohio. With new requirements for production flexibility, and cost containment buttressed by electric deregulation, relations between electric utilities and their suppliers were altered, resulting nationwide in canceled or shortened coal supply contracts. Without a guaranteed market or with shortened supply contracts, some of the operators were unwilling to invest in heavy capital expenditures for coal mines, thus limiting Ohio coal production.

Table 2 illustrates the changes that have occurred in the production and supply of coal from Ohio mines. Overall production decreased 3.4 percent per year between CY 1991 and CY 2000. The production decline accelerated between CY 1996 and CY 2000.[4] In that same time span, recoverable reserves and productive capacity[5] declined 5.1 percent and 8.2 percent per year, respectively.

---

[1] *Calculated from data from the Energy Information Administration (http://www.eia.doe.gov/cneaf/coal/ctrdb/regional.html).*

[2] *Although numerous mines have closed and the number of miners has decreased substantially, actual production has decreased slowly because productivity of remaining mines has increased, i.e., tons produced by man-hour have increased significantly over the years.*

[3] *The Effects of Title IV of the Clean Air Act Amendments of 1990 on Electric Utilities: An Update, Department of Energy/EIA, March 1997, p. 25.*

[4] *The CAAA passed the U.S. Congress in 1990, but became effective in 1996.*

[5] *Productive capacity is the maximum amount of coal that can be produced annually as reported by mining companies that produce more than 10,000 short tons on Form EIA-7A. At 26.7 million tons in CY 2000, this productive capacity would result in a yearly tax credit of up to $80 million.*

Surface mine production declined precipitously while underground production inched downward slowly. Surface mine production accounted for 60 percent of production in CY 1991, and only 45 percent in CY 2000. Productivity (which is the amount of coal produced per unit of labor) for both types of mines improved due to the combined effect of capital investments in mines, decreased number of miners and closure of inefficient mines. Ohio coal production for CY 2001 is estimated at approximately 25.3 million tons,[6] or 13.4 percent higher than CY 2000. The increase was primarily due to additional production from two previously idled mines in Meigs County. However, the re-opening of those mines was temporary, as one of the mines--Meigs 31--closed at the end of CY 2001 and the second (Meigs 2) is expected to close this year. In addition, the Muskingum River Mine will decrease its production in CY 2002. Therefore, an overall decrease in coal production may occur in Ohio in CY 2002.

Table 2: Ohio Coal Production, supply and number of mines

Supply	1991	1996	1997	1998	1999	2000	Average Annual Percent Change 1996-2000	Average Annual Percent Change 1991-2000
Recoverable Reserves (in MST)	590.6	414.8	318.4	356.1	382.1	336.3	-5.1	-6.1
Productive Capacity (in MST)	NA	37.6	33.4	33.7	30.6	26.7	-8.2	NA
Production Total (in MST)	**30.6**	**28.6**	**29.2**	**28**	**22.5**	**22.3**	**-6**	**-3.4**
Underground	**12.2**	**15.9**	**16.9**	**14.6**	**11.4**	**11.9**	**-6.9**	**-0.3**
Surface	**18.3**	**12.7**	**12.2**	**13.4**	**11**	**10.3**	**-4.9**	**-6.2**
Capacity Utilization %	NA	75.9	87.1	83.1	73.1	83.3	2.3	NA
Recoverable/Production %	19.3	14.5	10.9	12.7	17	15.1	1	-2.7
Number of employees/miners	**5,293**	**3,232**	**3,124**	**3,415**	**3,069**	**2,688**	**-4.5**	**-7.3**
Productivity Total	2.67	3.95	4.02	3.5	3.19	3.55	-2.6	3.2
Underground	2.55	4.19	4.18	3.48	3.02	3.45	-4.7	3.4
Surface	2.76	3.69	3.81	3.52	3.4	3.69	*	3.3
Stocks (in MST)	NA	0.5	0.8	1.3	0.8	0.7	6.2	NA-
Number of mines	**150**	**99**	**81**	**83**	**79**	**60**	**-11.8**	**-10.3**

Source: Coal Industry Annual 2000, Energy Information Administration, 2001. Recoverable reserves, productive capacity and total production are in million of short tons (MST).

Recoverable reserves are the total quantity of coal that could be mined from existing coal reserves at reporting mines.

[6] *Weekly Coal Production Report, http://www.eia.doe.gov/cneaf/coal/weekly/weeklyhtml/wcpweek.htm, Energy Information Administration.*

Demand for and distribution of Ohio coal

As Table 3 shows, most of Ohio's coal is distributed locally. The major market for Ohio coal has been and remains the electric power generation sector. About 87.6 percent of coal production was distributed to state consumers in CY 2000. Approximately 11 percent of the production was sold to electric generating facilities in neighboring states Kentucky, West Virginia, and Pennsylvania, primarily to coal-fired plants along the Ohio River.

Table 3: Distribution[7] of Ohio Coal from 1996 to 2000, in million of short tons					
Category	**1996**	**1997**	**1998**	**1999**	**2000**
Distribution	**28.9**	**29.4**	**27.2**	**23.7**	**22.5**
Domestic Distribution	28.7	29	26.5	23.1	22.4
Within Ohio	24.5	24.5	23.1	20.5	19.7
To Other States	4.1	4.5	3.4	2.5	2.6
Foreign Distribution - Canada	0.3	0.4	0.7	0.6	0.1

Source: Energy Information Administration (EIA)

Electric generation utilizes the large majority of coal distributed domestically. Over the years, electric generators have, as a class, been the largest consumer of Ohio coal, and the importance of the electric power plants to Ohio coal production will not change anytime soon. Figure 1 provides a snapshot of the supply of coal by consumer in Ohio in CY 1999. Electric generation consumed about 90 percent of the supply of coal. Industrial plants utilized about 8 percent and coke plants, about 2 percent.

[7] *Coal distribution indicates the shipment of coal to a purchaser. Due to time lag between production and shipments to buyers, and the amount of coal in producers' inventories, amounts produced and amounts distributed are not necessarily identical.*

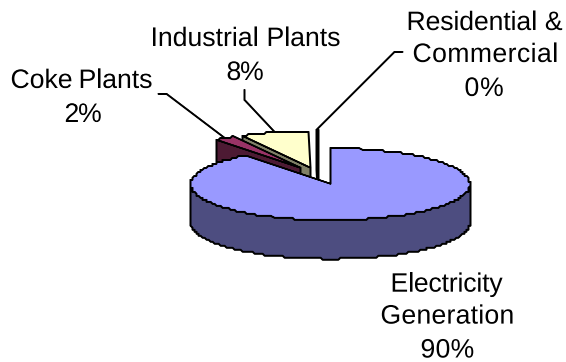


Table 4 provides total coal demand in Ohio between CY 1991 and CY 2000. Total coal consumption barely changed between CY 1991 and CY 2000, and has fluctuated within a narrow range in the last 11 years. Total coal consumption grew 0.1 percent annually.

Table 4: Total Coal Demand in Ohio from 1991 to 2000, in million of short tons

Coal Demand	1991	1996	1997	1998	1999	2000	Average Annual Percent Change 1996-2000	Average Annual Percent Change 1991-2000
Total Consumption	58.6	59.8	58.8	60.4	57.5	59.3	-0.2	0.1
Electric Utility	49.6	53.5	52.9	54.5	52.1	54.5	0.4	1
Other Industrial	4.8	3.8	3.7	3.7	3.4	2.9	-6.8	-5.6
Coke	3.7	1.8	1.8	w	w	NA	NA	NA
Residential/Commercial	0.5	0.6	0.3	w	w	NA	NA	NA
Total Consumer Stocks	10.6	5.4	6.3	6.2	w	NA	NA	NA
Electric Utility	10.2	5.2	6.1	5.9	w	NA	NA	NA
All Other	0.4	0.2	0.2	0.2	0.2	0.1	-8.7	-11.3

w-withheld. NA–not available. Source: Coal Industry Annual 2000. (Energy Information Administration, 2001)

As electric generators increased their coal purchases, coke and other industrial users purchases lagged. Coal purchases by industrial users declined steadily. Between CY 1991 and CY 2000, coal consumption by other industrial users fell by 40 percent, at an annual rate of 5.6 percent. The decline in coal demand from industrial users accelerated in the later part of the 1990s. Industrial coal demand fell by 15 percent between CY 1999 and CY 2000. Table 5 shows the relative share of Ohio-produced coal to total electric utility and total coal consumption in the state.

Table 5: Domestic distribution of Ohio Coal and Coal Demand, in million short tons					
Coal Demand	**1996**	**1997**	**1998**	**1999**	**2000**
Total Ohio Consumption	59.8	58.8	60.4	57.5	59.3
Electric Utility Consumption	53.5	52.9	54.5	52.1	54.5
Domestic Coal Distribution	24.5	24.5	23.1	20.5	19.7
Share of Electric Consumption	45.8%	46.3%	42.4%	39.3%	36.1%

Source: Energy Information Administration (EIA)

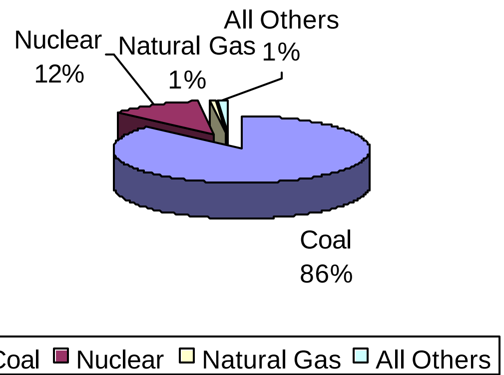
The share of Ohio-produced coal sold for electric generation decreased to 36.1 percent in 2000, down from 45.8 percent in 1996, due to a decrease in state coal production, even while demand for coal from electric power generators increased. No final estimates for total consumption or use of Ohio coal by electric power generators is yet available for CY 2001.

Figure 2 below shows how important coal is to electricity supply in Ohio, and how dependent the coal industry is on the electric generation industry. Up to 86 percent of the electricity supply in Ohio had coal as its main fuel source in CY 1999. Nuclear electricity generation was the next most important source, at 12 percent. Other fuel sources had little significance. The electric industry and coal industry interdependence will endure for the foreseeable future, although other fuel sources for electricity generation (geothermal, hydroelectric, wind, and biomass[8]) may be added to the current mix of fuel sources. The current construction of several natural gas peaking or merchant plants in Ohio will increase the relative importance of natural gas. Use of natural gas as fuel in electricity generation will become more important in the near future because the supply of electricity from nuclear generation will likely remain unchanged in the near future. Nuclear electricity generation has not increased in several decades and was disrupted this year.[9]

[8] *Biomass includes a variety of items such as wood, wood waste, peat, wood liquors, agricultural products, etc.*

[9] *The 25-year-old Davis-Besse reactor, one of Ohio's only two nuclear electric plants, has been shut down since February 2002 for repair to the reactor's dome. Davis-Besse supplies about 43 percent of the electricity from nuclear sources. Perry, Ohio's only other nuclear plant, supplies 57 percent. The timing of the re-opening of Davis-Besse is uncertain.*

Figure 2: Electricity Generation in Ohio by Fuel in CY 1999



Source: Form EIA-759, "Monthly Power Plant Report," Energy Information Administration

Coal prices

The procurement of coal by power generators traditionally has involved a mix of contracts of various lengths and sporadic spot purchases. Table 6 shows coal prices for producers and consumers in Ohio. Consumer prices include prices for coal purchases by contract, spot prices, open market, and captive market pricing.[10]

Table 6: Producer and Consumer Coal Prices in Ohio from 1991 to 2000, in nominal dollars per short ton

Category	1991	1996	1997	1998	1999	2000	Average Annual Percent Change 1996-2000	Average Annual Percent Change 1991-2000
Mine Total	$27.75	$24.85	$23.66	$27.56	$28.18	$38.30	11.4	3.6
Underground	$31.52	$25.98	$25.16	$28.48	$31.50	$50.92	18.3	5.5
Surface	$25.22	$23.43	$21.57	$26.61	$24.52	$23.17	-0.3	-0.9
Consumer-Ohio								
Electric Utility	$35.33	$32.31	$31.41	$32.52	$32.47	$34.45	1.6	-0.3
Other Industrial	$34.85	$35.28	$34.05	$33.52	$34.44	$36.45	0.8	0.5
Consumer-U.S.								
Electric Utility	$33.10	$29.16	$28.83	$28.26	$27.25	$26.77	-2.1	-2.3

Source: EIA-Form EIA-7A and Federal Energy Regulatory Commission (FERC) Form 423

[10] The open market includes all coal sold openly to other coal companies or consumers. The captive market includes all coal used by the producing company or sold to affiliated or parent companies. Smaller fuel inventories have become more common as utilities try to limit costs by tying up less capital in fuel stocks. This also makes the open and spot markets more important than in the past in fuel supply and magnifies market disturbances.

Ohio average nominal coal prices increased to $38.30 per short ton in CY 2000, up from $27.75 per ton in CY 1991. This represents an annual increase of about 3.6 percent. However, in 1991 dollars, the annual increase was less than 1 percent. Average nominal prices decreased between CY 1991 and CY 1997, then increased from CY 1997 to CY 2000. Surface mine coal prices, on an annual basis, continued a slow downward trend. Nominal surface mine prices decreased to $23.17 in CY 2000, down from $25.22 in CY 1991.[11] Nominal prices for underground coal in Ohio rose 5.5 percent annually between CY 1991 and CY 2000. Underground coal prices increased dramatically in CY 2000, and nearly doubled from CY 1997 to CY 2000, resulting in a large increase in average nominal prices for coal in Ohio. This sharp increase was in part due to price changes in the captive market that could not be readily explained by other market conditions in the Ohio coal industry.[12] The increase was also due to increased participation in the coal spot market because of low utility coal stockpiles. The increased activity drove up spot market prices for a while, but in CY 2001 through September, Ohio minemouth coal prices and prices of coal delivered to utilities declined from 2000 highs.[13] On the consumer side, over the last 11 years, average nominal prices of coal delivered to electric utilities in Ohio have barely changed. Ohio nominal prices decreased 0.3 percent annually between 1991 and 2000. In 1991 dollars though, real coal prices paid by utilities declined 2.1 percent annually. Nationwide, coal prices paid by utilities declined 19.0 percent, from $33.10 in CY 1991 to $26.77 in CY 2000. In 1991 dollars, real coal prices paid by utilities declined 35.7 percent, or about 3.5 percent annually.

Prior to electric deregulation, consumers of large amounts of coal, such as electric utilities and other industrial users, secured their supply of coal through long-term contracts (some of which exceeded 30 years) or by owning or controlling the mines. More recently, the length of contracts has shortened and coal transactions on the open and spot markets have increased.[14] In an effort to control fuel costs that they will no longer be able to pass on to consumers in a

---

[11] In 1991 dollars, surface mine real coal prices declined to $18.40 per ton in CY 2000, or a decline of 27 percent. Underground mine real coal prices climbed to $40.40 per ton in CY 2000, an increase of 28.1 percent.

[12] In CY 2000, Ohio open market and captive prices were $20.44 and $81.87 per ton, respectively. By contrast, West Virginia open market and captive prices were $25.17 and $29.68 per ton.

[13] It is unclear if this was solely due to a lack of electricity demand from industrial firms because of the general economic slowdown, which in turn softened coal demand and prices.

[14] In terms of tonnage share, deliveries of coal under contracts of shorter duration (less than 10 years) more than doubled from 17 to 39 percent between 1985 and 1995, while medium-term (11 to 30 years) deliveries shrank from 56 percent to 32 percent, and longer term (over 30 years) deliveries remained relatively unchanged from 27 percent to 29 percent during the same period. As coal prices have fallen over the past decade, and are expected to continue falling for some time to come, power generators are expected to continue shortening contract durations (www.eia.doe.gov/cneaf/electricity/chg_str_fuel/html/chapter1.html).

deregulated market, electric generators sought to modify long-term coal supply contracts by adding re-opener clauses that add flexibility to address changing coal prices. Electric utilities are also seeking to pass the increased risks in the electricity market to coal suppliers by linking fuel prices to electricity prices in newer contracts.[15] This strategy allows electric utilities to avoid being saddled in the future with above-market prices for their fuel source from the coal contracts.

Looking at various coal producers and consumer prices in CY 2000, Ohio producers' coal prices were $11.5 per ton higher than the average price paid by U.S. electric utilities, and $3.8 per ton higher than the average price paid by Ohio electric utilities.[16] The price gap between what Ohio and U.S. electric utilities paid for coal purchases was $4.70 per ton (taking into account the $3/ton Ohio coal tax credit allowed to Ohio utilities). In the long-term, this price differential would be unsustainable in fully deregulated coal and electricity markets.

Regional and Ohio coal markets have behaved somewhat differently than the national coal market, underscoring the fact that coal markets remain essentially regional. West Virginia supplied more than 60 percent of non-Ohio coal consumed in the state in CY 2000. Wyoming and other Western U.S. coals, although increasing in importance, contributed only 6.6 percent of non-Ohio coal consumption in Ohio. The average price of coal delivered to electric utilities nationwide declined faster than in Ohio primarily because of the inroads in all coal markets by coal from the Powder River Basin (in Wyoming and Montana) and the Illinois Basin (Southern Illinois). The supply of low sulfur and Western U.S. coal to the Appalachia region has been heavily dependent on cheaper transportation (helped by the deregulation of rail transportation) and a continued decline in production costs in the Powder River Basin.[17] However, due to the proximity to their markets, utility delivered prices and minemouth prices in Ohio are still determined more by local and regional markets (Appalachia) than national markets. But with the deregulation of coal and electricity markets, in time, utility delivered coal prices and prices offered by Ohio mines will become more influenced by nationwide market forces.

---

[15] *Challenges of Electric Power Industry Restructuring for Fuel Suppliers, Energy Information Administration, p. 16.*

[16] *Transportation costs for both Ohio and non-Ohio coal are implicit in the Ohio utilities average coal prices. Also, coal has differing energy content and the price per ton is not adjusted for this difference.*

[17] *Energy Policy Act Transportation Rate Study: Final Report on Coal Transportation, October 2000. http://www.eia.doe.gov/cneaf/coal/coal_trans/chap3_3.html#boilers.*

Part Two: The Ohio Coal Tax Credit

History of the Ohio coal tax credit

The Ohio coal tax credit was created to encourage electric utilities to invest in scrubbing facilities, which would allow them to continue to use Ohio coal and still comply with the Phase 1 acid rain control requirements under Title IV of the federal Clean Air Act Amendments of 1990. The credit was taken against the public utility excise tax and set at $1 per ton of Ohio coal used in a compliance facility.

The General Assembly granted the $1 per ton credit beginning in tax year 1995 (fiscal year 1996) to electric companies using certain pollution control devices while burning Ohio coal. The Ohio coal tax credit was applied against the public utility excise tax for electric generating units where the following conditions were met: the unit was owned or leased by the taxpayer, at least 90 percent of the fuel burned was Ohio coal,[18] and a compliance facility was attached to, incorporated into, or used in conjunction with the electric generating unit. Total credits claimed by a generating unit were limited to 20 percent of the cost of the compliance facility.[19]

The original credit was created in Am. Sub. S.B. 143 of the 119th General Assembly. In subsequent modifications, the legislature increased the amount of coal tax credit and expanded the definition of electric utility compliance facilities that were able to take the credit. The credit was modified by the passage of Am. Sub. S.B. 3 (the electric deregulation bill, effective July 6, 1999) and Am. H.B. 384 (effective November 24, 1999). Am. Sub. S.B. 3, the act that began taxation of electric utilities under the corporate franchise tax rather than the public utility excise tax, also transferred the Ohio coal tax credit to the corporate franchise tax beginning in tax year 2002. Am. Sub. H.B. 384 increased the credit to $3 per ton (applicable to coal used between May 2001 and December 31, 2004) and expanded its availability by eliminating the requirement that at least 90 percent of the coal burned at the qualified electric generating station be Ohio coal and that total credits claimed be limited to 20 percent of the cost of the associated compliance facility. An additional change was made by Sub. H.B. 262 (effective June 8, 2000), which added flue gas desulfurization systems installed after July 2001 to the list of qualified environment compliance facilities. This change also increased the number of facilities able to take the credit and the amount of Ohio

---

[18] This requirement was 80 percent for units that burned coal in combination with another fuel, e.g. oil.

[19] Compliance facility means property used at a coal-fired power plant for the primary purpose of complying with Phase 1 requirements, including removal of sulfur compounds from coal before combustion, or equipment acquired and used for the purpose of handling byproducts produced by the facility or the generating unit.

coal eligible for the credit. The tax credit is scheduled to expire for coal burned after December 31, 2004.

States with coal tax credits

Coal-producing states have historically provided tax incentives to companies engaged in the production of coal and the business of generating electric power at coal-fired generating stations. A number of other states in the Ohio region have enacted or proposed coal tax credits:

Virginia

In 1986, the General Assembly of the Commonwealth of Virginia enacted the Coal Employment and Production Incentive Tax Credit. The tax credit is available to utilities and claimed against the Virginia license tax on public utilities. The amount of credit was $1 per ton for each ton of coal mined in Virginia purchased by the taxpayer. The credit was increased to $2 per ton (in January 1989) and to $3 per ton (in January 1991). In 1999 as part of the law that deregulated the Virginia power industry, the tax credit was amended so it could be applied against the Virginia corporate net income tax liability.

Kentucky

The General Assembly of Kentucky authorized the Kentucky Coal Incentive Credit for ten years, starting in July 2001. The $2 per ton tax credit is available to local electric power companies and other entities that own or operate coal-fired electric generating plants for burning a certain amount of "incentive"[20] Kentucky coal. Taxpayers qualifying for this credit can apply it against the corporate income tax, the individual income tax, the corporation license tax, and the public service corporation property tax.

Maryland

Since 1989, Maryland law provides a $3 per ton credit against the Maryland public service company franchise tax for each ton of Maryland-mined coal purchased by the utility. Maryland law also provides a similar credit that can be applied against the Maryland income tax liability of qualifying co-generators and qualifying small power producers. Although the tax credit requires public utilities, co-generators, or small power producers to purchase Maryland coal to receive the credit, the taxpayers are not required to consume the coal in that state. The Maryland coal tax credits have no sunset date.

---

[20] "Incentive tons" are calculated as the number of tons of coal purchased by the taxpayer during the current year above amounts purchased during a previously determined baseline year.

West Virginia

Legislation has regularly been introduced in the West Virginia Assembly to provide a $3 per ton credit against the West Virginia corporation net income tax liability to corporations generating electricity from coal produced from mining operations in that state. To date, none of those bills have been adopted.

The fiscal cost of the Ohio coal tax credit

Recent changes to the Ohio coal tax credit increased the number of generating stations that qualify for the credit by allowing plants that have traditionally burned less than 90 percent Ohio coal to receive the credit. The changes have made nearly all Ohio coal production burned by a corporate franchise taxpayer eligible for the tax credit. Table 7 provides the fiscal cost of the Ohio coal tax credit from FY 1996 to FY 2002. Revenue losses under the public utility excise tax are actual losses. Revenue loss under the franchise tax for FY 2002 is an estimate.

Table 7: The Fiscal Cost of the Ohio Coal Tax Credit, FY 1996 to FY 2002 (in millions)

Tax	**FY 1996**	**FY 1997**	**FY 1998**	**FY 1999**	**FY 2000**	**FY 2001**	**FY 2002**
Public Utility Excise	$8.70	$15.40	$16.90	$14.90	$16.20	$27.60	$57.70
Corporate Franchise	N/A	N/A	N/A	N/A	N/A	N/A	$37.00

The average annual cost of the Ohio coal tax credit under the public utility excise tax prior to changes brought by the aforementioned legislative changes was about $16.0 million between FY 1997 and FY 2000. In FY 2001, the revenue loss increased due to the change to $3 from $1 per ton. The coal tax credit affects both the corporate franchise tax and the public utility excise tax in FY 2002. In this transition year, the total cost of the tax credit is estimated at $94.7 million under the franchise ***and*** the public utility taxes. Taken together, legislative changes and the change from regulated to market pricing brought by electric deregulation in Ohio have increased the difficulty of estimating the future revenue loss from the coal tax credit under the franchise tax. Assuming that competitive markets dictate the price of electricity in the future, electric generating companies will be pursuing the most profitable strategy, a departure from the approach that characterized the regulated generation era. During the regulated era, a ratemaking process determined electricity prices, which in turn guaranteed power generators a certain rate of return on assets and a profit.

In a completely deregulated industry, profit maximization will be the primary objective of electricity generators, which requires markedly different strategies for power producers. Profit maximization will require minimization of costs (including fuel cost) not only at one generating plant, but also cost minimization for the entire portfolio of plants owned by an Ohio corporate franchise taxpayer in Ohio and other states. Under the franchise tax, corporations apply the coal tax credit after several other tax credits that various electric and non-electric corporations may or may not claim.[21] Also, the amount of credit claimed on a yearly basis may depend on the profitability of the firms, although it is safe to assume that because they are still somewhat regulated, electric corporations with generating capacity would be profitable and able to fully claim the tax credit.

LSC does not have access to tax returns of corporate taxpayers, and a historical perspective is lacking for estimating the coal tax credit revenue loss under the franchise tax. Ohio coal production, however, determines estimated revenue loss from the coal tax credit. The potential upper cost of the coal tax credit is limited by Ohio coal production and supply to end-users. Ohio coal used in the state almost entirely qualifies for the tax credit. Distribution of Ohio coal outside the state is primarily to neighboring facilities. A large percentage of that coal would be eligible for the coal tax credit because those power plants served Ohio customers during the regulated era. As shown earlier by Table 3 of this report, about 88 percent of coal produced in Ohio is distributed in the state. Another 5 to 7 percent of Ohio coal production may be utilized in generating plants that in the past had served Ohio ratepayers and thus would qualify for the coal tax credit.[22] This would imply that about 95 percent of Ohio coal production might qualify generating stations for the Ohio coal tax credit.

LSC estimated for Am. H.B. 384 that the state revenue loss from the Ohio coal tax credit under the corporate franchise tax would be about $53.0 million per year based on an estimated 17.7 million tons of eligible Ohio coal.[23] However, with Sub. H.B. 262 removing restrictions on eligibility for the credit, the amount of Ohio coal eligible for the credit was expected to rise to about 21 or 22 million tons per year, increasing the estimated cost of the tax credit to between $63.0 and $66.0 million per year for a full year of coal use under the corporate franchise tax (fiscal year 2003). The last coal usage credit claimed under the public utility excise tax was reported in the public utility excise tax returns in FY 2002. The Department of Taxation pegged the fiscal cost of the coal tax credit under the public utility excise tax at $57.7 million. For corporate tax year 2002 (and FY 2002), the coal tax credit as applicable to the franchise tax will be based on coal use between May 2001 and December 2001. Early estimates by the U.S. Energy

[21] *Non-electric companies, e.g. other industrial companies filing the corporate franchise tax but using Ohio coal, may also be eligible for the Ohio coal tax credit.*

[22] *The following power stations had Ohio customers and could claim the tax credit: Pleasants in West Virginia (Allegheny Power), East Bend in Kentucky (CINergy Corporation), and Mansfield in Pennsylvania (First Energy Corporation).*

[23] *This was the amount of Ohio coal used by utilities with compliance facilities that qualify under H.B. 384 in tax year 1998. The revenue loss was based on the $3/ton credit.*

Home

Information Administration indicate that Ohio coal production was about 14.7 million tons during that period.[24] Data is not yet available on Ohio-produced coal used by electric generating plants for that period, but based on historical data, 90 percent or more of this production would be burned within the state or would otherwise be eligible for the tax credit. LSC estimates that for FY 2002, the cost of the coal tax credit may be up to $37.0 million,[25] if it is claimed in the corporate tax payments of January 2002, March 2002, and May 2002. Actual revenue loss will depend on the amount of coal consumed by corporate taxpayers, amounts in coal inventory, and coal credits claimed in corporate franchise tax returns. This franchise tax revenue loss in FY 2002 would be for less than a full year of coal use.

Due to the timing of payments of the corporate franchise tax and the practice by corporations of requesting extensions of time to file, reconciliation of estimated tax payments and final tax returns for electric companies probably would not occur until the first half of fiscal year 2003. This reconciliation generates either an additional payment or a tax refund. At that time, the initial fiscal cost of the coal tax credit under the franchise tax may be available. This mechanism also implies that if electric companies do not claim the entire coal tax credit in the corporate tax payments during fiscal year 2002, the initial coal tax credit under the corporate franchise tax may also affect FY 2003 franchise tax revenue during the tax reconciliation period. Coal consumed during CY 2002 by corporate taxpayers will generally be reflected in tax payments in FY 2003 (corporate tax year 2003) during January, March, or May 2003 payments.

Impact of new mines or re-opening of idled mines on the cost of the coal tax credit

Estimates of revenue loss are based on current coal industry conditions. These conditions fluctuate over the years. Although potentially costly, re-opening idled mines could readily increase coal supply. In CY 2001, two idled mines (Meigs 31 and Meigs 2) were temporarily reopened which added to coal production in Ohio. As a result, CY 2001 coal production increased by about 13 percent over the CY 2000 level. Meigs 31 eventually closed in December 2001 due to depleted mining reserves. Meigs 2 will close this year for the same reason. LSC is unaware of any plans to re-open mines that are currently closed. Ohio coal production has decreased on average 3.4 percent each year between CY 1991 and CY 2000. Assuming that Ohio coal from current production declines at the same

[24] *Data from Weekly Coal Report, Energy Information Administration.*

[25] *At $3 per ton, an estimated production of 14.7 million tons would create a potential revenue loss of about $44 million under the corporation franchise tax for FY 2002. However, some of the coal produced is not consumed in the same year and remains in producer or consumer inventory. A small amount of coal is consumed by entities that are not corporations, and thus do not file a corporation franchise tax return and would not claim this credit. Also, some Ohio coal is consumed by generating facilities that may not qualify for the Ohio coal tax credit.*

pace in the next few years, revenue loss from the Ohio coal tax credit would be about $60.0 million in FY 2007.

There was however, a new mine in operation in FY 2002. In June 2001, a new mine owned by American Energy Coal Corporation opened in Belmont and Monroe counties. This mine is expected to produce five or six million tons of coal per year within five years. LSC is unaware of the current production level at this mine, how soon production will reach five million tons, and to which generating stations the new coal would be sold. Assuming that the production increases incrementally by one million tons per year and is marketed in Ohio to corporate franchise taxpayers, and production from existing mines remains the same as in CY 2001, the fiscal cost of the tax credit would be at least $66.0 million in FY 2003, $69.0 million in FY 2004, and $72.0 million in FY 2005. If the level of production of five million tons is achieved by CY 2005 and sold to Ohio corporate taxpayers, the total fiscal cost of the Ohio coal tax credit would increase to at least $75.0 million as early as FY 2006. From this mine, annual Ohio coal production could potentially increase to up to 31 million tons in the next few years.[26]

[26] *This would imply that current production levels at other mines are maintained. However, it is likely that some mines may close and total annual Ohio coal production may not increase to 31 million tons before CY 2006.*

Part Three: Factors That Affect the Fiscal Impact of the Coal Tax Credit

The significant impact of the Clean Air Act Amendments on Ohio coal production noted in Part One highlights the sensitivity of Ohio's coal industry to changes in federal law. The fiscal cost of the coal tax credit will depend on changes in Ohio coal production and prices, potential retirement of existing plants (or generating units within a plant), installation of additional pollution control equipment, the amount of fuel-switching between Ohio and non-Ohio coals,[27] and other factors considered by companies in the cost of producing electricity. Changes in the fiscal cost of the tax credit are also dependent on construction of new coal-fired plants. New coal-fired generation may stimulate additional Ohio coal supply and would strengthen the demand for local coal if a new "sure" market were established. If several of these facilities were in the planning stage today, it would be several years before the facilities were constructed and utilized. However, supply contracts may have to be signed (unless the generating plant decides to buy coal on the spot market) before any coal-fired facility would open.

Future coal prices and coal supply

Utility delivered fuel prices for coal and gas, after decreasing in Ohio at an annual rate of 1.2 percent and 1.3 percent respectively between CY 1988 and CY 1999, went up in CY 2000 and CY 2001. Recent coal and natural gas price instability are linked to dynamic changes in those markets from the deregulation of the electric and natural gas industries. Those markets were historically more stable because sales of electricity and natural gas to end-customers were regulated industries. Large yearly swings in fuel prices are now more common. How long coal and natural gas prices will remain above their long-term trend is unknown. Increases in coal prices may not endure and the downtrend may resume, but with increased volatility in year-over-year prices.[28]

The U.S. Energy Department projects that high and medium sulfur coal production will decline from CY 1998 to CY 2020 at a rate of about 0.8 percent per year. Low-sulfur western U.S coal shipments to power generators in the

---

[27] Fuel switching is one of the strategies used by electric companies to obtain the lowest possible cost (including environmental cost) to produce electricity. Electric companies determine the quantity of Ohio or non-Ohio coal to use in their generating plants depending on numerous market conditions including fuel cost.

[28] Coal and natural gas prices in CY 2001 were lower because of a mild winter in the Eastern U.S. and the economic slowdown. A spike in demand resulting from Ohio utilities retiring significant portions of their annual "above-market" coal supply contracts is a potential explanation for the recent run-up in coal prices in Ohio in CY 2000 and CY 2001. Coal prices negotiated years ago for long-term coal contracts are now above open market prices or "above-market" prices. While new coal supply contracts are sought, generating companies still need to purchase coal for their coal-fired plants, and may do so in the open market.

Midwest and the Appalachian region will continue to increase.[29] The Ohio coal tax credit is only available to Ohio taxpayers. Thus, to the extent the credit reduces the relative cost of Ohio coal, it would only do so for a small share of the total coal market available to electric generators. The Ohio coal tax credit alone will not greatly affect the structural changes occurring both in the coal industry and the electric generation industry. The role of Ohio-produced coal in electricity generation in Ohio diminished due to declining production, its costs, stagnant coal-fired capacity within the state, and environmental concerns. The current electric and coal environments do not support a sudden and complete reversal of those trends from one year to the next. However, incremental changes over a number of years are possible. Current levels of coal production in Ohio will improve if new mines that can be profitable are opened, and if new coal-fired baseload plants are added to the current electric generation in Ohio. Additional coal-fired capacity in neighboring states where Ohio coal could be transported at reasonable costs could also boost in-state production and possibly the fiscal cost of the tax credit.

Future cost of the coal tax credit

Due to the new mine in Belmont County, Ohio coal production could reach 31 million tons in the next few years, depending on the pace at which the mine reaches optimal production. However, as this new mine ramps up production, other mines may close or reduce their production. Thus, the net addition in Ohio coal available to power generators would be less than the potential additional production from new mines.

Table 8 below provides the potential cost of the Ohio coal tax credit from FY 2003 to FY 2007 under the corporate franchise tax. The estimate takes into consideration both the decline in production at existing mines and the potential additional coal from new mines. Ohio net coal consumption is the assumed net production from all mines in the previous calendar year. This estimate was calculated by decreasing current baseline production by the ten-year trend decline of 3.4 percent between CY 1991 and CY 2000. Then, the resulting number was increased with new coal production from new mines by an increment of one million tons per year starting in CY 2001. Coal consumption in CY 2006 would represent about an 8 percent increase from the amount of coal produced in CY 2001.[30] In calculating the cost of the coal tax credit at $3 per ton, the estimates assume that (1) Ohio coal production is fully marketed and consumed the year in which it is produced, (2) 95 percent of the production is eligible for the coal tax

[29] *This forecast does not take into account the impact of state tax incentives for coal utilization. State tax incentives decrease the relative cost to produce or purchase coal.*

[30] *Coal consumption by corporate taxpayers will vary with the amount of coal maintained in inventory by mines and by consumers. Producer stocks were 0.7 million ton or about 3 percent of production in CY 2000. Total consumer stocks in Ohio were about 6.2 million tons or 10 percent of consumption in CY 1998 (CY 1998 is the last year for which data is available).*

credit,[31] and (3) 95 percent of the eligible coal tax credit is claimed in franchise tax returns.

Table 8: Estimated Revenue Loss from the Coal Tax Credit, FY 2003 to FY 2007					
	FY 2003	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**
Estimated net coal consumption (in millions of tons)	25.0	26.3	26.5	26.8	27.1
Coal eligible for the credit @ 95 percent (in millions of tons)	23.8	25.0	25.2	25.4	25.7
Coal tax credits @ $3 per ton (in $ million)	$71.3	$75.0	$75.6	$76.3	$77.0
Estimated revenue loss @ 95 percent (in $ million)	**$67.7**	**$71.3**	**$71.8**	**$72.5**	**$73.2**

Assuming that coal production in CY 2002 is similar to estimated coal production in CY 2001, the corporate franchise tax revenue loss for FY 2003 is estimated at $67.7 million.[32] The actual coal tax credit cost will depend on the amount of coal consumption claimed on franchise tax returns, and could be as high as $71.3 million.

Under the assumptions presented above, corporate franchise tax revenues would decrease by $72.5 million in FY 2006 and $73.2 million in FY 2007 with an extension of the Ohio coal tax credit to those fiscal years. A coal consumption of 31 million tons in CY 2006, rather than the 27.1 million as assumed above, would result in a franchise tax revenue loss of $83.9 million in FY 2007. This assumes that current coal production remains the same and that new mines increase total coal production to 31 million tons. This scenario is probably unlikely. Thus, LSC believes that a loss of $83.9 million in franchise tax revenue per year in FY 2006 or in FY 2007 would be the potential upper cost of the Ohio coal tax credit.

Electricity generation and fuel substitution

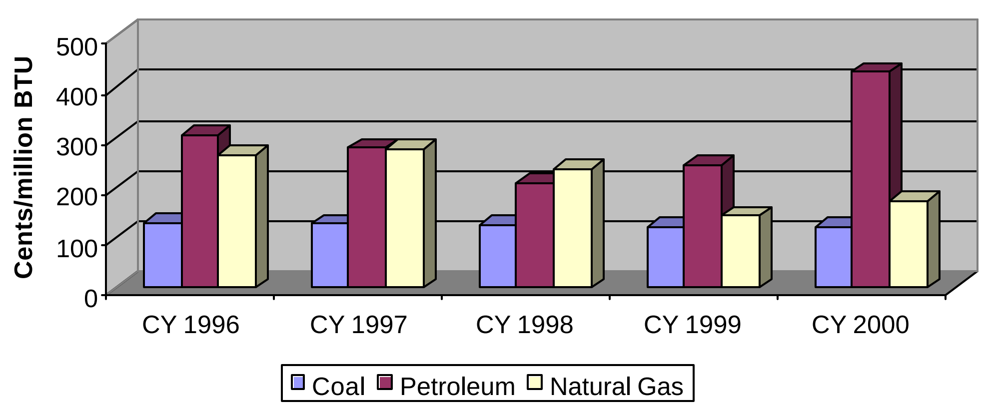
The operation of power plants is based on maximizing the generation of electricity with the least possible cost, subject to environmental constraints. Fuel costs are the most important, since they represent more than 75 percent of the total operating costs of a coal-fired generation facility. Petroleum and natural gas are the other two major fossil fuels for electricity generation. Although coal has maintained its fuel cost advantage over oil and natural gas (Figure 3), gas-fired generation is currently the most economical choice for construction of new power

[31] *Non-utility and other coal consumers consume a portion of coal, and also some coal is sold to buyers who may not pay the franchise tax.*

[32] *Coal eligible for credit is less than coal produced because of consumer and producer inventory (stocks), and purchases by coal consumers that may not file Ohio franchise tax returns.*

generating units when capital operation and fuel costs are considered.[33] However, long-range projections suggest a potential resurgence of coal in electricity generation. The U.S. Energy Department forecasts that between CY 2010 and CY 2020, rising natural gas costs and nuclear plant retirements may create increasing demand for coal-fired baseload capacity. Other macroeconomic conditions influence the type of power plant and their locations. For example, competition between Ohio coal and other coalfields is influenced by transportation costs. If transportation costs continue to decline (projected by the U.S. Department of Energy to decline by almost 1 percent annually between CY 1998 and CY 2020), Western U.S. coal would continue to be competitive and play an important role in supplying an expanded future demand for coal in the Appalachia region.

Figure 3: Electric Utility Average Cost for Fossil Fuels
CY 1996 to CY 2000



Judging by the new electric production on-line in CY 2001[34] and the current applications to the Ohio Power Siting Board, most new electric power generation in Ohio would be gas-fired power plants. Electric utilities have announced investments in compliance facilities and additional retrofitting of boilers with emissions control equipment. If the relative price of Ohio coal falls, electricity producers may optimize Ohio coal use in existing coal facilities, expand those facilities, and might re-power some of the boilers that have been taken out of

[33] *Capital investments are lower for newer gas-fired than coal-fired power plants, although variable costs and operating costs of gas-fired plants are higher and more volatile than the costs of operating a coal-fired unit. Most of the new gas-fired units are peaking plants, and they would generally be operating when electricity costs are high enough to cover the operating costs.*

[34] *During 2001, Ohio added 1,215 megawatts of electric generation capacity. Ninety-nine percent of the capacity is fueled by natural gas. Sixty-nine percent of the new electric production is owned by electric utilities and 31 percent by electric nonutilities.*

production.[35] The fiscal impact of the coal tax credit could be more readily increased if idle boiler units are re-activated with Ohio coal as fuel. Construction of new coal-fired baseload generating plants in Ohio may also increase demand for Ohio coal, which in turn would increase revenue loss from the coal tax credit.

LSC is aware of two new coal-fired facilities being planned. Nordic Energy plans to start construction by CY 2003 of an 850-megawatt plant in Ashtabula Township. The plant would be a co-generation facility that also would produce steam to operate an ethanol plant that Nordic Energy would also build. Nordic Energy expects to start the permitting process this year. Construction will begin after the Ohio Power Siting Board approves an application for certification. Commercial operation is projected for CY 2006. Global Energy, another energy company, plans to build a 540-megawatt plant in Lima. The timing of construction of the plant or the start of commercial operation is uncertain.

Emissions allowances and the regulatory environment

Demand for Ohio coal by consumers may also vary with changes in current federal and state emissions standards for sulfur dioxide (SO_2), nitrogen oxide (NOx), carbon dioxide (CO_2), and other particulates such as mercury. Lower sulfur levels and cheaper costs from Western U.S. coals provide valuable benefits to electricity generators. If emissions standards tighten, use of western U.S. coals may continue surging, and costs to operate or retrofit older coal-fired plants in Ohio may increase. Some of those costs would be alleviated by the use of "banked"[36] emission allowances for SO_2 and NOx, although in time, "banked" allowances will be depleted. Other emissions such as CO_2 could be traded within an organized market place such as those of SO_2 and NOx. Ohio utilities have accumulated millions of units of tradable SO_2 emissions allowances that could be used to offset current and future emissions. Trading NOx and CO_2 emissions allowances are additional tools available to power generators dealing with the environmental costs of producing electricity from coal and other fuels. These strategies may or may not be enough to limit emissions or produce electricity at market prices in a competitive electricity market.

As new limits on additional emissions are adopted, coal power plants may be disinclined to burn more high sulfur coals if a competitive alternative fuel

[35] *In 1998, about 25 percent of installed units at Ohio power plants (most of them coal-fired units) did not operate (calculated from U.S. EPA information at http://www.epa.gov/acidrain/emission/oh).*

[36] *After fuel switching, purchasing emission allowance credits from another utility is a popular choice by electric generators to meet their emission requirements. The typical allowance sale is made by a utility that has installed scrubbers (and has lower emissions than required) to another utility that needs them. Unused allowance credits are kept or "banked" to mitigate excess emissions in a later year. In essence, SO_2 and NOx emissions have been transformed into tradable commodities.*

source is available or required. Despite natural gas price instability, power producers have focused on natural gas peaking plants to address current increases in demand for electricity. Unless Ohio coal prices decrease enough to offset other increases in operating costs, the use of Ohio coal would be constrained unless investments in pollution controls increase Ohio coal demand. As utilities invest additional monies to control pollution, the demand for high-sulfur Ohio coal may improve.

Several Ohio plants were included in a complaint by the U.S. Department of Justice regarding the use of coal plants. The "New Source Review" litigation might affect future coal use in Ohio. The W.H. Sammis, Conesville, Cardinal, Muskingum River, and Walter Beckjord power plants were accused in November of 1999 of making major repairs and investments to extend the life of existing coal plants without upgrading or installing pollution controls. This was alleged to be in violation of rules that allowed those plants not to be subject to some environmental rules during Phase I of the Clean Air Act Amendments. These plants represent about 20.4 percent of the coal-fired capacity in Ohio. Any negative conclusions for the power plants to these legal proceedings might curtail Ohio coal consumption.

New technologies for coal and for emission controls

The successful commercialization of new uses of coal in energy generation may lead to higher coal production and use. Several pilot projects are ongoing that would expand the usage of high-sulfur coal.[37] Numerous generating companies are also testing various techniques and equipment for emissions control. These projects are at various stages of development and not ready for full commercialization. Therefore, their impact on future Ohio coal usage and related fiscal cost is still uncertain. However, if some of these projects are found to reduce the environmental and overall cost of using high-sulfur coal, demand for Ohio coal may advance in the later part of the decade.

The Ohio coal tax credit and the federal synthetic fuel tax credit

The federal synthetic fuel or "synfuel" tax credit was created in 1980 to foster alternatives to imported oil. Faced with skyrocketing prices for imported oil, the federal government directed subsidies to domestic companies that tried to extract oil from shale and natural gas from coal. A sustained decrease in oil prices in the mid-1980s made those proposals too costly, even with the subsidies. The synfuel tax credit is granted to qualifying fuels such as coal. To qualify for the credit, the IRS has ruled, coal must undergo a "significant chemical change." While the original legislation may have contemplated an expensive, significant

[37] *One example of such projects, the 400-megawatt Kentucky Pioneer Energy Project in Clark County (coal gasification) is moving forward. The plant will not be based strictly on coal, but on a low-cost feedstock that blends coal and municipal solid waste. It is set to operate in 2003.*

chemical change to qualify, in practice only slight, inexpensive changes to the coal are required to claim the credit. The IRS has authorized the tax credits for companies that coat or spray coal with various substances (asphalt, pine tar, waste oil, or latex). The current value of the credit is up to $26 per ton of coal and is based on the calorific (heat) value of the coal,[38] which makes it ideal for high-sulfur coal. Many of the synthetic coal plants or developers have been purchased by utilities or their affiliates that have enough tax liabilities to profit from using the synfuel tax credit. The plants are located at various sites along the Ohio and Kanawha Rivers.[39] The use of the synfuel tax credit reduces the relative cost of burning coal and may increase to varying degrees the consumption of high-sulfur Ohio coal. Thus, the synfuel tax credit could indirectly increase the annual cost of the Ohio tax credit, by increasing the relative share of Ohio coal consumed by electricity generators. Synfuel plants may be strategically relocated at various power plants, and the largest benefits would derive from installing them near large coal consumers. Enron Global Markets, a subsidiary of Enron Corporation, obtained a permit from the Ohio EPA to operate a synthetic-fuel plant next to the W.H. Sammis plant near Steubenville. Though it is unclear whether the synfuel plant will be built, the permit authorized the "processing" or coating of 4.7 million tons of coal. A Michigan-based utility, DTE Energy, has requested and obtained approval by the Ohio EPA to coat up to 6.1 million tons of coal each year for the Gavin plant along the Ohio River. At $26 federal tax credit per ton, these two projects will generate up to $280 million in available federal tax credits. These two projects would account for about 20 percent of the current coal consumption of Ohio power generators. If all of the coal processed by the proposed synfuel plants were afforded the Ohio coal tax credit, that amount of coal would represent $32.4 million in available Ohio tax credits.

The federal synfuel tax credit has the power to alter regional coal markets because providers of synfuel coal can charge lower prices for coal supplied to electric companies. Providers of synfuel coal could boost consumption of Ohio coal by making it more affordable to corporate franchise taxpayers. Thus, synfuel coal could potentially increase the cost of the Ohio coal tax credit by increasing the share of Ohio coal burned in electric generators. Burning synfuel coal has increasingly become part of the strategy of power producers in Ohio and nationwide, and will remain so at least until 2007 when this credit is scheduled to expire.[40]

---

[38] *The calorific value refers to a measure of heat generated by one ton of coal, in British Thermal Units (BTUs). Ohio coals and other high-sulfur coals have a higher calorific value than low-sulfur coals.*

[39] *Under rulings from the Internal Revenue Service, only 55 coal-based plants qualify for the synthetic-fuel credits, though the ownership and location of the plants can be sold and transferred. West Virginia is home to the largest number of synfuel plants (ten), Kentucky has eight plants, and Pennsylvania is host to seven plants.*

[40] *Coal Age, Tax Credit Synfuels Influence Coal Markets, May 1, 2000.*

Electric deregulation

Deregulation has brought dramatic changes to the electricity market. An increasing number of fuel and energy suppliers and producers are party to mergers, partnerships, and contractual agreements among electric power producers and diversified energy marketing companies. Power suppliers have become more limited in their ability to pass cost increases on to electricity customers. In a perfectly competitive market where the price of a kilowatt-hour equals its marginal cost, the Ohio coal credit would be reflected in a lower marginal cost and thus in a lower market price of electricity. If the electric market structure is more that of an oligopoly or monopolistic competition, there might be some opportunity for electric companies to capture some of the tax credit in their profits. However, there are a large number of other factors that electric companies must take into account when planning the generation and distribution of electricity that they supply to their markets. Facing increasingly uncertain electricity prices and sales volumes, power generators will focus on managing the price differential between electricity prices and fuel prices to cover their costs and earn a return. As a result, management of business and market risks for coal suppliers and power producers has become crucial. The importance of risk management is magnified by changes occurring in coal supply contracts, as more above-market long-term supply contracts expire, and new coal supply is secured.[41] A variety of tools are available for business risk management.[42] However, those strategies are a departure from typical business practices for most coal producers and electricity producers.

A new tool for coal suppliers is a nascent coal futures trading system. A coal futures trading system for coal contracts has been initiated on the New York Mercantile Exchange (NYMEX), motivated by increased price volatility and the need for more flexible supply agreements. Trading for the Central Appalachia Coal Futures started July 12, 2001. How this change will affect Ohio coal supply and production in the future is uncertain. However, this development may increase the likelihood that some of Ohio's coal production will be purchased by users that may not be able to claim the Ohio coal tax credit (because those coal consumers do not file Ohio corporate tax returns).

[41] *A significant amount of coal tonnage under above-market contracts in the East Central Area Reliability Coordination Agreement region (which includes Ohio) were due to expire by 2005. From 128 million tons outstanding in 1995, all but 30 million tons will expire by 2005. This implies that numerous coal contracts will be renegotiated and more coal may be bought on the spot market.*

[42] *Risk management tools include practices such as forward, future and option contracts and other forms of hedging and striking strategic alliances with other businesses.*

Conclusion

Ohio electric generators' reliance on coal will continue. Electric generators demand for Ohio coal will depend on production and prices, potential retirement of existing plants (or generating units within a plant), installation of additional pollution control equipment, the amount of fuel-switching between Ohio and non-Ohio coals, and other factors considered by electric companies in the cost of producing electricity. How changes to these parameters would modify Ohio coal usage (and consequently the cost of the tax credit) beyond the short-term is difficult to predict with accuracy. How successful Ohio coal producers and power generators are in the transition between regulated and deregulated markets will determine future Ohio coal demand. Still, the economics of coal mining, utilization of Ohio coal, and current state of electric deregulation would have to change significantly to increase the annual cost of the coal tax credit beyond estimates included in this report. With an extension of the Ohio coal tax credit by an additional two years to FY 2006 and FY 2007, LSC believes an annual cost of $72.0 to $83.9 million per year is a reasonable estimate for the $3 per ton Ohio coal tax credit allowed under current law.

The long-term fiscal impact of extending the coal tax credit will also depend on several factors that are difficult to ascertain at this time. Ohio electricity producers have to determine how much coal-fired power generation will be used in the future to serve their markets, evaluating the relative advantage of coal versus other fuel sources. Then, the mix of coal use (Ohio and non-Ohio) by electric power generators that serve the Ohio market will depend on the marginal cost of producing electricity (including the environmental costs of using Ohio coal), and the price at which electricity would be sold. A continued decline in the kilowatt-hour price brought by a complete electric deregulation and well-functioning electricity markets could eventually limit the growth of Ohio coal utilization and the fiscal cost of the current Ohio coal tax credit. However, a combination of favorable state tax incentives and the installation of new pollution control equipment in this decade might push up total demand for Ohio coal.[43]

Ohio coal production has declined steadily in the years since the Ohio coal tax credit was introduced. The extent to which the existence of the Ohio coal tax credit changed coal consumer behavior during the regulated era may not be known with any degree of certainty mainly for two reasons: (1) electric utilities were guaranteed a positive rate of return on their investments in generation and distribution of electricity, and (2) electric utilities had long-term supply contracts with coal producers or operated some of the Ohio mines (thus, there were potential additional costs for making wholesale changes to those supply contracts, and the open market for coal was a small part of coal transactions).

---

[43] *Resource Data International (RDI), Winter 1999/2000 Outlook for Coal and Competing Fuels. RDI believes that total demand for Ohio coal may reach 40 million tons by 2010. Such a demand could potentially increase the fiscal cost of the coal tax credit above $100 million per year.*

In the future deregulated electric markets, fuel costs and several other markets forces will increasingly determine the amount of Ohio coal purchased by power generators. Ohio nominal producers' prices have increased, while Ohio electric utility and U.S. utility coal prices have decreased. If the pricing gap between Ohio producers' prices and utility delivered coal prices in Ohio keeps growing (or even if it stays the same), the displacement of Ohio coal in the supply of electric generators within Ohio may accelerate. Unless the relative price of Ohio coal falls, in increasingly integrated and deregulated coal and electricity markets, the impact of the Ohio tax credit will likely be further reduced in the future because it might ultimately become a minor factor in the fuel purchasing decision-making of coal consumers.