



Economic Benefits of The Exelon Illinois Nuclear Fleet

An Economic Impact
Study by the
Nuclear Energy Institute



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Executive Summary

Exelon Corp. owns and operates six nuclear generating facilities in Illinois: Braidwood Generating Station in Will County, Byron Generating Station in Ogle County, Clinton Power Station in DeWitt County, Dresden Generating Station in Grundy County, LaSalle County Generating Station in LaSalle County and Quad Cities Generating Station in Rock Island County. In addition to these plants, Exelon Corp. owns and operates Zion Station in Lake County, a former nuclear generating facility that now serves as a voltage-stabilizing facility. Exelon Nuclear, a business unit of Exelon Corp., operates the company's nuclear fleet. Exelon Nuclear's Cantera corporate offices are in Warrenville, Ill., in DuPage County.

These facilities all play integral roles in their local and state economies. The plants generate low-cost electricity and make purchases that have stimulated their respective local economies since beginning commercial operation.

Besides economic output, the plants provide jobs, labor income and tax revenues, as well as important intangible benefits, such as environmental stewardship, community involvement and stable, affordable electricity prices. The economic impact of Exelon's Illinois nuclear power plants reaches beyond their local communities to the state and nation.

This report, which highlights local economic benefits to each station's host county, excludes specific economic benefits for other counties within 10 miles of each station, some of which are substantial. For example, in addition to Will County, Braidwood has a positive economic impact on Grundy and Kankakee counties. The statewide economic results capture the additional benefits afforded counties outside the host county.

In 2005, the operation of Braidwood, Byron, Clinton, Dresden, LaSalle and Quad Cities increased Illinois' economic output by \$1.2 billion, including \$28.4 million in Will County, \$8.5 million in Ogle County, \$8.6 million in DeWitt County, \$4.7 million in Grundy County, \$15.9 million in LaSalle County and \$5.5 million in Rock Island County. Adding the direct value of each plant's electricity generation brings the economic output attributable to Exelon's Illinois nuclear plants to \$7.49 billion for the state.

Exelon's facilities in Illinois employ 4,295 people (excluding security personnel). This total includes 295 Braidwood employees living in Will County, 317 Byron employees residing in Ogle County, 182 Clinton employees living in DeWitt County and 218 Dresden employees residing in Grundy County. It also includes 359 LaSalle employees living in LaSalle County, 163 Quad Cities employees residing in Rock Island County, 30 Zion employees living in Lake County and 93 Cantera employees living in DuPage County. These jobs pay substantially higher salaries than the average salary in almost all eight counties.

The operation of Exelon's Illinois nuclear generating facilities and their secondary effects account for more than 13,000 jobs in the state. These include 565 jobs in Will County, 407 jobs in Ogle County, 249 jobs in DeWitt County, 266 in Grundy County, 527 in LaSalle County and 208 jobs in Rock Island County. These jobs result in \$968.6 million in earnings to workers living in Illinois.

The Exelon nuclear plants' principal expenditure within their local communities is employee compensation. In 2005, the plants paid an average of \$35.8 million in compensation to employees living in their host counties, and a total of \$524 million to employees living in Illinois. Economic activity created by the plants accounted for an additional \$467 million in the state.

Exelon makes substantial purchases in each plant's host county. In 2005, the Braidwood, Byron, Clinton, Dresden, LaSalle and Quad Cities plants made local purchases of \$18.5 million, \$2.5 million, \$9.4 million, \$2.7 million, \$3 million, and \$3.4 million, respectively. Purchases by all six plants totaled \$467 million in Illinois and \$1.3 billion in the United States. Economic activity generated by the plants' purchases and operation also led to an average of \$11.8 million in increased output in each county.

The six plants generate more than \$76 million in state and local tax revenue each year. Adding the economic activity produced by the plants through increased business, corporate, payroll and personal taxes results in a total state and local tax impact of \$130 million.

Besides their economic benefits, the plants generated more than 93 million megawatt-hours of electricity in 2005. This low-cost electricity helped keep energy prices affordable in Illinois. In 2005, the average production cost for the six plants was 1.84 cents per kilowatt-hour, compared with an average production cost of 2.16 cents per kilowatt-hour for the rest of Illinois.

Section I: Introduction

This economic impact study, conducted by the Nuclear Energy Institute¹ (NEI), examines the economic, fiscal and other benefits provided by the nuclear generating facilities owned and operated by Exelon Corp. in Illinois. These plants include Braidwood Generating Station in Will County, Byron Generating Station in Ogle County, Clinton Power Station in DeWitt County, Dresden Generating Station in Grundy County, LaSalle County Generating Station in LaSalle County and Quad Cities Generating Station in Rock Island County. This study analyzes the economic and other benefits that these plants provide to Will, Ogle, DeWitt, Grundy, LaSalle and Rock Island counties, as well as the state of Illinois and the United States. The analysis uses detailed data provided by Exelon to assess those benefits.

Although this study focuses primarily on economic benefits to the local communities in which the plants are located, benefits to other counties near each station, which can be substantial, are included in the state calculation. These benefits include direct impacts—such as employment, expenditures within the community and corporate tax payments—and indirect impacts, including jobs and money generated indirectly by plant expenditures in the local economy. The study also discusses other benefits provided by the plants, such as reliable, low-cost electricity, the benefits of an emission-free source of electricity and environmental stewardship.

The study also considers benefits of Zion Station, a former nuclear generating facility in Lake County that now serves as a voltage-stabilizing facility, as well as those of Exelon Nuclear's Cantera corporate offices, headquartered in Warrenville, Ill., in DuPage County. However, these sites are not included in the detailed economic analysis described in later sections of this report.

Exelon Corp. and NEI cooperated in developing this study. Exelon provided data on employment, operating expenditures and tax payments, as well as guidance on particular details specific to the counties and the plants.

NEI coordinated the project and applied a nationally recognized model to estimate the direct and indirect impacts of the plant on the local community. RTI International, a nonprofit research organization in Research Triangle Park, N.C., developed the methodology employed in this analysis, the 11th such study conducted by NEI.

The remainder of this report contains five sections:

- Section 2 offers background information on Braidwood, Byron, Clinton, Dresden, LaSalle, Quad Cities, Zion and Cantera, including generating costs, employment, plant history and performance, and taxes. It also provides local area details, such as total employment and earnings, as well as regional electricity prices.
- Section 3 examines economic and fiscal impacts of the nuclear generating facilities at local, state and national levels.
- Section 4 provides data on benefits not captured by the model, such as the plants' contributions to the community and the environment.
- Section 5 outlines recent trends in the nuclear energy industry as a whole, including cost, performance and safety.
- Section 6 discusses the methodology used to complete the study and Impact Analysis for Planning, the economic modeling software employed as part of this effort.

¹ The Nuclear Energy Institute, the policy organization of the nuclear energy and technologies industry, participates in both the national and global policymaking process.

Section 2: The Exelon Illinois Nuclear Fleet

This section provides background information on Exelon's Illinois nuclear plants to frame the results of this report, including a brief history of the plants and data on their cost, employment, performance and taxes. This section also provides details on Will, Ogle, DeWitt, Grundy, LaSalle, Rock Island, Lake and DuPage counties and the state of Illinois, including earnings, tax collections, electricity cost and total employment.

2.1 History and Information

Braidwood Generating Station, Exelon's newest nuclear power station, is in northeastern Illinois, about 60 miles southwest of Chicago. The plant is in Will County, which has a population of 502,000. The station is built on a 4,457-acre site. Its cooling lake was formed from scarred farming land and an old strip mine. Braidwood 1, a 1,208-megawatt pressurized water reactor, and Braidwood 2, a 1,176-megawatt pressurized water reactor, both began operating in 1988.

Byron Generating Station is a two-reactor site in Ogle County, which has a population of 51,000. Its twin cooling towers are 495 feet high and overlook the scenic Rock River Valley. Byron 1, a 1,192-megawatt pressurized water reactor, and Byron 2, a 1,161-megawatt pressurized water reactor, began operating in 1985 and 1987, respectively.

Clinton Power Station is 6 miles east of Clinton, a city of about 7,500. The plant lies in DeWitt County, which has a population of about 17,000. The station is on a 14,300-acre site. Its 5,000-acre cooling lake was formed by building a dam at the convergence of Salt Creek and its north fork. Clinton 1, a 1,026-megawatt boiling water reactor, began commercial operation in 1987.

Dresden Generating Station, a three-reactor site, is 9 miles east of Morris, a city of about 12,000, in Grundy County. The station is home to the nation's first full-scale, privately financed nuclear power plant, which began operation in 1960. Capable of generating 210 megawatts of electricity before its retirement in 1978, Dresden 1 is designated a Nuclear Historic Landmark by the American Nuclear Society. Dresden 2 and 3, both 871-megawatt boiling water reactors, began operating in 1970 and 1971, respectively.

LaSalle County Generating Station is a two-reactor site in LaSalle County, which has a population of 112,000. The station is built on a 3,055-acre site with a 2,058-acre man-made cooling lake, which is also a popular fishery managed by the Illinois Department of Natural Resources. LaSalle 1, a 1,151-megawatt boiling water reactor, and LaSalle 2, a 1,158-megawatt boiling water reactor, began operating in 1982 and 1984, respectively.

Quad Cities Generating Station is a dual-reactor power station in Rock Island County, which has a population of 149,000. The station is built on a 765-acre site along the Mississippi River. Quad Cities 1, an 866-megawatt boiling water reactor, and Quad Cities 2, an 871-megawatt boiling water reactor, both began operating in 1972.

Zion Station, on the western shore of Lake Michigan in northeastern Illinois' Lake County, is a former nuclear generating facility that now serves as a voltage-stabilizing facility. After more than 20 years of operation, Zion's two reactors permanently shut down Jan. 15, 1998. In the early spring of 1998, the company converted both units' generators to synchronous condensers, used year round to provide stability to northeastern Illinois power lines. The condensers have proven invaluable to electrical distribution during summer's peak usage months. Besides maintaining the condenser equipment, the station's employees monitor the safe storage of used reactor fuel.

Table 2-1. Exelon Illinois Fleet: At a Glance

Plant	Capacity (in megawatts net)	Commercial Operation Year	License Expiration Year	Reactor Type
Braidwood 1	1,208	1988	2026	Pressurized Water
Braidwood 2	1,176	1988	2027	Pressurized Water
Byron 1	1,192	1985	2024	Pressurized Water
Byron 2	1,161	1987	2026	Pressurized Water
Clinton 1	1,026	1987	2026	Boiling Water
Dresden 2	871	1970	2029	Boiling Water
Dresden 3	871	1971	2031	Boiling Water
LaSalle 1	1,151	1982	2022	Boiling Water
LaSalle 2	1,158	1984	2023	Boiling Water
Quad Cities 1	866	1972	2032	Boiling Water
Quad Cities 2	871	1972	2032	Boiling Water
Zion 1	1,040	1973	Retired 1998	Pressurized Water
Zion 2	1,040	1974	Retired 1998	Pressurized Water

Exelon Nuclear, a business unit of Exelon Corp., operates the company's nuclear fleet. Exelon Nuclear's Cantera corporate offices are in Warrenville, Ill., in DuPage County. Exelon operates the largest nuclear fleet in the nation and the third-largest fleet in the world. Exelon's 10 stations—including the six in Illinois—represent approximately 20 percent of the U.S. nuclear industry's power capacity.

Throughout most of their history, Exelon's Illinois plants have been competitive components of the U.S. nuclear energy industry, maintaining capacity factors at or above the industry average. Capacity factor, a measure of efficiency, is the ratio of actual electricity generated to the maximum possible generation if the plant were to operate at full capacity for one year.

Figures 2-1 through 2-6 show the three-year average capacity factors of Exelon's six Illinois sites during the life of each reactor.

Figure 2-1. Braidwood Three-Year Average Capacity Factors

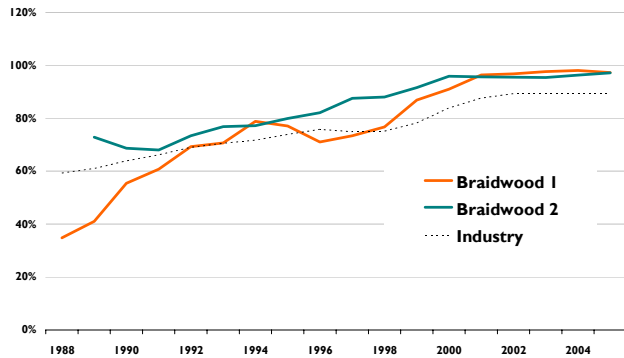


Figure 2-2. Byron Three-Year Average Capacity Factors

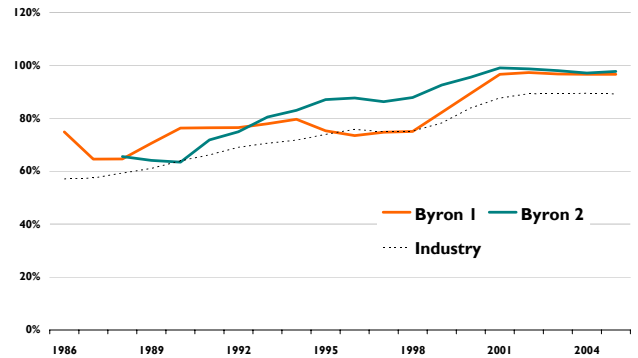


Figure 2-3. Clinton Three-Year Average Capacity Factors

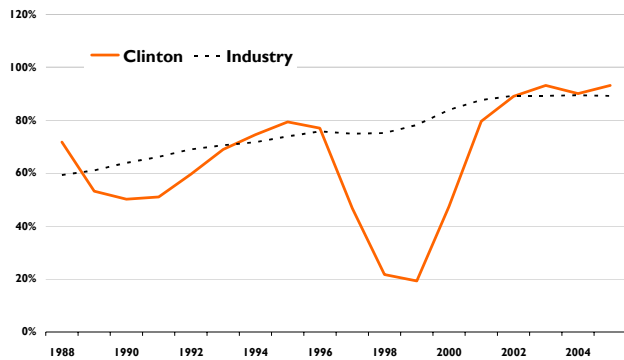


Figure 2-4. Dresden Three-Year Average Capacity Factors

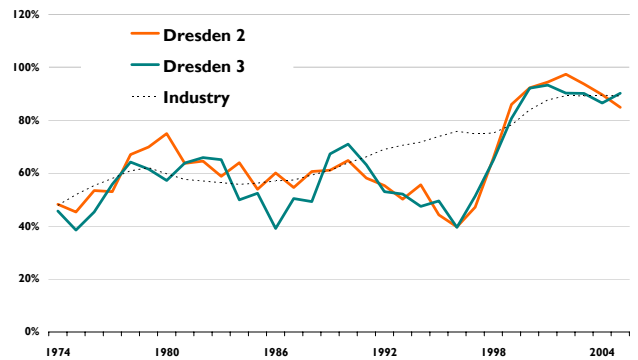


Figure 2-5. LaSalle Three-Year Average Capacity Factors

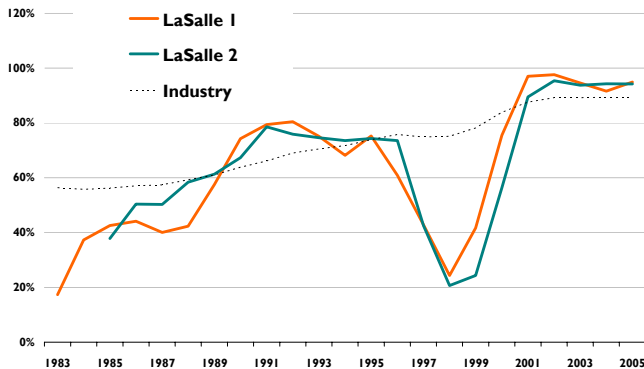


Figure 2-6. Quad Cities Three-Year Average Capacity Factors

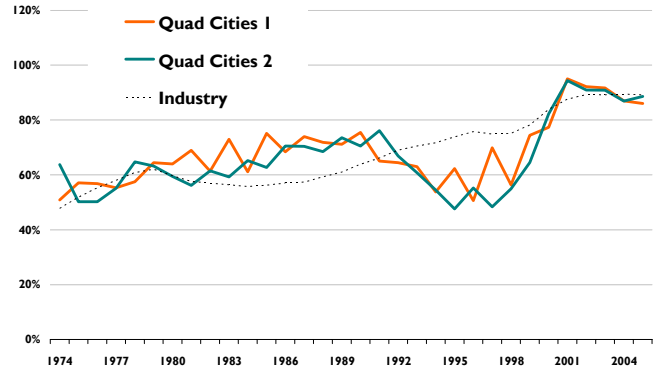
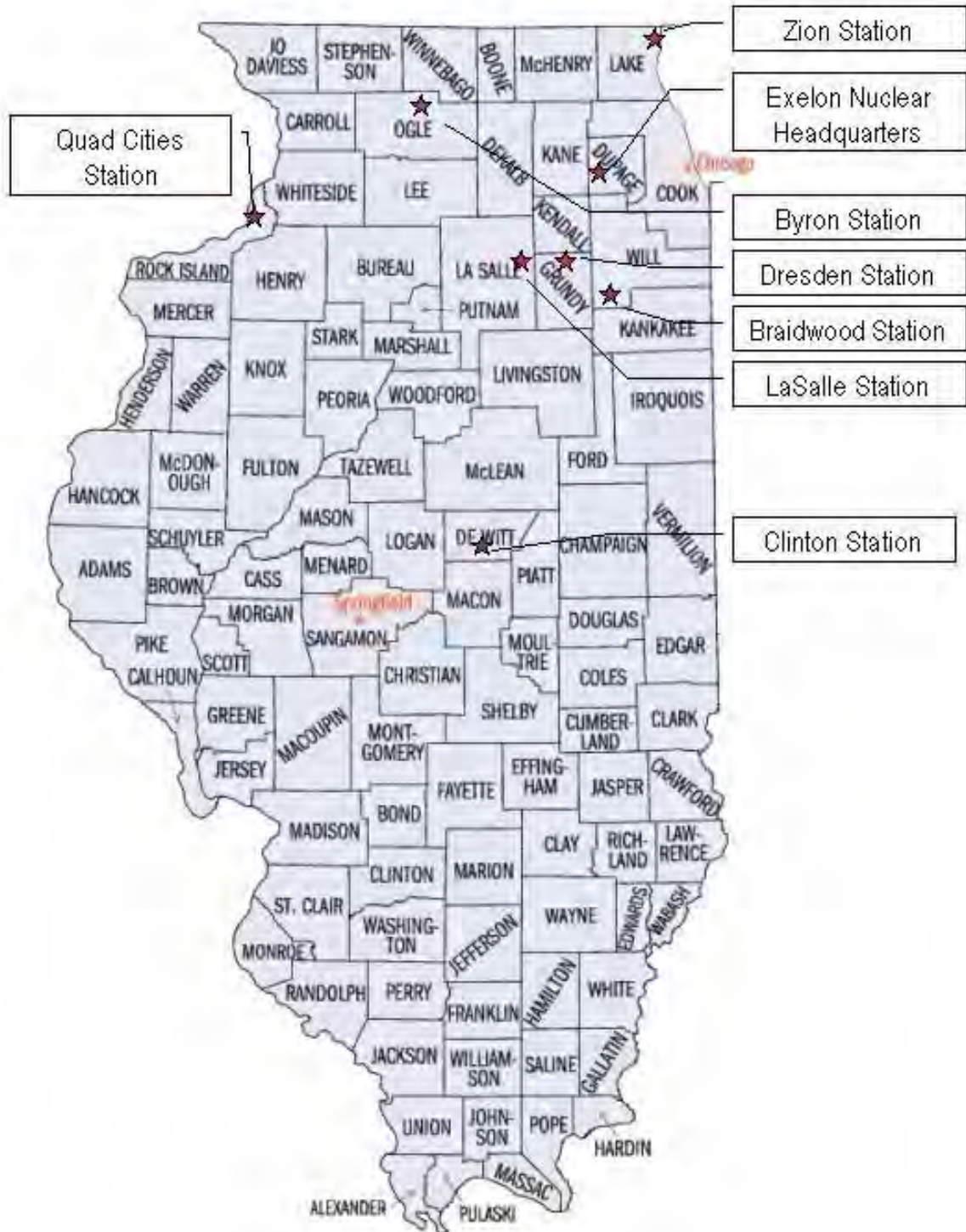


Figure 2-7. Exelon Illinois Fleet and Surrounding Areas



2.2 Generation

Exelon's nuclear plants in Illinois generated more than 93 million megawatt-hours of electricity in 2005—about 48 percent of the electricity generated in the state that year. The six plants operated at an average capacity factor of 93.5 percent.

The plants provide power to the Mid-America Interconnected Network subregion. The council, part of the North American Electric Reliability Council, ensures the reliability of the interconnected bulk power system in the region. Its area of responsibility consists of all or parts of the states of Illinois, Iowa, Michigan, Minnesota, Missouri and Wisconsin.

Efficient performance has made the plants extremely cost-competitive. In 2005, Braidwood, Byron, Clinton, Dresden, LaSalle and Quad Cities had average production costs of 1.81 cents, 1.83 cents, 1.83 cents, 1.88 cents, 1.84 cents and 1.87 cents per kilowatt-hour, respectively. These figures are below the average production cost of 2.16 cents per kilowatt-hour for electricity generators in the subregion.

Production costs represent the operation, maintenance and fuel costs of the plant. They do not include depreciation, interest or ongoing capital costs. Payments to the Nuclear Waste Fund, established to pay for the disposal of used reactor fuel from commercial nuclear plants, are contained within fuel costs. For each kilowatt-hour of electricity produced, one-tenth of a cent is paid to the fund.

**Table 2-2. Mid-America Interconnected Network (MAIN) Subregion
Production Cost and Generation in 2005**

	Average Production Cost (in cents per kilowatt-hour)	Generation (in million megawatt-hours)
Braidwood	1.81	19.80
Byron	1.83	19.12
Clinton	1.83	8.69
Dresden	1.88	13.62
LaSalle	1.84	18.71
Quad Cities	1.87	13.32
Other Nuclear	2.58	22.49
Coal	1.80	179.22
Natural Gas	9.01	11.96
Oil	11.04	0.18
Renewables and Other	2.62	3.31
MAIN Subregion Total (Including Exelon's Illinois Fleet)	2.16	310.42

Source: *Global Energy Decisions*

The plants’ low production costs keep wholesale electricity prices affordable in Illinois. Although their specific contribution is difficult to measure, it can be estimated by determining how much average production costs in the region would increase if a combined-cycle natural gas plant (the plant of choice for new generation during the past decade) replaced the plants. Substituting natural gas-fired plants for the six plants in 2005 would result in a 100 percent increase in average regional electric generation costs. As a result, costs would increase from 2.16 cents per kilowatt-hour to 4.31 cents per kilowatt-hour.

2.3 Employment

The Exelon nuclear plants provide affordable electricity to Illinois and a large number of well-paying jobs in their host counties. The eight Exelon facilities in Illinois (Braidwood, Byron, Clinton, Dresden, LaSalle, Quad Cities, Zion and Cantera) employ 4,295 full-time workers.² On average, approximately 40 percent of the workers at each of the Exelon facilities in Illinois live in the host county of the facility at which they are employed. The Exelon plants and corporate site also employ many people from nearby counties. Approximately 80 percent of the workers at each of the Exelon facilities work within a three-county radius of each site. Table 2-3 provides a detailed breakdown of employment at each facility.

Jobs provided by the eight facilities typically pay more than most jobs in the area. Full-time employees of the Exelon facilities in Illinois earned, on average, about \$81,800 in 2005. Exelon workers residing in the host counties of their respective facilities earned up to 40 percent more than the average earnings of workers within those counties. Table 2-3 offers more information on earnings of plant employees.

Table 2-3. Illinois Study Region Employment

Plant County	Plant Total ^a			County Total ^b	
	Permanent Employees	% of Employed Work Force	Average Earnings ^c	Employed Work Force	Average Earnings ^c
Braidwood	644	—	\$80,570	—	—
Will	295	0.12%	\$78,719	246,431	\$82,594
Grundy	154	0.83%	\$81,310	18,567	\$66,070
Kankakee	59	0.12%	\$80,741	48,227	\$58,233
Other	136	—	\$83,672	—	—
Byron	696	—	\$79,466	—	—
Ogle	317	1.28%	\$81,169	24,812	\$59,213
Winnebago	185	0.14%	\$78,477	134,952	\$61,307
Lee	82	0.50%	\$74,018	16,325	\$55,262
Other	112	—	\$80,271	—	—

(Continued on next page)

² Security personnel are excluded. These data do not include the direct or indirect economic effects of security forces permanently employed at the seven plants. For security reasons, specific numbers of trained nuclear security officers stationed at Exelon’s six plants are confidential.

Table 2-3. Illinois Study Region Employment (Continued)

Plant County	Plant Total ^a			County Total ^b	
	Permanent Employees	% of Employed Work Force	Average Earnings ^c	Employed Work Force	Average Earnings ^c
Clinton	535	—	\$77,571	—	—
DeWitt	182	2.17%	\$73,628	8,380	\$55,822
McLean	127	0.16%	\$84,274	80,759	\$64,048
Macon	125	0.24%	\$75,189	52,584	\$55,747
Other	101	—	\$80,064	—	—
Dresden	687	—	\$79,633	—	—
Will	286	0.12%	\$78,002	246,431	\$82,594
Grundy	218	1.17%	\$76,896	18,567	\$66,070
DuPage	40	0.01%	\$97,269	476,172	\$95,462
Other	143	—	\$82,138	—	—
LaSalle	677	—	\$80,757	—	—
LaSalle	359	0.70%	\$78,240	51,042	\$55,732
Grundy	128	0.69%	\$79,066	18,567	\$66,070
Will	97	0.04%	\$87,120	246,431	\$82,594
Other	93	—	\$86,163	—	—
Quad Cities	685	—	\$80,445	—	—
Whiteside	210	0.74%	\$75,604	28,343	\$53,153
Rock Island	163	0.23%	\$81,277	71,446	\$54,363
Scott, Iowa	152	0.19%	\$89,751	79,475	\$58,926
Other	160	—	\$77,108	—	—
Zion	47	—	\$79,151	—	—
Lake	30	0.01%	\$74,769	310,396	\$102,250
Kenosha, Wis.	10	0.01%	\$86,016	73,236	\$63,060
Cook	3	0.00%	\$99,126	2,421,287	\$71,936
Other	4	—	\$79,865	—	—
Cantera	324	—	\$106,879	—	—
DuPage	93	0.02%	\$101,434	476,172	\$95,462
Will	72	0.03%	\$104,566	246,431	\$82,594
Cook	43	0.00%	\$91,810	2,421,287	\$71,936
Other	116	—	\$118,266	—	—
TOTAL EMPLOYED	4,295	—	\$81,846	—	—

^a Excluding security personnel

^b 2000 Census

^c Earnings, defined as the sum of wage and salary income, represent the amount of income received regularly before deductions for personal income taxes, Social Security, Medicare, etc. Average earnings are in 2005 dollars.

2.4 Local Taxes

Exelon's nuclear plants in Illinois also generate substantial tax revenue in the state and local area. The plants contribute more than \$76 million to state and local tax revenues each year, and generated almost \$103 million in total tax revenue (local, state and federal) in 2005.

2.5 Summary

Braidwood, Byron, Clinton, Dresden, LaSalle and Quad Cities provide reliable electricity and keep power prices affordable in Illinois. The Exelon facilities in Illinois, including Zion and Cantera, also offer well-paid employment and a large tax base to Will, Ogle, DeWitt, Grundy, LaSalle, Rock Island, Lake and DuPage counties, and to the state. However, these are only the direct economic benefits of the plant. As illustrated in the next section, the secondary effects on the local and regional economies are as substantial as the direct benefits.

Section 3: Economic and Fiscal Impacts

The economic and fiscal impacts of Exelon’s Illinois nuclear plants extend well beyond spending on employee benefits, purchases, salaries, taxes and wages. They also reflect the strong stimulus that plant operations provide to key measures of economic activity—the value of electricity production, employment and labor income—in the local and state economies.

Spending at Exelon facilities in Illinois lifts economic activity locally and throughout the state. The private sector experiences this effect through increased sales and employment, and the public sector experiences it through increased tax revenues to support public services.

The authors applied the Impact Analysis for Planning (IMPLAN) model to expenditure data provided by Exelon Corp. to develop estimates of these effects for the Exelon plants operating and producing nuclear power in Illinois.³ (For more information on IMPLAN, see Section 6.)

3.1 Local Expenditures

The Exelon nuclear generating stations in Illinois make significant expenditures for goods, services and labor in their local economies. In 2005, spending in the local economy by the plants averaged nearly \$42 million at each plant site. Approximately 84 percent of expenditures were for labor. Table 3-1 shows information regarding the local spending for each of Exelon’s nuclear generating stations in Illinois.

Table 3-1. Local Expenditures by Exelon Illinois Nuclear Generating Stations

Plant	Goods/Services (in millions of dollars)	Compensation (in millions of dollars)	Total Spending (in millions of dollars)	Percentage of Labor	Percentage of Total
Braidwood	\$18.5	\$41.4	\$59.9	69.0%	18.7%
Byron	\$2.5	\$46.2	\$48.7	94.9%	13.7%
Clinton	\$9.4	\$23.6	\$33.0	71.6%	9.9%
Dresden	\$2.7	\$29.9	\$32.6	91.6%	9.1%
LaSalle	\$3.0	\$50.1	\$53.1	94.4%	15.6%
Quad Cities	\$3.4	\$23.8	\$27.2	87.5%	7.5%
Total	\$39.5	\$215.0	\$254.5	84.3%	12.1%

Tables 3-2 through 3-7 detail the 10 sectors receiving the largest amounts of plant spending for each plant site. Exelon Corp. provided the expenditure totals for each county that appear in these tables. The categories, from among IMPLAN’s 509 sectors, are listed largely according to the IMPLAN description. Total compensation, which includes benefits, salaries and wages, is listed separately.

³ The Zion and Cantera facilities are not included in this portion of the analysis.

Table 3-2. Braidwood Expenditures in Will County

Description	Amount
Maintenance and Repair Construction	\$14.5 million
Waste Management and Remediation Services	\$1.5 million
State and Local Government	\$1.2 million
Electrical Equipment Manufacturing	\$552,000
Metal Valve Manufacturing	\$216,000
Other Professional and Technical Consulting Services	\$154,000
Environmental and Other Technical Consulting Services	\$118,000
Food Services and Drinking Places	\$99,000
Manufacturing and Industrial Buildings	\$90,000
Tool and Fixture Manufacturing	\$52,000
Other	\$152,000
Subtotal	\$18.5 million
Total Compensation ^a	\$41.4 million
Total	\$59.9 million

^a Total compensation includes wages, salaries and fringe benefits based on data provided by Exelon Corp.

Table 3-3. Byron Expenditures in Ogle County

Description	Amount
State and Local Government	\$2.1 million
Other Professional and Technical Consulting Services	\$185,000
Maintenance and Repair Construction	\$171,000
Automotive Equipment Rental and Leasing	\$16,000
Hotels and Motels	\$9,000
Machinery and Equipment Rental and Leasing	\$8,000
Food Services and Drinking Places	\$4,000
Grant-Making, Giving and Social Advocacy Organizations	\$2,000
Office Supplies	\$2,000
Electrical Equipment Manufacturing	\$1,000
Other	\$1,000
Subtotal	\$2.5 million
Total Compensation ^a	\$46.2 million
Total	\$48.7 million

^a Total compensation includes wages, salaries and fringe benefits based on data provided by Exelon Corp.

Table 3-4. Clinton Expenditures in DeWitt County

Description	Amount
State and Local Government	\$9.2 million
Grant-Making, Giving and Social Advocacy Organizations	\$87,000
Highway, Street, Bridge and Tunnel Construction	\$33,000
Office Supplies	\$20,000
Electrical Equipment Manufacturing	\$10,000
Civic, Social, Professional and Similar Organizations	\$10,000
Maintenance and Repair Construction	\$4,000
Other Professional and Technical Consulting Services	\$2,000
Tool and Fixture Manufacturing	\$2,000
Office Administrative Services	\$2,000
Other	\$1,000
Subtotal	\$9.4 million
Total Compensation ^a	\$23.6 million
Total	\$33.0 million

^a Total compensation includes wages, salaries and fringe benefits based on data provided by Exelon Corp.

Table 3-5. Dresden Expenditures in Grundy County

Description	Amount
Electrical Equipment Manufacturing	\$932,000
State and Local Government	\$844,000
Waste Management and Remediation Services	\$335,000
Machinery and Equipment Rental and Leasing	\$323,000
Other Professional and Technical Consulting Services	\$86,000
Petrochemical Manufacturing	\$64,000
Petroleum Lubricating Oil and Grease Manufacturing	\$55,000
Maintenance and Repair Construction	\$36,000
Grant-Making, Giving and Social Advocacy Organizations	\$23,000
Tool and Fixture Manufacturing	\$17,000
Other	\$23,000
Subtotal	\$2.7 million
Total Compensation ^a	\$29.9 million
Total	\$32.6 million

^a Total compensation includes wages, salaries and fringe benefits based on data provided by Exelon Corp.

Table 3-6. LaSalle Expenditures in LaSalle County

Description	Amount
State and Local Government	\$1.5 million
Chemical Product Manufacturing	\$598,000
Other Professional and Technical Consulting Services	\$468,000
Overhead Cranes and Hoists	\$273,000
Office Supplies	\$49,000
Tool and Fixture Manufacturing	\$29,000
Food Services and Drinking Places	\$26,000
Grant-Making, Giving and Social Advocacy Organizations	\$19,000
Offices of Physicians, Dentists and Other Health Care Providers	\$17,000
Maintenance and Repair Construction	\$9,000
Other	\$12,000
Subtotal	\$3.0 million
Total Compensation ^a	\$50.1 million
Total	\$53.1 million

^a Total compensation includes wages, salaries and fringe benefits based on data provided by Exelon Corp.

Table 3-7. Quad Cities Expenditures in Rock Island County

Description	Amount
Asphalt Paving Mixture and Block Manufacturing	\$1.4 million
Maintenance and Repair Construction	\$840,000
State and Local Government	\$360,000
Other Professional and Technical Consulting Services	\$344,000
Electrical Equipment Manufacturing	\$227,000
Tool and Fixture Manufacturing	\$113,000
Machinery and Equipment Rental and Leasing	\$47,000
Architectural and Engineering Services	\$43,000
Services to Buildings and Dwellings	\$22,000
Grant-Making, Giving and Social Advocacy Organizations	\$9,000
Other	\$13,000
Subtotal	\$3.4 million
Total Compensation ^a	\$23.9 million
Total	\$27.3 million

^a Total compensation includes wages, salaries and fringe benefits based on data provided by Exelon Corp.

Labor accounted for the largest expenditure in each county, with total compensation reaching \$41.4 million in Will County, \$46.2 million in Ogle County, \$23.6 million in DeWitt County, \$29.9 million in Grundy County, \$50.1 million in LaSalle County and \$23.9 million in Rock Island County. Labor compensation accounted for approximately 69 percent of expenditures within Will County, 95 percent in Ogle County, 72 percent in DeWitt County, 92 percent in Grundy County, 94 percent in LaSalle County and 87 percent in Rock Island County. These percentages illustrate the fact that a large portion of each plant's labor expenditures (employee benefits, salaries and wages) stay "home" in their respective counties. As expected, the share of total compensation at the county level is much higher than the share at the state and national levels.

Many of the top sectors in Tables 3-2 through 3-7 involve service expenditures. The prevalence of service sectors illustrates each plant's heavy reliance on local labor and vendors to perform specialized work, including repair services, equipment and machinery rental, plant maintenance, and consulting services. Another large spending category for many of the facilities is payments to civic, charitable and professional organizations. Other top spending categories include purchases of generic goods (such as tools and electrical equipment, as well as office and paper supplies) acquired from local retailers and merchants whenever possible.

3.2 Expenditures in Illinois

In 2005, the Exelon nuclear generating facilities in Illinois spent \$991 million for products and services, including labor, in the state. This total includes funds dispersed by Braidwood, Byron, Clinton, Dresden, LaSalle and Quad Cities within their host counties. Spending within the state represents approximately 52 percent of the Exelon Illinois plants' total expenditures of \$1.89 billion.

Table 3-8 provides details on the plants' total spending within Illinois. Total compensation is the largest category at \$524 million and represents about 53 percent of the total. This is less than the typical share of total compensation at the local level. Instead, the plants spend more money on products and non-labor services in the rest of Illinois.

As in Tables 3-2 through 3-7, this analysis identifies large contracts to show the most important expenditures at the state level. The largest category, at \$132 million, is for architectural and engineering services. This category reflects the need for highly specialized engineering skills and services at nuclear plants. Other categories reflecting the need for specialized workers include spending for professional and technical services, as well as environmental consulting services. Exelon was able to retain the services of specialists within Illinois for a significant portion of this work.

Expenditures for maintenance and repair construction is the second-largest category. This includes materials and services used to keep up plant buildings and grounds. Other categories are payments to civic and social organizations and to state and local governments, which again reflect charitable donations and payments of fees to organizations such as the Illinois Emergency Management Agency.

Table 3-8. Exelon Expenditures in Illinois

Description	Amount
Architectural and Engineering Services	\$132.3 million
Maintenance and Repair Construction	\$121.0 million
State and Local Government	\$62.3 million
Management of Companies and Enterprises	\$19.5 million
Other Professional and Technical Consulting Services	\$18.0 million
Electric Power and Specialty Transformer Manufacturing	\$16.9 million
Waste Management and Remediation Services	\$15.3 million
Electrical Equipment Manufacturing	\$14.9 million
Civic, Social, Professional and Similar Organizations	\$9.8 million
Environmental and Other Technical Consulting Services	\$8.7 million
Other	\$48.3 million
Subtotal	\$467.0 million
Total Compensation ^a	\$524.0 million
Total	\$991.0 million

^a Total compensation includes wages, salaries and fringe benefits based on data provided by Exelon Corp.

3.3 Plant Expenditures in the United States

In 2005, total expenditures for products and services, including labor, purchased for Braidwood, Byron, Clinton, Dresden, LaSalle and Quad Cities totaled \$1.89 billion in the United States. Besides expenditures of \$991 million in Illinois, the plants spent \$897 million elsewhere in the United States, largely for specialized products and services unique to the nuclear industry.

National expenditures are detailed in Table 3-9. At \$561 million, total compensation remains the largest category, representing 30 percent of the total. Compensation as a share of U.S. expenditures is lower because plant employees live almost exclusively in Illinois, while spending on products and non-labor services often must be concentrated outside the state.

The largest non-labor spending category at the national level is for basic inorganic chemical manufacturing, which represents expenditures for nuclear fuel and related services. The second-largest spending category is for payments to the federal government. This sector includes payments to the U.S. Department of Energy, the U.S. Nuclear Regulatory Commission and the Federal Emergency Management Agency.

Among the largest national expenditure categories are professional and technical consulting services and architectural and engineering services. Again, these sectors reflect the need for highly specialized skills and services at nuclear plants. These expenditures reflect each plant's commitment to safe operations and improved performance.

Expenditures for security services, another large national spending category, include spending for security equipment, systems and training. Nuclear plants across the country have increased security staffing and heightened measures in an effort to bolster already strong security.

Table 3-9. Exelon Expenditures in the United States

Description	Amount
Basic Inorganic Chemical Manufacturing	\$295.2 million
Federal Government	\$205.6 million
Architectural and Engineering Services	\$147.2 million
Maintenance and Repair Construction	\$135.0 million
State and Local Government Enterprises	\$82.7 million
Electrical Equipment Manufacturing	\$57.4 million
Security Services	\$41.6 million
Other Professional and Technical Consulting Services	\$37.5 million
Electric Power and Specialty Transformer Manufacturing	\$34.1 million
Environmental and Other Technical Consulting Services	\$33.1 million
Other	\$258.4 million
Subtotal	\$1.33 billion
Total Compensation ^a	\$561.1 million
Total	\$1.89 billion

^a Total compensation includes wages, salaries and fringe benefits based on data provided by Exelon Corp.

3.4 Local, State and Federal Taxes

In 2004, the Exelon nuclear plants in Illinois generated more than \$76 million in state and local tax revenue. The plant also contributed more than \$26 million to federal tax revenues.

Table 3-10. Taxes Paid by Exelon’s Illinois Nuclear Plants

Description	Amount
State and Local Government	\$76.2 million
Federal Government	\$26.7 million
Total Taxes	\$102.9 million

3.5 Economic Impacts by Geographic Area

Table 3-11 presents summary economic impacts for each of the following geographic study areas analyzed: the counties of Will, Ogle, DeWitt, Grundy, LaSalle and Rock Island, as well as the state of Illinois and the United States. The three economic impact variables are:

- output—the value of production of goods and services
- labor income—workers’ earnings
- employment—measured in jobs provided.

These economic impacts encompass both direct and secondary effects. The direct effects reflect the industry sector and geographical distribution of Exelon spending without any subsequent spending effects.

The secondary effects include subsequent spending effects and are divided into two types: indirect and induced. Indirect effects illustrate how a plant’s spending patterns alter subsequent spending patterns among suppliers. Induced effects reflect how changes in labor income influence the final demand for goods and services, which then has an impact on all sectors producing basic, intermediate, and final goods and services.

The direct effects are based on the estimated value of the power production from the six nuclear generating facilities in 2005. This estimate is based on total electricity generation from the six plants in 2005 (see Table 2-2), and on wholesale market values for that electricity in the Mid-America Interconnected Network subregion market. The authors used a wholesale rate of \$67.84 per megawatt-hour.⁴

This value—divided among consumer benefits, investor returns, plant purchases, salaries and taxes—reflects the total output of products and services associated with the plants. This total includes expenditures for products and services, including labor, itemized in Tables 3-2 through 3-9.

⁴ This price of power represents an average of on- and off-peak prices at the Pennsylvania New Jersey Maryland (PJM) Interconnection’s West Hub in 2005. PJM is the Mid-Atlantic region’s power pool.

In 2005, the six nuclear generating facilities employed 3,924 workers. That figure does not include security personnel. Workers from Illinois filled almost 94 percent of those jobs. The direct labor income entries in Table 3-11 reflect the geographic distribution pattern of plant employment.

As Table 3-11 indicates, direct effects are the largest contributors to the total economic impacts for each of the counties and for Illinois. Secondary effects contribute a much larger portion of the total economic impact in the United States.

A helpful way of measuring these secondary effects is by using multipliers, which show the ratio of the plant's "total economic impact" to its "direct economic impact" and can be measured for each geographic region. Multipliers essentially measure how many dollars are created in the economy for every dollar spent by the plant.

For instance, Braidwood's direct impact for the local area is \$1.34 billion, while its total impact is \$1.37 billion. Thus, the total output multiplier for Will County is 1.02 (or \$1.37 billion divided by \$1.34 billion). This indicates that for every dollar of output from the Braidwood plant, the Will County economy produces \$1.02. Using the same formula, the output multipliers for Ogle, DeWitt, Grundy, LaSalle and Rock Island counties are 1.01.

Output multipliers also can be calculated at the state level. The multiplier for Illinois is 1.18. This means for every dollar of output from the Exelon nuclear plants in Illinois, the state economy produces \$1.18.

Table 3-11. Impact of Exelon Illinois Fleet on Local, State and National Economies

	Direct	Secondary^a	Total
Will County			
Output	\$1.34 billion	\$28.4 million	\$1.37 billion
Labor Income	\$41.4 million	\$11.9 million	\$53.3 million
Employment	295	270	565
Ogle County			
Output	\$1.30 billion	\$8.5 million	\$1.31 billion
Labor Income	\$46.2 million	\$2.1 million	\$48.3 million
Employment	317	90	407
DeWitt County			
Output	\$589.7 million	\$8.6 million	\$598.2 million
Labor Income	\$23.6 million	\$2.3 million	\$25.9 million
Employment	182	67	249
Grundy County			
Output	\$924.1 million	\$4.7 million	\$928.8 million
Labor Income	\$29.9 million	\$1.4 million	\$31.3 million
Employment	218	48	266
LaSalle County			
Output	\$1.27 billion	\$15.9 million	\$1.29 billion
Labor Income	\$50.1 million	\$4.7 million	\$54.8 million
Employment	359	168	527
Rock Island County			
Output	\$903.6 million	\$5.5 million	\$909.1 million
Labor Income	\$23.8 million	\$1.6 million	\$25.4 million
Employment	163	45	208
Illinois			
Output	\$6.33 billion	\$1.16 billion	\$7.49 billion
Labor Income	\$524.0 million	\$444.6 million	\$968.6 million
Employment	3,686	9,641	13,327
United States			
Output	\$2.36 billion	\$6.92 billion	\$9.28 billion
Labor Income	\$561.1 million	\$2.34 billion	\$2.90 billion
Employment	3,924	58,363	62,287

^a Secondary effects include indirect and induced impacts. Indirect impacts measure the effect of input suppliers on expenditures by Exelon Corp., while induced impacts measure the effects produced by the change in household income resulting from Exelon expenditures.

3.6 Economic Impacts on Local Industry

Economic impacts from the Exelon nuclear generating facilities in Illinois extend across nearly every economic sector. Although the direct effects are concentrated in a few sectors, the secondary effects—and especially the induced effects—increase the dispersion of economic impacts across other sectors. The most-affected sectors vary by geographic area.

Tables 3-12 through 3-17 present the 10 industrial sectors most affected by the plants in their host counties, based on total output. Since local salaries dominate plant spending, the impacts in the local areas are most notable in sectors that cater to plant employees.

For all six plants, one of the most-affected sectors in terms of total output is power generation and supply, which includes the electricity produced by the plant. Thus, all direct effects are included in this sector. It is also the largest sector, based on total output, in the state and national economies, as shown in Tables 3-18 and 3-19, respectively.

Another highly affected sector across all geographic levels is owner-occupied dwellings. This is not a traditional business/industry sector, so it has no impact on labor income or employment. Instead, it is a special sector developed by the U.S. Department of Commerce that estimates what homeowners would pay in rent if they rented, rather than owned, their homes. In essence, it creates an industry from owning a home.

The sole product (or output) of this industry is home ownership, purchased entirely by personal consumption expenditures from household income. In effect, this sector captures increases in housing values caused by increased labor resulting from a plant's operation.

The other sectors most affected by Exelon operations relate to goods and services required by the plants' large employment base, including wholesalers, hospitals, doctor and dentist practices, restaurants, insurance providers, and banks. Indirect spending by plant employees boosts the sales and work forces of these industries, typically operated by local small-business owners.

Table 3-12. Braidwood's Impact on the Most-Affected Industries in Will County

Industry Description	Output	Labor Income	Employment
Power Generation and Supply	\$1.34 billion	\$41.4 million	296
Other Maintenance and Repair Construction	\$10.9 million	\$6.6 million	113
Owner-Occupied Dwellings	\$2.6 million	—	—
Wholesale Trade	\$1.1 million	\$425,000	7
Waste Management and Remediation Services	\$907,000	\$271,000	6
Food Services and Drinking Places	\$851,000	\$270,000	19
Offices of Physicians, Dentists and Other Health Care Providers	\$798,000	\$489,000	8
Petroleum Refineries	\$666,000	\$19,000	1
Hospitals	\$538,000	\$251,000	5
Monetary Authorities and Depository Credit Intermediaries	\$482,000	\$116,000	3
Other	\$9.2 million	\$3.4 million	107
Total	\$1.37 billion	\$53.3 million	565

Table 3-13. Byron's Impact on the Most-Affected Industries in Ogle County

Industry Description	Output	Labor Income	Employment
Power Generation and Supply	\$1.30 billion	\$46.3 million	317
Owner-Occupied Dwellings	\$2.1 million	—	—
Monetary Authorities and Depository Credit Intermediaries	\$414,000	\$100,000	3
Food Services and Drinking Places	\$395,000	\$111,000	10
State and Local Government	\$391,000	\$103,000	2
Wholesale Trade	\$369,000	\$139,000	4
Real Estate	\$365,000	\$63,000	2
Hospitals	\$309,000	\$127,000	4
Nursing and Residential Care Facilities	\$241,000	\$143,000	6
Automotive Repair and Maintenance	\$238,000	\$82,000	4
Other	\$3.3 million	\$1.2 million	55
Total	\$1.31 billion	\$48.3 million	407

Table 3-14. Clinton's Impact on the Most-Affected Industries in DeWitt County

Industry Description	Output	Labor Income	Employment
Power Generation and Supply	\$590.0 million	\$23.6 million	182
State and Local Government	\$4.3 million	\$968,000	27
Owner-Occupied Dwellings	\$841,000	—	—
Wholesale Trade	\$303,000	\$114,000	2
Architectural and Engineering Services	\$258,000	\$186,000	1
Hospitals	\$239,000	\$132,000	2
Food Services and Drinking Places	\$228,000	\$64,000	6
Monetary Authorities and Depository Credit Intermediaries	\$204,000	\$49,000	1
Motor Vehicle and Parts Dealers	\$148,000	\$64,000	2
Offices of Physicians, Dentists and Other Health Care Providers	\$122,000	\$70,000	2
Other	\$1.6 million	\$608,000	24
Total	\$598.2 million	\$25.9 million	249

Table 3-15. Dresden's Impact on the Most-Affected Industries in Grundy County

Industry Description	Output	Labor Income	Employment
Power Generation and Supply	\$924.3 million	\$29.9 million	218
Owner-Occupied Dwellings	\$897,000	—	—
Hospitals	\$360,000	\$169,000	4
Offices of Physicians, Dentists and Other Health Care Providers	\$279,000	\$167,000	3
Food Services and Drinking Places	\$251,000	\$72,000	6
Machinery and Equipment Rental and Leasing	\$181,000	\$39,000	1
Monetary Authorities and Depository Credit Intermediaries	\$166,000	\$40,000	1
Motor Vehicle and Parts Dealers	\$152,000	\$68,000	2
Real Estate	\$150,000	\$26,000	1
Wholesale Trade	\$138,000	\$52,000	1
Other	\$2.0 million	\$712,000	29
Total	\$928.9 million	\$31.3 million	266

Table 3-16. LaSalle's Impact on the Most-Affected Industries in LaSalle County

Industry Description	Output	Labor Income	Employment
Power Generation and Supply	\$1.27 billion	\$50.2 million	360
Owner-Occupied Dwellings	\$2.6 million	—	—
Wholesale Trade	\$1.1 million	\$430,000	9
Hospitals	\$1.1 million	\$470,000	12
Food Services and Drinking Places	\$1.0 million	\$314,000	25
Offices of Physicians, Dentists and Other Health Care Providers	\$673,000	\$398,000	9
Monetary Authorities and Depository Credit Intermediaries	\$570,000	\$137,000	3
Chemical Product Manufacturing	\$529,000	\$46,000	2
Motor Vehicle and Parts Dealers	\$459,000	\$204,000	5
Real Estate	\$429,000	\$75,000	3
Other	\$6.9 million	\$2.5 million	99
Total	\$1.28 billion	\$54.7 million	527

Table 3-17. Quad Cities' Impact on the Most-Affected Industries in Rock Island County

Industry Description	Output	Labor Income	Employment
Power Generation and Supply	\$903.7 million	\$23.9 million	163
Asphalt Paving Mixture and Block Manufacturing	\$1.4 million	\$251,000	2
Owner-Occupied Dwellings	\$575,000	—	—
Wholesale Trade	\$312,000	\$117,000	2
Offices of Physicians, Dentists and Other Health Care Providers	\$249,000	\$153,000	2
Hospitals	\$224,000	\$99,000	2
Food Services and Drinking Places	\$214,000	\$65,000	5
Insurance Carriers	\$135,000	\$37,000	1
Monetary Authorities and Depository Credit Intermediaries	\$134,000	\$32,000	1
Truck Transportation	\$102,000	\$39,000	1
Other	\$2.0 million	\$816,000	29
Total	\$909.0 million	\$25.5 million	208

3.7 Economic Impacts on State Industry

Table 3-18 uses the same sectors applied in Tables 3-12 through 3-17 to illustrate the plant's economic impact on the state of Illinois. Again, the power generation and supply sector and owner-occupied dwellings are among the most-affected categories. The other entries in Table 3-18 are similar to those in the host counties.

Table 3-18. Impact of Exelon Plants on the Most-Affected Industries in Illinois

Industry Description	Output	Labor Income	Employment
Power Generation and Supply	\$6.34 billion	\$527.0 million	3,708
Architectural and Engineering Services	\$136.3 million	\$76.9 million	1,199
Maintenance and Repair Construction	\$115.2 million	\$69.9 million	1,235
Owner-Occupied Dwellings	\$77.7 million	—	—
State and Local Government	\$55.1 million	\$16.5 million	248
Wholesale Trade	\$43.9 million	\$16.5 million	239
Real Estate	\$37.8 million	\$6.5 million	181
Food Services and Drinking Places	\$33.3 million	\$11.3 million	698
Hospitals	\$31.8 million	\$15.0 million	312
Management of Companies and Enterprises	\$30.7 million	\$15.0 million	135
Other	\$590.2 million	\$214.0 million	5,372
Total	\$7.49 billion	\$968.6 million	13,327

3.8 Economic Impacts on U.S. Industry

Table 3-19 illustrates the plants' economic impact on the United States. Again, power generation and housing are among the most-affected sectors.

The 10 most-affected sectors in the United States are similar to those for each plant's host counties and the state of Illinois. The main difference is in the federal government agencies and mining sectors. Impacts for this category are derived from direct expenditures of the plant, rather than indirect or induced effects.

Table 3-19. Impact of Exelon Plants on Most-Affected Industries in the United States

Industry Description	Output	Labor Income	Employment
Power Generation and Supply	\$2.46 billion	\$581.0 million	4,062
Owner-Occupied Dwellings	\$330.0 million	—	—
Wholesale Trade	\$268.1 million	\$100.8 million	1,598
Real Estate	\$267.6 million	\$46.4 million	1,618
Architectural and Engineering Services	\$206.1 million	\$114.7 million	1,868
Basic Inorganic Chemical Manufacturing	\$194.0 million	\$42.8 million	407
Food Services and Drinking Places	\$175.6 million	\$59.0 million	3,724
Federal Government	\$172.3 million	\$181.8 million	7,472
Petrochemical Manufacturing	\$163.9 million	\$4.2 million	32
Maintenance and Repair Construction	\$150.5 million	\$89.0 million	1,939
Other	\$4.89 billion	\$1.68 billion	39,567
Total	\$9.28 billion	\$2.90 billion	62,287

3.9 Tax Impacts

The tax impacts of Exelon’s nuclear generating facilities in Illinois extend beyond the tax revenue generated directly by the plants. Spending from the plants has direct impacts on income and value creation, which, in turn, affect taxes paid on that income and value. Similarly, the secondary effects of plant purchases on other products and services, in addition to the increased economic activity itself, lead to additional income and value creation, as well as additional tax revenues. These additional or “induced” effects on tax payments, presented in Table 3-20, are much larger than the taxes generated directly.

Table 3-20. Total Tax Impacts of Economic Activity Induced by the Exelon Plants

	Taxes Paid by Exelon Plants	Taxes Induced by Exelon Spending	Total Tax Impact^a
Total State and Local Government	\$76.2 million	\$54.2 million	\$130.4 million
Total Federal Government	\$26.7 million	\$536.5 million	\$563.2 million
Total Taxes	\$102.9 million	\$590.7 million	\$693.6 million

^a The total tax impact includes taxes paid by Exelon and other entities because of economic activity created by expenditures made by the plant.

The Exelon plants are responsible for an estimated \$130 million in state and local tax revenue, either directly or indirectly. Much of the indirect expenditures result from additional property tax revenue created by the large number of employees at the plants.

At the federal level, the plants’ operations resulted in \$694 million in tax revenue, mostly from income and Social Security taxes.

3.10 Summary

The six nuclear generating facilities owned and operated by Exelon in Illinois have substantial economic impacts on their local communities and state. When compared with their respective economies, those relative impacts are highest at the county level, next-highest for Illinois and lowest for the United States.

Like other nuclear operators, Exelon must buy many specialized products and services not available in local and state economies to operate its nuclear plants safely and efficiently. National and international markets typically provide these products and services.

The state and local economic effects of the plants are considerable because of the buying power created by the high wages, salaries and benefits paid by the plants to their employees. In turn, plant employees stimulate their economies by buying goods and services provided locally. This spending supports many small businesses in the area.

Section 4: Additional Benefits Provided by Exelon Plants

In addition to the economic benefits that Exelon Nuclear contributes to Illinois in the form of jobs, income and taxes, the company and its employees contribute to local communities in many other beneficial ways.

An integral part of Exelon Nuclear's business model is supporting the communities it serves through contributions, sponsorships and voluntarism. The company and its employees are committed to providing additional benefits to their communities beyond the economic impact of the plants.

4.1 Contributions

Exelon Nuclear's Illinois facilities—Braidwood, Byron, Clinton, Dresden, LaSalle and Quad Cities generating stations; non-operating Zion Station; and the headquarters office in Warrenville—and the employees at each site provide numerous benefits to their communities each year. These benefits include:

- more than \$65,000 to local charities
- more than \$1 million to area United Way organizations
- more than 870 pints of blood to the American Red Cross and local blood centers
- more than \$184,000 to local community groups
- extensive support for local schools
- thousands of hours of voluntary community service.

4.2 Community Involvement

Exelon Nuclear and its employees take pride in being an integral part of the communities they serve. Employees are active in local causes, ranging from economic development organizations and scout groups to Junior Achievement programs and Habitat for Humanity.

Braidwood Generating Station's fishing tournament fundraiser, Fishing for a Cure, raises money for a new local charity selected each year by employees. Since 2002, the event has raised more than \$40,000 for local charities, including the National Multiple Sclerosis Society, Greater Illinois Chapter; Yellow Ribbon International Suicide Prevention Program; Cystic Fibrosis Foundation, Chicago Chapter; and Beth Ann Miller Foundation (bacterial meningitis). The plant is in Will County.

Byron Generating Station, in Ogle County, sponsors the Byron Civic Theatre, Oregon Summer Concert series and ByronFest, the annual community fair.

Clinton Power Station, in DeWitt County, endows the Vespasian Warner Public Library with a grant to fund Artist Alley. More than 900 people enjoy the seasonal art exhibitions at the town's historic library.

Dresden Generating Station, in Grundy County, has been a major sponsor of the Grundy County Corn Festival since 2002. In 2005, the site donated \$4,000 to fund the local festival's fireworks display.

LaSalle County Generating Station employee volunteers have helped repair and restore homes of local residents through the United Way of Eastern LaSalle County's Labor of Love effort since 2002. As a prime sponsor, the station donated \$10,000 in 2005 to help restore more than 40 homes.

Quad Cities Generating Station, in Rock Island County, donated more than \$30,000 in 2005 to sponsor the area's largest community events, including the Steamer Basketball Shootout tournament and the Quad Cities Air Show. In addition, the plant sponsored a children's summer reading program at the local library—one of the most significant outreach efforts in 2005.

Exelon Nuclear's Warrenville office in DuPage County is a grand sponsor of the Naperville Exchange Club's Ribfest. This four-day community festival is attended by more than 250,000 people annually and was voted "The Best Fest in the Midwest." Employee volunteers help with the planning and staffing of the Exelon Nuclear information booth.

4.3 Local Schools and Pursuit of Education

Exelon Nuclear is committed to the community and dedicated to contributing to the overall quality of a community's educational environment.

In partnership with local education leaders, the company enhances the educational experience at local schools and provides opportunities for advanced studies. Braidwood and Dresden endow graduating high school students who are pursuing a technical, science or engineering degree with \$500 scholarships. Quad Cities grants local high school students with academic achievement awards and finances a student leadership academy.

In addition, Exelon Nuclear donates equipment, supplies and learning tools to help improve the quality of education in local schools. LaSalle provided audiovisual equipment, computers and various books to a local elementary school in 2005. The Warrenville office donated computers to a local elementary school where the director of communications participated in the Principal for a Day program.

Exelon Nuclear also contributes in other ways that allow students to thrive, such as financial support for athletic programs and extracurricular activities. For example, Byron Station is an annual sponsor of a high school robotics team and Clinton participates in Write Stuff for Kids.

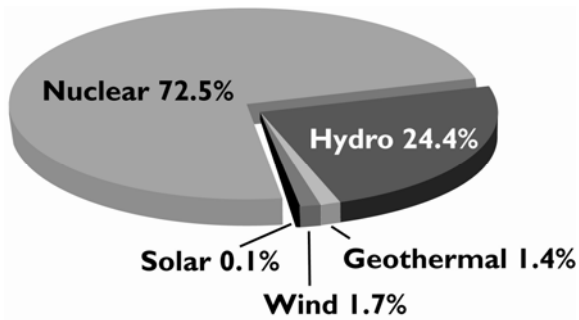
4.4 Environmental Stewardship

An environmental management system at each Exelon Nuclear generating facility minimizes the environmental impact of plant operations. In 2005, LaSalle County Generating Station attained certification for its system from the International Organization for Standardization. Certification efforts at Braidwood, Bryon, Clinton, Dresden and Quad Cities are under way.

Nuclear energy is the only large-scale, expandable form of electricity generation that does not pollute the air. Because nuclear plants do not burn anything, they do not produce combustion byproducts such as nitrogen oxides, sulfur dioxide and carbon dioxide. The first two types of emissions are regulated under the 1990 Clean Air Act amendments. Carbon dioxide is the focus of the federal government's voluntary greenhouse gas reduction program. By displacing other types of generation, nuclear power plants prevent substantial emissions of greenhouse gases, making them a vital part of meeting clean-air goals in the states where they are located.

This is especially meaningful in Illinois, where nuclear power is essential to the state’s electricity supply. The 11 reactors in Illinois produce half of the state’s electricity and provide an important counterbalance to the acid rain impact of fossil fuel-fired power plants operating in the region. In 2005 alone, nuclear power plants in Illinois prevented the emission of 121,700 tons of nitrogen oxides, 333,900 tons of sulfur dioxide and 93.5 million metric tons of carbon dioxide. Preventing these emissions without nuclear plants would require the removal of 6.4 million passenger cars from the road. There are only 5.7 million passenger cars registered in Illinois.

Figure 4-1. U.S. Sources of Emission-Free Electricity



Source: Energy Information Administration, 2005

On a national scale, U.S. nuclear power plants in 2005 reduced emissions of nitrogen oxides by 1.1 million tons, sulfur dioxide by 3.3 million tons and carbon dioxide by 682 million metric tons. This is nearly as much carbon dioxide as is released from all U.S. passenger cars.

Only 7 percent of the nation’s electricity comes from non-nuclear renewable sources—hydroelectric, wind, solar energy and geothermal energy. These technologies are advancing, but are not yet able to replace, or even supplement, fossil fuels in Illinois. Nuclear power is fully ready as both a near- and long-term solution for clean, independent, highly efficient energy. It is an important component of the Illinois energy portfolio.

4.5 Organizations Supported by Braidwood Generating Station

The Braidwood plant supports a wide range of community groups that include:

American Bass Anglers
 American Foundation for Suicide Prevention
 Avon Breast Cancer Walk
 Big Brothers/Big Sisters
 Boy Scouts of America
 Braidwood Chamber of Commerce
 Braidwood Police Department—Crime Canine Donation
 Channahon Park District
 Gardner-South Wilmington High School Scholarship
 Grundy County Sheriff’s Office
 Heartland Blood Center
 Hoops for Heart

Morris Athletic Association
 Morris Hospital
 National Multiple Sclerosis Society, Greater Illinois Chapter
 Reed Custer Educational Foundation
 Reed Custer High School—Scholarship
 Reed Custer Soccer Club
 Salvation Army—Angel Tree
 Shorewood Jaycees—Wish Upon a Star
 Troy Volunteer Fire Department
 Village of Braidwood—SummerFest
 Village of Godley
 Will County Sheriff’s Office
 Wilmington High School—Scholarship

4.6 Organizations Supported by Byron Generating Station

Many local groups benefit from the involvement of the Byron plant. They are:

All Saints Lutheran Church	Lee/Ogle County—Crime Stoppers Program
American Cancer Society—Relay for Life	March of Dimes
American Red Cross, Rock River Chapter	National Multiple Sclerosis Society, Greater Illinois Chapter
Arthritis Foundation	Ogle County Habitat for Humanity
Boys and Girls Club of Rockford	Oregon Chamber of Commerce
Boy Scouts Local Troop	Oregon Park District—Summer Concert Series
Byron Chamber of Commerce	Oregon United Methodist Church
Byron Civic Theatre	Pheasants Forever, Ogle County Chapter
Byron Fire Department	Rochelle Food Pantry
Byron Forest Preserve District—Children Winter Program	Rockford Area Youth Symphony Orchestra
Byron High School	Rockford Association for Minority Management
Byron Park District	St. Anne School
Byron Police—DARE Program	St. Edward Parish
Children’s Oncology Services—One Day at a Time	Sauk Valley Food Bank
Cystic Fibrosis Foundation	Stillman Valley High School
Etnyre School	Tri-County Animal Shelter
Golden Agers	Vietnow, Freeport Chapter
Greater Rockford Little League	Winnebago High School—Robotics Team

4.7 Organizations Supported by Clinton Power Station

The Clinton plant raises funds and volunteers for several area groups. These groups are:

Big Brothers/Big Sisters	Decatur Park District—“Camp I Can”
Bloomington/Normal Girls Softball Association	DeWitt County Friendship Center
Clinton Chamber of Commerce	Mackenzie Hollman Cancer Relief
Clinton Eagles Lodge	Maroa-Forsyth High School
Clinton Elks Lodge	McLean County Stars Softball Team
Decatur Foster Parents Association	Vespasian Warner Public Library
	Warrensburg-Latham School District

4.8 Organizations Supported by Dresden Generating Station

The Dresden plant provides benefits to local groups that include:

Avon Breast Cancer Walk	Morris Youth Soccer Association
Big Brothers/Big Sisters	National Multiple Sclerosis Society, Greater Illinois Chapter
Boy Scouts Local Troop	New Lenox Girls' Softball Association
Chelsea M. Moore Fund	New Lenox Lightning—Youth Travel Softball Program
Coal City Girls' Soccer	New Lenox Power—Youth Travel Softball Program
Coal City High School—Scholarship	Orland Park Sparks—Youth Travel Softball Program
Coal City Music Boosters	
Grundy County—Annual CornFest	
Minooka High School—Scholarship	
Morris High School—Scholarship	

4.9 Organizations Supported by LaSalle County Generating Station

The LaSalle plant supports a wide range of organizations that are central to Illinois. These groups include:

Allen-Otter Creek School District	McKinley Elementary School
American Cancer Society—Relay for Life	Morris Muddogs—Youth Travel Softball Program
Avon Breast Cancer Walk	Morris Soccer Association
Boy Scouts of America	Naplate Volunteer Fire Department
Casper After-School Program	National Multiple Sclerosis Society
Coal City High School	Northlawn Middle School
Grand Ridge Grade School	Oakland Park Elementary School
Grundy Community Hospice	Oglesby Girls Softball Association
Heartland Blood Center	Ottawa Township High School—Educational Foundation
Illinois River Anti-Drug Coalition	Ranson Lions Club
Illinois River Area Chamber of Commerce	Seneca High School
Illinois Valley Orchestral Association of LaSalle	Seneca Township—SummerFest
Just Animals Shelter	Stream Storm Amateur Softball Association
Kankakee County College Basketball Association	Streator High School
LaSalle County Easter Seals	Touchdown Football—Alternative Youth Sports Program
Leukemia and Lymphoma Society—Team in Training	United Way of Eastern LaSalle County—Labor of Love
Marseilles Memorial Association	Woodland High School—Booster Club
Mazon Verona Kinsman Elementary	
Mazon Verona Kinsman Ambulance Services	

4.10 Organizations Supported by Quad Cities Generating Station

Quad Cities supports a variety of local organizations, including:

American Heart Association—Heart Walk	Quad Cities Chamber of Commerce—Student Leadership Academy
Camanche Junior Baseball League	Quad Cities Elite Robotics Team
Children’s Art Preservation Association	Quad Cities Firebirds—Youth Travel Softball Program
Children’s Therapy Network	Quad Cities Thunder—Youth Travel Softball Program
Clinton Soccer Club	Riverdale High School—Academic Achievement Award
Cordova Library—Youth Summer Reading Program	River Valley District Library
Cordova Township	Rock Falls High School
Geneseo Galaxy Soccer League	Rock River Valley Blood Center
Junior Achievement Program, Quad Cities Chapter	Unity Christian School—Athletic Boosters
Mississippi Valley Regional Blood Center	Valley Shelter
Moline Boys Choir	Victor Center Rescue Mission
National Multiple Sclerosis Society, Greater Illinois Chapter	White Rock Green Dragons—Youth Baseball Program
North Scott Heat—Youth Travel Softball Program	
Quad Cities Air Show	

4.11 Organizations Supported by Exelon Nuclear Headquarters

Exelon Nuclear’s headquarters in Warrenville, Ill., joins the company’s nuclear power plants in supporting local organizations. They include:

American Red Cross	Naperville Area Humane Society
Exchange Club of Naperville	Prussing Elementary School
Family Shelter Service	Warrenville Athletic Association
First Street Playhouse—Batavia Community Theatre	Warrenville Chamber of Commerce
Hesed House—Homeless Shelter	Warrenville Mother’s Connection
Independence Junior High School	Warrenville Kiwanis Club
	Yorkville Little League

Section 5: Nuclear Industry Trends

The U.S. nuclear energy industry steadily has improved performance and cost, while also becoming a model of industrial safety.

Total electricity production for U.S. nuclear power plants reached a near-record 782 billion kilowatt-hours in 2005, or about 20 percent of America’s electricity production. In Illinois, nuclear power generates 48 percent of the state’s electricity.

Power plant performance is measured by capacity factor, which compares the amount of electricity actually produced by a plant with the maximum production achievable. U.S. nuclear power plants achieved an average capacity factor of 89.3 percent in 2005. At the same time, production costs for those plants have been among the lowest of any baseload fuel source.

5.1 Nuclear Industry Performance

U.S. nuclear power plants have increased their output and improved their performance significantly over the past 10 years. Since 1990, the industry has increased total output equivalent to that of 26 new, large nuclear plants. This increase in output occurred without building any new nuclear plants.

Overall capacity factors for U.S. nuclear power plants increased dramatically over the past decade, reaching 89.3 percent in 2005. By contrast, the industry’s average capacity factor was 60 percent in the late 1980s. One of the key reasons for the increased capacity factor has been the shortening of refueling outage times.

**Figure 5-1. U.S. Nuclear Industry Net Electricity Generation
(36% increase from 1990 to 2005)**

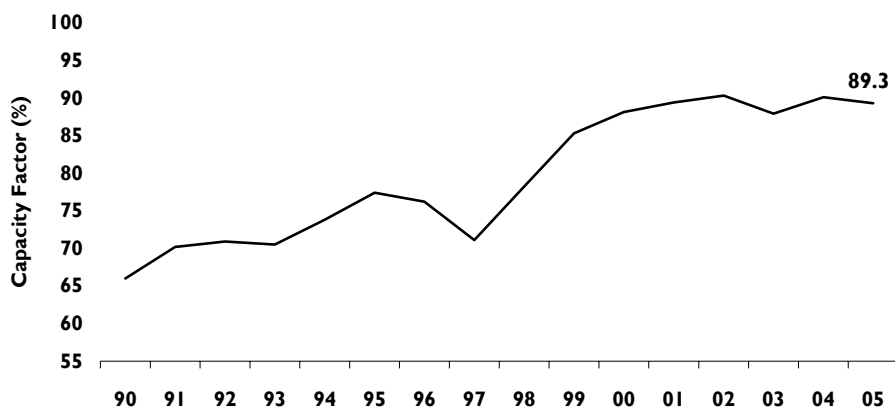


Sources: Global Energy Decisions/Energy Information Administration

Nuclear plants need to shut down to refuel approximately every 18 to 24 months. Refueling represents one of the major determinants of nuclear plant availability.

In the past 10 years, the durations of refueling outages have declined. In 1990, the average refueling outage took 105 days to complete.

Figure 5-2. U.S. Nuclear Industry Average Capacity Factors (1990-2005)



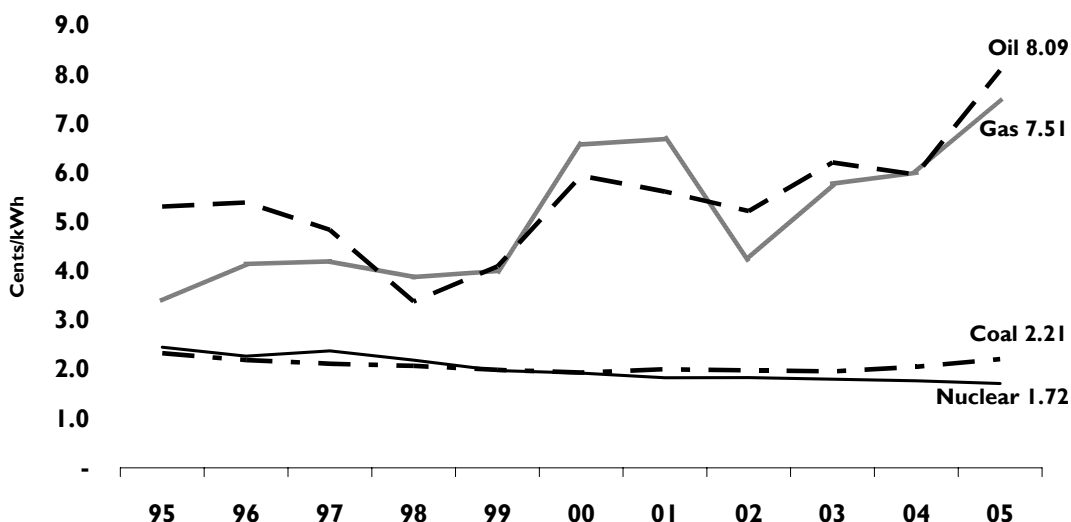
Sources: Global Energy Decisions/Energy Information Administration

By 2005, this number declined to an average of 38 days, and companies continue to apply best practices to reduce further this average length of refueling. The record for the shortest outage is 14.67 days for a boiling water reactor and 15.67 days for a pressurized water reactor.

5.2 Cost Competitiveness

Along with increasing output, the U.S. nuclear industry has continued to decrease the cost of its operations. In 2005, nuclear power had a production cost of 1.72 cents per kilowatt-hour. In the past decade, nuclear production costs have dropped by about one-third because of the increased capacity factor of U.S. plants. Since most nuclear plant costs are fixed, greater electricity production lowers costs. However, nuclear plants also have taken steps to reduce their total cost through improved work processes.

Figure 5-3. U.S. Electricity Production Costs (1995-2005 in 2005 cents per kilowatt-hour)



Source: Global Energy Decisions

Table 5-1. Wholesale Electricity Prices by Region

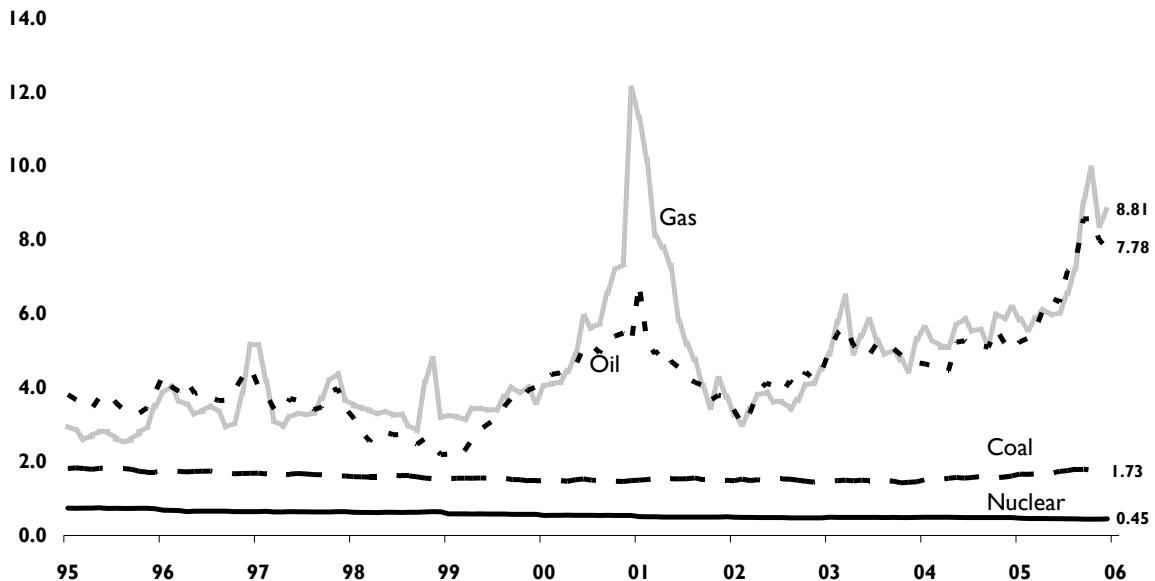
Region	2005 Average 24/7 Power Prices (in cents per kilowatt-hour)
East	7.89
Midwest	5.56
Southeast	6.78
West	6.75

Sources: Global Energy Decisions/InterContinental Exchange

Because of low production costs and excellent safety performance, nuclear plants are highly competitive in today’s energy markets. Ultimately, the primary test of nuclear energy’s competitiveness is how well it performs against market prices. In this respect, nuclear energy is highly competitive. The average 2005 production cost at the nation’s 103 reactors of 1.72 cents per kilowatt-hour was lower than the average price in all regional markets. Nuclear energy also is competitive with futures market prices, one of the best ways to judge what prices will be in the year ahead.

Fuel markets tend to be volatile, so the production costs of generation sources tied to fuel expenses are highly volatile, as they swing with variations in the market. Fuel costs comprise 75 percent to 90 percent of the cost of natural gas-, coal- and petroleum-fired generation. Nuclear fuel, however, represents only 25 percent of the production cost, so nuclear plants provide a unique degree of price stability. In addition, nuclear fuel prices are much more stable than those of fossil fuels, particularly natural gas and petroleum. Because of its stable, low production cost, nuclear energy can help mitigate large electricity price swings.

Figure 5-4. Monthly Fuel Cost to Electric Generators (1995-2005, in 2005 cents per kilowatt-hour)



Source: Global Energy Decisions

5.3 Industry Safety

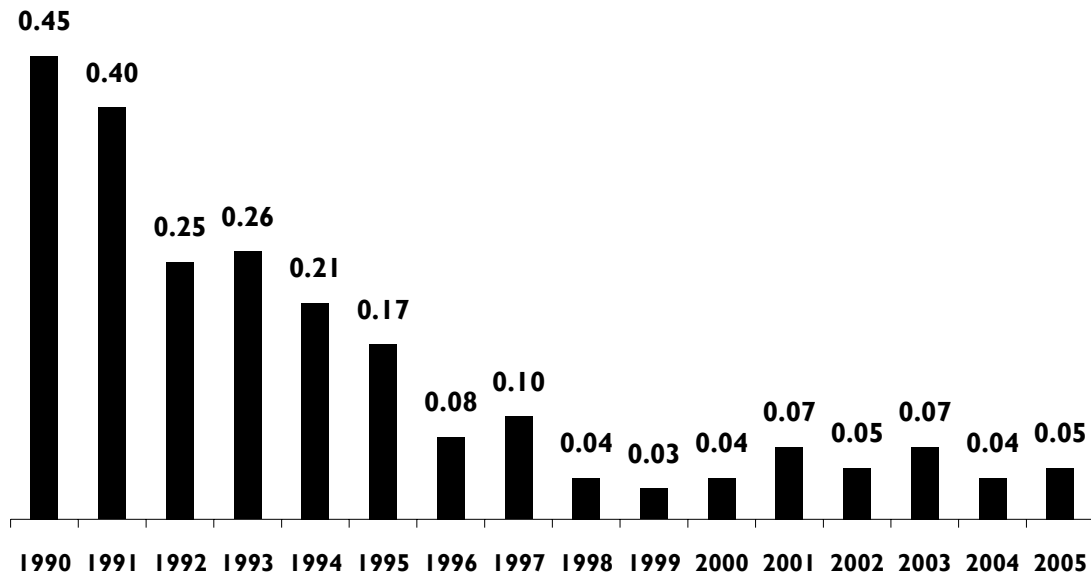
The nuclear industry's recent performance and cost achievements occurred in an era of outstanding safety at U.S. nuclear plants. In 2005, the nuclear energy industry was close to meeting all 2005 safety goals set by the Institute of Nuclear Power Operations (INPO) and the World Association of Nuclear Operators (WANO). These entities track safety and performance data in 10 important areas.

One key indicator tracked by INPO and WANO is the number of unplanned automatic plant shutdowns. The U.S. industry has made dramatic improvements in the number of unplanned automatic shutdowns, dropping from a median of 7.3 shutdowns per reactor in 1980 to zero in 2005.

Other safety and performance indicators tracked by the Nuclear Regulatory Commission confirm the excellent safety performance of U.S. nuclear plants. The NRC tracks data on the number of "significant events" at each nuclear plant. (A significant event is any occurrence that challenges a plant's safety system.) The average number of significant events per reactor declined from 0.77 per year in 1988 to 0.05 in 2005.

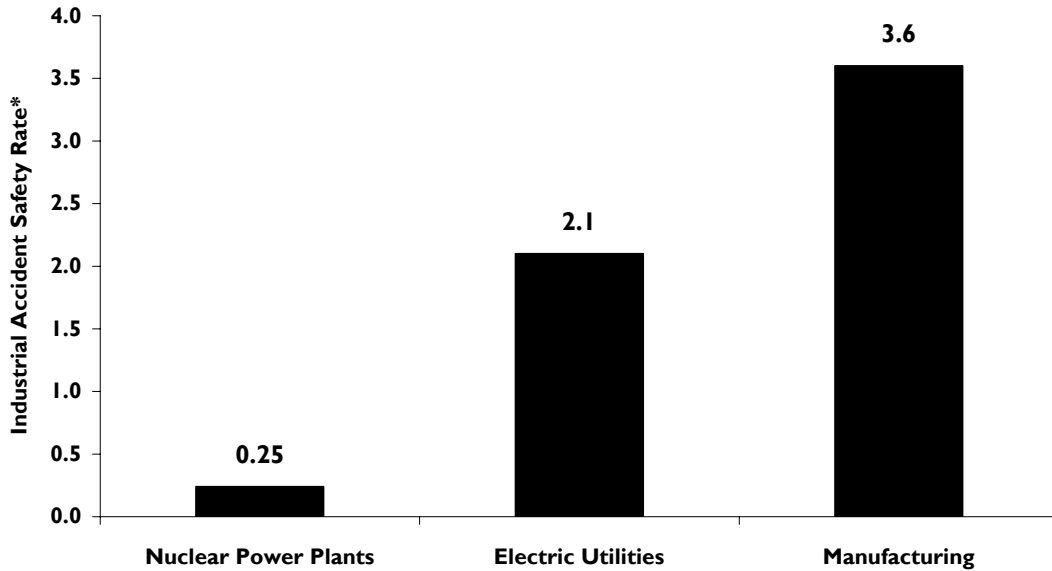
In addition to safe operations, U.S. nuclear plants continue to improve their already high levels of worker safety. According to NRC data, radiation exposure to workers (measured in rems) decreased from an average of about 1 rem per year in 1973 to 0.15 rem per year in 2004. Both the historical and current doses per employee are far below the regulatory limit of 5 rem per year.

**Figure 5-5. Significant Events: Annual Industry Average
(Number of events per reactor, fiscal 1990-2005)**



Source: Nuclear Regulatory Commission Information Digest

Figure 5-6. Nuclear's Superior Safety Record
(2005 Nuclear Industry's Industrial Accident Safety Rates Compared to Other Industries)



* Number of accidents resulting in lost work, restricted work or job transfer per 200,000 worker-hours
 Sources: Nuclear (World Association of Nuclear Operators); others (U.S. Bureau of Labor Statistics, 2004 data).

General worker safety also is excellent at U.S. nuclear power plants—far safer than in the U.S. manufacturing sector. WANO and the U.S. Bureau of Labor Statistics provide information on the industrial accident safety rate. This statistic measures the lost workday accidents per 200,000 worker-hours. The nuclear industry has improved its industrial accident safety rate from 0.55 in 1995 to 0.25 in 2005. By comparison, the U.S. manufacturing industry had an industrial accident safety rate of 3.6 in 2004.

5.4 Current Industry Events

The excellent economic and safety performance of U.S. nuclear plants has increased interest in nuclear energy by the electric utility industry, the financial community and policymakers. This is evidenced by the increasing number of plants seeking license renewals from the NRC.

Originally licensed to operate for 40 years, nuclear plants can safely operate for longer periods. The NRC granted the first 20-year license renewal to the Calvert Cliffs plant in Maryland in 2000. As of December 2006, 47 reactors have received license extensions, and 34 reactors either have submitted applications or formally announced that they will seek to renew their licenses. License renewal is an attractive alternative to building new electric capacity because of nuclear energy's low production costs and the return on investment provided by extending a plant's operational life.

Besides relicensing current plants, interest recently has increased in building new nuclear plants. Four companies—Entergy, Dominion Energy, Exelon and Southern—have submitted early site permit applications to the NRC to test the agency's permitting process for new reactor sites.

Several companies and consortia are collaborating with the U.S. Department of Energy to test a revised licensing process for building and operating new nuclear reactors. The effort is part of DOE's Nuclear Power 2010 program, established to foster the development of next-generation nuclear power plants.

Section 6: Economic Impact Analysis Methodology

The methodology used to estimate the economic impacts of the nuclear plants owned and operated by Exelon in Illinois is called input/output analysis. Several operational input/output models are available in the marketplace. The market leaders are Impact Analysis for Planning (IMPLAN), Regional Economic Models Inc. and Regional Input-Output Modeling System II. The study's authors selected the IMPLAN model primarily because of the availability of the model and data sets. Other important factors were its relevance to the particular application, as well as its transparency and ease of use.

This section presents typical applications of input/output analysis and explains the methodology and its underpinnings. It also describes how plant data and the IMPLAN model estimate the local, state and national economic impacts of the plants' operation.

6.1 Use of Input/Output Models

Input/output models capture input, or demand, and output, or supply, interrelationships for detailed business, industry and government sectors in a geographic region. They also capture the consumption of goods and services for final demand by these sectors and by the household sector.

The basic geographic region is a county, but model results can be developed at the multi-county, state, multi-state and national levels. These results are particularly useful in examining the total effects of an economic activity or a change in the level of that activity.

These models typically are used when the following key questions need to be addressed:

- How much spending does an economic activity (such as a power plant) bring to a region or local area?
- How much of this spending results in sales growth by local businesses?
- How much income do local businesses and households generate?
- How many jobs does this activity support?
- How much tax revenue does this activity generate?

These models also are useful in addressing related questions, such as the geographic and industry distribution of economic impacts. Typical applications of these models include facility or military base openings and closings, transportation or other public infrastructure investments, industrial recruitment and relocation, and tourism.

6.2 Overview of the Input/Output Methodology

Input/output models link various sectors of the economy—e.g., agriculture, construction, government, households, manufacturing, services and trade—through their respective spending flows in a reference year. These include geographic linkages, primarily at national, state and county levels.

Because of these linkages, the impact of an economic activity in any sector or geographic area on other sectors and areas can be modeled. These impacts can extend well beyond the sector and area in which the original economic activity is located. They include not only the direct, or initial, effects of the economic activity, but also the secondary, or “ripple,” effects that flow from this activity.

Direct effects are analogous to the initial “splash” made by the economic activity, and ripple effects are the subsequent “waves” of economic activity (new employment, income, production and spending) triggered by the splash. A full accounting of the splash must include the waves, as well as the splash itself.

The sum of the direct and ripple effects is the total effect, and the ratio of the total effect to the direct effect is the “total effect multiplier,” or simply the multiplier effect. IMPLAN can develop multipliers for any of the model outputs, such as earned income, employment, industry output and total income (which includes the effect of transfers between institutions).

Multipliers also can be developed for any industry/business sector or geographic area in the model. Multipliers for a county are smaller than for a larger area, such as the state in which the county is located, because some spending associated with an economic activity migrates from the small area into the larger area. At the local area level, multipliers are larger if the local area produces the types of goods and services required by the plant.

Secondary effects include two components—indirect and induced effects—modeled separately within input/output models. Indirect effects are those influencing the supply chain that feeds into the business/industry sector in which the economic activity is located. For example, when a nuclear plant buys a hammer for \$5, it contributes directly to the economy.

Consequently, the company that makes the hammer has to increase its purchases of steel and wood to maintain its inventory, thus increasing output in the steel and wood industries. These industries will then have to purchase more inputs for their production processes, and so on. The result will be an economic impact that is greater than the \$5 initially spent for the hammer.

The increased income of plant employees and other regional workers leads to higher spending at the household level. That increased spending is the induced effect. To illustrate, when the plant pays \$5 for the hammer, a portion of the \$5 pays the wages of employees at the company that makes the hammer. This portion contributes to labor income, which provides an additional contribution to the economy through its effects on household spending for goods and services.

There also will be a contribution from the effect of this purchase on labor income in the wood and steel industries, and on the resulting household spending on goods and services. The plant’s wage and salary expenditures create induced effects as well, and they occur primarily in each plant’s host and surrounding counties.

As with any model, input/output models incorporate some simplifying assumptions to make them tractable. There are several key simplifying assumptions in input/output models.

Input/output models assume a fixed commodity input structure. In essence, the “recipe” for producing a product or service is fixed, and there is no substitution of inputs, either of new inputs (which were not in the mix previously) for old inputs, or among inputs within the mix.

Input substitution does not occur if technical improvements in some inputs make them relatively more productive. Nor does input substitution occur if there are relative price changes among inputs. Use of any of these types of substitutions might dampen the multiplier effects, especially for larger geographic areas.

Another key simplifying assumption is constant returns to scale. A doubling of commodity or service output requires a doubling of inputs, and a halving of commodity or service output requires a halving of inputs. There is no opportunity for input use relative to commodity or service production levels to change, as those levels expand or contract, so there are no opportunities for either economies or diseconomies of scale. This will not dramatically alter the overall results as long as the economic activity whose effects are being modeled is not large relative to the rest of the sectors.

In other words, the models assume that for every dollar of output, the same dollar amount is required for the various input categories. Returning to the hammer example, if a \$5 hammer requires \$3 of steel, then two hammers would require \$6 of steel.

Although that works for steel and hammers, some inputs do not vary directly with output. For instance, if an oil refinery's efficiency and output increases, a corresponding increase in personnel operating the plant is unlikely. The constant-return-to-scale assumption considers such differences and is necessary for accurate modeling.

Input/output models assume no input supply or commodity/service production capability constraints. This simplifying assumption relates in part to the constant-return-to-scale assumption, for if there were supply constraints, diseconomies of scale likely would result. As in the case of the constant-return-to-scale assumption, this "no supply constraints" assumption is not a major concern as long as the economic activity of interest is not large relative to the rest of the sectors.

To illustrate, this assumption presupposes that a hammer manufacturer would purchase all the steel for the same price. If not, doubling the number of hammers sold could mean that the dollar value of the steel might more than double if the manufacturer had to buy more steel at a higher price. This would violate the constant-return-to-scale assumption, which simplifies modeling.

Homogeneity, another key simplifying assumption, characterizes firms and technologies within sectors as very similar. Although the model allows some editing of its sector files to characterize specialized firms, there is no ability to reflect full diversity of firms within sectors.

6.3 The IMPLAN Model and Its Application to Exelon's Illinois Nuclear Fleet

The U.S. Department of Agriculture's Forest Service developed IMPLAN in cooperation with the Federal Emergency Management Agency and the U.S. Department of the Interior's Bureau of Land Management, to assist in land and resource management planning. In use since 1979, the Minnesota IMPLAN Group Inc. supports the model.

The IMPLAN system consists of two components: software and a database. The software performs the necessary calculations, using the study area data, to create the models. It also provides an interface for the user to change a region's economic description, create impact scenarios and introduce changes into the local model. A user's guide provided by the Minnesota IMPLAN Group describes the software.

The IMPLAN software serves three functions: data retrieval, data reduction and model development, and impact analyses.

The IMPLAN database consists of two major parts:

- national technology matrices
- estimates of regional data for institutional demand and transfers, value added, industry output, and employment for each county in the United States, as well as state and national totals.

The model's data and account structure closely follow the accounting conventions used in the input/output studies of the U.S. economy by the Department of Commerce's Bureau of Economic Analysis. The comprehensive and detailed data coverage of the entire United States by county, along with the ability to incorporate user-supplied data at each stage of the model-building process, provides a high degree of flexibility in terms of both geographic coverage and model formulation.

In applying the IMPLAN model to the plant, Exelon Corp. provided three basic types of data: purchase order expenditures by purchase order code, employee compensation expenditures and tax payment data for 2005.

The purchase order data were mapped to IMPLAN's 528 sector codes in two ways. First, by identifying the largest contracts at each geographic level and assigning them an industrial classification code within IMPLAN sector codes. For the remaining expenditures, the data were mapped into IMPLAN codes based on average distributions obtained through detailed studies of six nuclear reactors. These purchase order data also were mapped into IMPLAN based on the areas where these purchases were made.

Then the authors used an estimate of revenues from electricity sales into the wholesale market in 2005 to augment the purchase order and compensation data. This augmentation was necessary because purchase orders and compensation do not reflect all the economic value of the Exelon nuclear plants, while total output (approximated by total revenues) better reflects the full economic impacts of the plant.

Revenue estimates were based on kilowatt-hours sold and the average wholesale price for electricity sold by Exelon's Illinois nuclear plants during 2005. The estimated revenues were above the expenditure data provided by Exelon, indicating a nuclear generation profit margin that was incorporated into IMPLAN as profits associated with the operation of the plant.

These data then were incorporated into the IMPLAN model, which combined specifics of the local economy with data on economic activity of the plants to provide estimates of the plant's total impacts.

Once the data sets were complete, IMPLAN developed the economic impact estimates detailed in this report.



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