

A Fraction of the Jobs

A Case Study of the Job Creation Impact of Completed Coal-Fired
Power Plants between 2005 and 2009

March 2011

Executive Summary

Proponents of coal-burning power plants have suggested that the counties where they are located can reap an economic windfall through construction and permanent jobs. Their case is largely based on an economic modeling process that often relies on assumptions that are established with a high degree of uncertainty. Very few communities evaluate after the fact whether actual jobs were created.

To supplement existing economic models, this study represents the first effort to look at actual economic activity resulting from the construction of large, new coal-fired power plants in the United States. Of the 21 new plants that became operational between 2005 and 2009, six have capacity of greater than 500 MW. For each of these plants, researchers examined employment in the host counties for the period immediately before, during and after plant construction.

This analysis suggests that new coal plant construction is rarely the economic panacea proclaimed by its proponents.

- While overall employment grew in all six counties, only one county – Pottawattamie County, Iowa -- experienced an increase in construction employment that was equal to or greater than the predicted employment impact of the coal plant construction project (Walter Scott 4).
- Overall, for the five counties where there were pre-construction job estimates for new plants, total construction employment at peak was up by 4,137 jobs – compared to projected growth of 7,370 jobs. *In other words, for every one hundred new construction jobs promised, just over half – 56 percent – were actually realized.*
- More than half of the net increase in construction employment occurred in one of the counties – Pottawattamie County. *In the four other cases, coal plant construction only delivered net increases of 1,730 jobs out of a projected increase of 6,370 jobs – just over 27 percent.*
- Approximately one in five new construction jobs created in host counties during the period of plant construction appear to have been the result of non-local factors, such as national trends in construction.
- Local job retention rates in each of the six counties with new coal plants declined during construction – suggesting that many new jobs were going to workers coming from outside of the county.

Construction Employment Change in Counties with New Coal Plants

PLANT	COUNTY	Coal Plant Construction Employment Projection	Actual County Construction Employment Change (Peak) ¹	Actual Change as % of Plant Projection
Sadow 5	Milam	1,370	463	33.7%
Nebraska City 2	Otoe	N/A	-73	N/A
Weston 4	Marathon	1,200	429	35.7%
Walter Scott 4	Pottawattamie	1,000	2,407	240.7%
Cross 3 & 4	Berkeley	1,400	509	36.3%
Oak Grove 1 & 2	Robertson	2,400	329	13.7%

¹ This reflects the change in total construction employment in the county from the beginning of construction to the peak year of construction employment during the project.

These findings strongly suggest that the economic development argument for coal plants is relatively weak, especially when compared with the job creation potential of alternative means of addressing demand for power through energy efficiency.

Growing Uncertainty Over New Coal Plant Construction Due to Rising Costs

Coal-fired electricity generation remains a major component of the nation's energy portfolio. Although the current mix of investments in new power plants includes fewer coal-fired plants than other fuel technologies, coal remains the dominant energy source for electricity generation because of continued reliance on existing coal-fired plants.²

In 2010, 11 new coal plants totaling 6,682 megawatts (MW) were commissioned and began operating – the most in a single year in twenty five years. In the prior five years, 21 new coal plants became operational in the United States. According to the National Energy Technology Laboratory (NETL), as of January 2011, there were 21 new coal fired power plants permitted, near construction or under construction in the United States.

Still, in the last two years, new coal plant projects with more than 21,000 megawatts (MW) of capacity have been cancelled.³

Concerns about the environmental and health effects of carbon emissions have led to some decisions to cancel plans or otherwise slow the increase in capacity. More often than not though, decisions to cancel plants are driven by unfavorable economic and financial considerations.

Increasingly, cost projections for plant construction are outpacing original estimates. In 2009, American Municipal Power announced it would not go forward with a proposed 1,000 MW coal fired power plant in Meigs County, Ohio: officials cited a 37 percent increase in projected construction cost over just a six month period. While the original construction cost estimate for the plant was \$2.5 billion, the projected cost had risen to \$4 billion by the time it was cancelled.⁴ A year later, the East Kentucky Power Cooperative decided to cancel plans for its proposed \$819 million Smith Plant. Company officials called it “a prudent business decision based on the conditions that exist today and our projections of future conditions.”⁵

The Prairie State Energy Campus (PSEC) project has become a cautionary tale for utilities and others considering development of coal fired power plants. Estimates of construction costs for the 1,600 MW plant doubled from initial projections to more than \$4 billion in 2010.⁶

The Problem of Estimating the Economic Impact of New and Existing Coal Power Plant Construction Projects

While the uncertainty of cost factors related to construction, financing and potential future carbon regulation has been a major factor in recent plant cancellations, a significant question related to potential impacts in the event of plant construction remains unanswered.

² U.S. Department of Energy, Energy Information Administration, *Annual Energy Outlook 2010*, at www.eia.doe.gov/oiaf/aeo/overview.html#elecgen.

³ Erik Shuster, Tracking New Coal-Fired Power Plants, National Energy Technology Laboratory, January 14, 2011 at <http://www.netl.doe.gov/coal/refshelf/ncp.pdf>.

⁴ John Funk, “American Municipal Power will not build coal-fired power plant,” *Cleveland Plain Dealer*, November 25, 2009.

⁵ See, “EKPC to Cancel Coal-Fueled Power Plant, Lead Collaborative on Renewable Energy and Demand-Side Management,” November 18, 2010 at www.ekpc.coop/pressreleases/2010_press_releases/2010-11-18__Sm1_cancelled.pdf.

⁶ Michael Hawthorne, “Clean coal dream a costly nightmare,” *Chicago Tribune*, July 12, 2010.

Projections of plant construction and operations employment impacts are important because they are frequently used as tools of persuasion. Proponents of new coal plant construction regularly attempt to induce communities to host new facilities with the promise of new jobs for residents.

As a result, coal plant proponents have an incentive to overstate potential job creation benefits and understate costs. For example, an analysis of labor, material and construction impacts related to Santee Cooper’s planned coal-fired plant in Kingsburg, South Carolina found that costs were underestimated by 35% - and that direct and induced economic impacts were overestimated by 23% and 81%, respectively.⁷ Additional studies of coal-burning plant construction projects in Early and Washington Counties in Georgia have highlighted unsupported claims of substantial local employment effects on the part of plant proponents.⁸

A Case Study Approach

To supplement existing economic models, this study represents the first effort to look at actual economic activity resulting from the construction of large, new coal-fired power plants in the United States.

Table 1: New Coal Burning Plants over 500 MW, 2005 – 2009

Plant	State	Cost	MW	Construction Period	Operation Date
Oak Grove 1 & 2	Texas	\$2.3 billion	817	2007-2009	2009
Walter Scott 4	Iowa	\$1.2 billion	790	2003-2006	2007
Nebraska City 2	Nebraska	\$710 million	682	2005- 2009	2009
Cross 3 & 4	South Carolina	\$1.45 billion	600	2004-2007	2007
Sandow 5	Texas	\$890 million	581	2007-2009	2009
Weston 4	Wisconsin	\$774 million	525	2004-2007	2007

Of the 21 new plants that have become operational between 2005 and 2009, six have capacity of greater than 500 MW. For each of these plants, researchers examined employment data for the host counties and cities for the period immediately before, during and after construction. Specifically, researchers examined changes in total employment, construction employment, and labor retention rates.⁹

While the coal plants may not have been the only local factors at play during the construction period, one would expect construction-related employment to be affected by projects of this magnitude. Labor retention rates measure the percentage of people working in a given county that actually reside in the county. Thus, they are a way of assessing how much of the increase in employment due to plant construction is benefiting residents of the host county – as opposed to workers imported from elsewhere.

⁷ Scott Moore, *Santee Cooper’s Kingsburg Coal-Fired Energy Plant: An Analysis of Labor, Material, and Construction Impacts*, 2008.

⁸ See Memorandum from David Eichenthal, Ochs Center for Metropolitan Studies to Washington County Board of Commissioners, *Fiscal Impact of Proposed Coal Fired Power Plant*, December 7, 2009; Ochs Center for Metropolitan Studies, *An Analysis of the Economic Impacts and Financing of the Proposed Coal-Fired Power Plant in Early County* (March 2009).

⁹ County level employment and construction employment data is from the Bureau of Labor Statistics Quarterly Census of Employment and Wages. Labor retention rate is the percentage of jobs that are located in a geographic area that are held by the residents of that area. Throughout the report, labor retention rates are calculated using U.S. Department of Commerce, Bureau of the Census, Local Employer-Household Dynamics Dataset, On the Map Labor Shed Report, 2002-2008, at lehdm4.did.census.gov/themap4/. The LEHD Labor Shed Report estimates the residential location of workers in the reference county. See Appendix A for a full discussion of the methodology.

Non-local factors can also affect changes in employment. Shift-share analysis allows researchers to determine what changes in employment are attributable to local factors (e.g. specific projects or other competitive advantages) as opposed to national economic shifts or industry-specific shifts.¹⁰

Oak Grove 1 & 2 – Robertson County, Texas

Projected Construction Jobs: 2,400

Actual Growth in Construction Employment: 329¹¹

Change in Labor Retention Rate: - 8.4

Oak Grove 1 and Oak Grove 2 are located in Robertson County, Texas. In 2007, construction began on Oak Grove 1 and Oak Grove 2 - which together are projected to provide 1,720 MW of electricity. Both plants are owned and operated by Luminant. Oak Grove 1 was operational in 2009.¹² The total cost of the Oak Grove complex is estimated to be \$2.3 billion. Fluor, a Fortune 500 company selected to construct the facility, estimated that peak construction employment would be 2,400 jobs.¹³

During the construction period, total employment in Robertson County increased from 2,621 in 2006 to 3,700 in 2009 – the most recent year for which annual Bureau of Labor Statistics employment data is available. Similarly, construction employment during the project increased from 128 in 2006 to a peak of 457 in 2008, before declining back to 155 in 2009.

Table 2: Oak Grove 1 & 2 – Employment in Robertson County

	2006	2007	2008	2009	Change
Employment					
Total	2,621	2,715	2,893	3,700	1,089
Construction	128	242	457	155	27
Job Growth					
Total		94	178	807	1,089
Construction		114	215	-302	329
Competitive Effect					
Construction		51	289	-228	112

The labor retention rate for Robertson County in 2008 was 41%, which was a 19.3% reduction in resident employees from the pre-construction baseline rate of 49.4% in 2006.

¹⁰ See, e.g., Edward J. Blakely and Nancy Green Leigh, *Planning Local Economic Development: Theory and Practice*, Sage Publications, 2010, p. 183: “Shift share can be useful to identify the industries in which a local area has a competitive advantage and that are growing faster than would be expected if they were performing just like the national economy.” Analysis is based on outputs derived from www.georgiastats.uga.edu/sshare1.html.

¹¹ Throughout the report, this figure reflects the difference between construction employment in the county the year before the project began and peak annual construction employment during the project.

¹² See footnote 4, NETL, 2010.

¹³ See “Fluor Awarded Full Notice to Proceed for TXU’s Oak Grove Project”, *Business Wire*, June 21, 2007 at www.allbusiness.com/services/business-services/4523094-1.html and Luminant at www.luminant.com/plants/pdf/OakGrove_Facts.pdf.

Walter Scott 4 – Pottawattamie County, Iowa
 Projected Construction Jobs: 1,000
 Actual Growth in Construction Employment: 2,407
 Change in Labor Retention Rate: - 5.1

Walter Scott 4 was constructed in Pottawattamie County, Iowa between 2003 and 2006, and began operations in 2007. Total construction cost for Walter Scott 4, which has a 790 MW peak capacity, was \$1.2 billion. Walter Scott 4 was an addition to three existing plants at the site, known as the Council Bluffs Energy Center. The existing plants on site were put into operation in 1954, 1958, and 1972.¹⁴

Table 3: Walter Scott 4 – Employment in Pottawattamie County

	2002	2003	2004	2005	2006	Change
Employment						
Total	30,999	30,789	31,649	32,658	34,993	3,994
Construction	1,253	1,387	1,683	2,204	3,660	2,407
Job Growth						
Total		-210.0	860.0	1,009.0	2,335.0	3,994
Construction		134.0	296.0	521.0	1,456.0	2,407
Competitive Effect						
Construction		136	243	425	1,349	2,153

Walter Scott 4 was built through a partnership between MidAmerican Energy Company, which retained 51% ownership in the facility, and 14 utilities and cities. The peak construction employment projection for Walter Scott 4 was 1,000 workers.¹⁵ Impacts for plant operations were projected at 207 workers and an annual payroll of \$17.5 million for the four plants.¹⁶

During the construction period, total employment in Pottawattamie County increased from 30,999 in 2002 to 34,993 in 2006. By 2007, when the plant became operational, total employment in the county was 33,801.

Similarly, construction employment during the project increased from 1,253 in 2002 to a 3,660 in 2006. By 2007, post plant operation construction employment in Pottawattamie County was 2,237.

The labor retention rate for Pottawattamie County in 2006 was 52.5%, an 8.9% reduction in resident employees from the pre-construction baseline rate of 57.6% in 2002.

¹⁴ United States Department of Energy, Energy Information Administration at www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html.

¹⁵ "New Electricity Plant Will Boost Reliability, Council Bluffs Energy Center, Average Electric Bill", *Omaha World Herald*, September 9, 2003.

¹⁶ "MidAmerican Dedicates New Plant", *Omaha World Herald*, August 7, 2007.

Nebraska City 2 – Otoe County, Nebraska

Projected Construction Jobs: NA

Actual Countywide Growth in Construction Employment: -73

Change in Labor Retention Rate: - 3.4

Nebraska City 2 was constructed in Otoe County, Nebraska between 2005 and 2009, and began operations in 2009. Nebraska City 2 is an addition to an existing 652 MW coal-fired plant that entered service in 1979.¹⁷ Both plants are owned and operated by the Omaha Public Power District.

Table 4: Nebraska City 2 – Employment in Otoe County

	2004	2005	2006	2007	2008	2009	Change
Employment							
Total	5,106	5,163	5,204	5,434	5,443	6,368	1,262
Construction	452	307	294	331	379	350	-102
Job Growth							
Total		57	41	230	9	925	1,262
Construction		-145	-13	37	48	-29	-102
Competitive Effect							
Construction		-167	-27	38	68	31	-57

Total construction cost for Nebraska City 2, which has a 682 MW peak capacity, was \$710 million. No construction impact projections were found in the literature. Operational employment impacts for Nebraska City 2 were projected to be 70 workers, resulting in a total workforce of 173 for Nebraska City 1 and 2.¹⁸

During the construction period, total employment in Otoe County increased from 5,106 in 2004 to 6,368 in 2009. However, construction employment during the project decreased from 452 in 2004 to 350 in 2009.

The labor retention rate for Otoe County in 2008 was 57.1%, down from the pre-construction baseline rate of 60.5%.

Cross 3 and 4 – Berkeley County, South Carolina

Projected Construction Jobs: 1,400

Actual Countywide Growth in Construction Employment: 509

Change in Labor Retention Rate: - 3.0

In 2004, construction began on Cross 3 and Cross 4 in Berkeley County, South Carolina. At a cost of \$675 million, Cross 3 was projected to produce 600 MW of electricity. Construction of Cross 3 was complete in 2007. Cross 4 was projected to cost \$775 million and produce an additional 600 MW of electricity, and began operation in 2008. Peak construction employment for the entire project was projected at 1,400 jobs.¹⁹

¹⁷ U.S. DOE/EIA at www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html.

¹⁸ "Nebraska City Gets Spark from New Power Plant," *Omaha World Herald*, May 18, 2009.

¹⁹ See McGraw Hill Construction, Southeast Construction Top Projects 2005 at www.southeast.construction.com/projects/05_TopProjects1-13.pdf.

Table 5: Cross 3 & 4 – Employment in Berkeley County

	2003	2004	2005	2006	2007	Change
Employment						
Total	26,386	27,242	28,449	29,638	31,012	4,626
Construction	3,349	3,858	3,608	3,666	3,601	252
Job Growth						
Total		856.0	1,207.0	1,189.0	1,374.0	4,626
Construction		509.0	-250.0	58.0	-65.0	252
Competitive Effect						
Construction		385	-445	-100	-107	-267

Cross 3 and 4 were additions to two existing coal fired plants on the site – one 590 MW plant entered service in 1995 and one 556 MW plant entered service in 1984.²⁰ Both plants are owned and operated by the South Carolina Public Service Authority.

During the construction period, total employment in Berkeley County increased from 26,386 in 2003 to 29,638 in 2006. By 2007, when the plants became operational, total employment in the county was 31,012. Similarly, construction employment during the project increased from 3,349 in 2003 to a peak of 3,858 in 2004. By 2007, construction employment in Berkeley County was 3,601.

The labor retention rate for Berkeley County in 2007 was 45.9%, a 6.1% reduction in resident employees from the pre-construction baseline rate of 48.9% in 2003.

Weston 4 – Marathon County, Wisconsin

Projected Construction Jobs: 1,200

Actual Countywide Growth in Construction Employment: 429

Change in Labor Retention Rate: - 5.2

Weston 4 was constructed in Marathon County, Wisconsin between 2004 and 2007, and began operations in 2008. Weston 4 is owned by Wisconsin Public Service Corporation (70% share) and Dairyland Power Cooperative (30% share). Total construction cost for Weston 4, which has a 525 MW peak capacity, was \$774 million. Weston 4 is an addition to three existing operational plants on the site. The existing plants were put into service in 1954 (60 MW), 1960 (81 MW), and 1981 (350 MW).²¹

Before construction began, employment impacts from the project were estimated at 1,200 workers.²² Forty local and regional contractors were reportedly used in construction, purchasing \$20 to \$30 million in local goods and services. Plant operations employment was estimated to be 40 jobs.²³

During the construction period, total employment in Marathon County increased from 59,657 in 2003 to 63,658 in 2007. By 2008, when the plant became operational, total employment in the county decreased to 62,561.

²⁰ U.S. DOE/EIA at <http://www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html>.

²¹ U.S. DOE/EIA at <http://www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html>.

²² "Groundbreaking Completed for New Weston Power Plant", Wisconsin Public Service Corporation, November 9, 2004.

²³ "Newest Weston Electric Generating Unit Dedicated", Wisconsin Public Service Corporation, August 18, 2008.

Similarly, construction employment during the project increased from 2,596 in 2003 to a peak of 3,025 in 2007. By 2009, post plant operation construction employment in Marathon County decreased to 2,572.

Table 6: Weston 4 – Employment in Marathon County

	2003	2004	2005	2006	2007	Change
Employment						
Total	59,657	60,473	61,981	63,212	63,658	4,001
Construction	2,596	2,755	2,798	2,986	3,025	429
Job Growth						
Total		816	1,508	1,231	446	4,001
Construction		159	43	188	39	429
Competitive Effect						
Construction		74	79	57	59	269

The labor retention rate for Marathon County in 2007 was 67.7%, a 7.1% decrease from the pre-construction baseline rate of 72.9% in 2003.

Sandow 5 – Milam County, Texas

Projected Construction Jobs: 1,370

Actual Countywide Growth in Construction Employment: 463

Change in Labor Retention Rate: - 11.3

Sandow 5 was constructed in Milam County, between 2007 and 2009, and began operations in 2009. The total construction cost for Sandow 5, which has a 581 MW peak capacity, was \$890 million.

Sandow 5 is an addition to an existing operational coal-fired plant on the site. Sandow 4 has a peak capacity of 590 MW, and began service in 1981.²⁴ Both plants are owned and operated by Luminant. Sandow Units 1-3 were retired in 2006.

Table 7: Sandow 5 – Employment in Milam County

	2006	2007	2008	2009	Change
Employment					
Total	5,604	5,902	5,472	5,631	27
Construction	708	1,171	740	576	-132
Job Growth					
Total		298	-430	159	27
Construction		463	-431	-164	-132
Competitive Effect					
Construction		196	-205	-45	-54

²⁴ U.S. DOE/EIA at www.eia.doe.gov/cneaf/electricity/page/capacity/capacity.html.

Local public officials were convinced that the project would create jobs and increase property values. Milam County Commissioner Kenneth Hollas supported the plant because of increased employment and property values, saying that “It’s going to be an economic aid to the county.”²⁵ Employment impacts were projected at 1,370 workers.²⁶

During the construction period, total employment in Milam County increased from 5,604 in 2006 to a peak of 5,902 in 2007. By 2009, total employment in the county was 5,631.

Similarly, construction employment during the project increased from 708 in 2006 to a peak of 1,171 in 2007. By 2009, construction employment in Milam County was 576.

The labor retention rate for Milam County in 2008 was 53%, a 17.6% reduction in resident employees from the baseline pre-construction rate in 2006.

Understanding Differences in Impact by Plant

Different coal burning plant construction projects appear to have had very different impacts on the economy of the host county.

Table 8: Employment Change and Shift Share Analysis

PLANT	COUNTY	Construction Employment Projection	Total Employment Change ²⁷	Construction Employment Change (Peak) ²⁸	Construction Employment Shift ²⁹
Sandow 5	Milam	1,370	27	463	196
Nebraska City 2	Otoe	N/A	1,262	-73	-57
Weston 4	Marathon	1,200	4,001	429	269
Walter Scott 4	Pottawattamie	1,000	3,994	2,407	2,153
Cross 3 & 4	Berkeley	1,400	4,626	509	385
Oak Grove 1 & 2	Robertson	2,400	1,089	329	340

Total employment grew in all six counties between the start of construction and completion. Growth rates, however, ranged greatly from a low of just 0.5% in Milam County, Texas to 41.5% in Robertson County, Texas.

All but one of the counties also experienced increases in construction employment as measured by peak construction employment during the construction period. With the exception of the Pottawattamie County, these increases in construction employment were relatively modest and were significantly less than construction employment projections made in association with the coal plant construction project. Overall, construction employment increased by 4,137 jobs in the five counties with plants where there was a pre-construction employment projection. These increases, however, represented just 56 percent of pre-construction estimated construction growth attributable to the coal-fired power plants.

²⁵ “Rockdale Gets Approval for Coal Plant Plan” *The Eagle*, March 2, 2007.

²⁶ “Rockdale Plant Clears Legal Hurdle”, *Austin American-Statesman*, March 1, 2007.

²⁷ This reflects the net change in all employment from the beginning of construction until the end.

²⁸ This reflects the change in construction employment from the beginning of construction to the peak year of construction employment during the project.

²⁹ This number summarizes the local competitive share change in construction employment -- from the beginning of the project until the peak of construction employment.

Excluding Pottawattamie County, where construction employment was up by 2,407 jobs, the other four counties had construction job increases of 1,730 jobs out of a projected increase of 6,370 jobs – just over 27 percent of projected growth.

Part of the increase in construction employment in the coal plant counties was attributable to non-local factors. Based on the shift share analysis, approximately twenty percent of the net increase in construction employment was the result of national or industrial trends unrelated to what was occurring locally.

Table 9: Labor Retention Rate Change

PLANT	COUNTY	Year 1	Year 2	Year 3	Year 4	Year 5	Change	%
Sandow 5	Milam	64.3%	58.4%	53.0%			-11.3	-17.6%
Nebraska City 2	Otoe	60.5%	65.7%	64.7%	57.2%	57.1%	-3.4	-5.6%
Weston 4	Marathon	72.9%	72.6%	71.9%	69.6%	67.7%	-5.2	-7.1%
Walter Scott 4	Pottawattamie	57.6%	56.9%	59.4%	55.4%	52.5%	-5.1	-8.9%
Cross 3 & 4	Berkeley	48.9%	48.1%	46.4%	48.0%	45.9%	-3.0	-6.1%
Oak Grove 1 & 2	Robertson	49.4%	43.7%	41.0%			-8.4	-19.2%

In each of the host counties, Local Household Employment Dynamics³⁰ data indicate that the employment retention rate declined during the construction period. In other words, county residents held a smaller share of jobs located in the host county during the period of plant construction. On average, retention rates declined by 5.6 percentage points or 9.1%. Thus, even in the case of host counties that experienced increases in the number of jobs in the county, a declining percentage of those jobs went to county residents.

What Happened to the Jobs?

Several factors may explain why job creation projections fail to have been met.

First, plant construction may simply be less labor intensive than projected. While it is near impossible to build a \$1 billion coal plant without creating any new jobs, a significant part of the investment may go toward equipment and technology rather than labor.

Second, it is possible that some of the actual construction work was recorded as occurring off site. In other words, construction jobs may have been created – just at locations other than the host counties for the plants.

Third, some workers may not have been reported. There is a body of literature that suggests that construction workers are sometimes treated for tax and other purposes as subcontractors rather than employees. Construction firms have an incentive to misclassify workers as contractors. This practice precludes the requirement for companies to pay unemployment and workers compensation taxes, and can result in a 20%-40%

³⁰ U.S. Department of Commerce, Bureau of the Census, Local Household Employment Dynamics, On the Map Labor Shed Report.

project cost reduction for firms that classify a large proportion of workers as “independent contractors.”³¹ If a large proportion of workers were classified this way, the BLS Quarterly Census of Employment and Wages data used in the study – which excludes employees not covered by unemployment insurance -- would undercount employees at the construction site.

There may be other reasons that some workers are not counted. In the case of at least one of the plants studied in the report, there were allegations that illegal aliens were employed on the site.³²

Energy Efficiency as an Alternative Means of Creating Jobs and Increasing Capacity

While the job creation potential related to construction of new coal fired power plants appears relatively weak, an alternative – investment in energy efficiency efforts – offers the promise to both reduce the need for new generation capacity and create jobs.

For example, a 2009 Navigant Consulting study for the Connecticut Clean Energy Fund and the Connecticut Energy Efficiency Fund suggested that existing energy efficiency efforts in the state yield 2,675 direct jobs and that for every \$1 million dollar investment in energy efficiency, the result would be 9.1 job years.³³

Two prior studies by the Ochs Center have explored the relative job gains that would result from investments in energy efficiency rather than the construction of new coal fired power plants in Georgia and Kentucky.

A 2009 analysis of areas to be served by the proposed Smith Plant found that \$634 million investment in energy efficiency – including weatherization, installation of energy efficiency lighting and heating systems -- could achieve savings of 944,000 MWh. When combined with investments in renewable energy, the result would be the direct creation of nearly 4,700 job years.³⁴ In 2010, in announcing the cancellation of the Smith plant, the developer stated it would pursue energy efficiency and renewable energy initiatives instead.

A 2010 analysis of the potential for energy efficiency investments in the area to be served by the proposed Plant Washington in Georgia found that an investment of \$1.4 billion over time could yield annual energy savings of up to 1.5 million MWh. These investments would result in the direct creation of 9,975 years of employment.³⁵

Conclusion: Coal Plant Construction is Not an Economic Panacea

The economic argument for hosting a coal-fired power plant seems straightforward. An investment in labor and materials that approaches \$1 billion or more creates a seemingly strong argument for locating a coal power plant in jurisdictions in need of jobs. However, the specialized nature of coal power plant construction and operations -- in terms of labor and materials – calls into question the value of the actual benefit to the host community.

The nature of coal plant construction makes it possible that a large proportion of investment will “leak” out of the local economy as labor and materials necessary for the project are imported from distant regions. Moreover, a large percentage of construction costs may go toward specialized equipment imported from elsewhere.

³¹ See, e.g. William Canak and R. Adams, *Misclassified Construction Employees in Tennessee*, January 15, 2010.

³² “Subcontractors pulls foreign workers from OPPD project,” *Associated Press*, March 5, 2008.

³³ Navigant Consulting, *CT Renewable Energy/Energy Efficiency Economy Baseline Study*, March 27, 2009 at www.ctcleanenergy.com/Portals/0/Phase%201%20Deliverable%20revision%2017_Final%20Exec%20Summary.pdf.

³⁴ William Tharp and Lori Quillen, *An Analysis of the Economic Impact of Energy Efficiency and Renewable Energy in the East Kentucky Power Cooperative Region*, July 2009 at www.ochscenter.org/documents/EKPC_report.pdf.

³⁵ Ochs Center for Metropolitan Studies, *Energy Efficiency as an Alternative Strategy for the Power4Georgians EMCs*, March 2010 at www.ochscenter.org/documents/PlantWashington.pdf.

The findings of this analysis show that economic success resulting from hosting a coal plant project depends on the details.

It is possible that employment impacts will be minimal – or even negative, depending on the nature of the local workforce, transportation/commuting infrastructure, and commercial/ residential structure that exists in the host jurisdiction. Finally, any estimate of potential economic benefits must be weighed against possible negative environmental and health externalities associated with coal-fired power generation.

Appendix A: Methodology

There is no publicly available, accurate source of actual construction job creation specific to individual construction projects. Coal plant developers regularly project construction job creation, but infrequently report on the actual number of jobs created. Moreover, absent audited data, any reports of job creation based solely on the reports of plant developers would face the same questions about reliability as pre-construction estimates.

This report relies on BLS QCEW data for each of the counties where the new coal plants were constructed. BLS data is commonly used by business, government and researchers to describe employment activity at the county level. Employment data is based on the number of jobs that are actually located in the county, regardless of the residence of the workers holding that position.

Some key facts regarding QCEW data include:³⁶

- The QCEW program is a comprehensive tabulation of employment and wage information for workers covered by State unemployment insurance (UI) laws and Federal workers covered by the Unemployment Compensation for Federal Employees (UCFE) program.
- The QCEW program serves as a near census of monthly employment and quarterly wage information by 6-digit NAICS industry at the national, State, and county levels.
- Employment data under the QCEW program represent the number of covered workers who worked during, or received pay for, the pay period including the 12th of the month. Excluded are members of the armed forces, the self-employed, proprietors, domestic workers, unpaid family workers, and railroad workers covered by the railroad unemployment insurance system.

As noted in the text, the gains in employment – including construction employment – may reflect activity other than the construction of the new coal plants. For example, increases in construction employment can result from other new projects in the county. On the other hand, increases in employment due to plant construction could be offset by declines in the construction sector unrelated to the coal plant.

In at least three of the cases studied in this report, it is clear that offsetting declines are not the reason that coal plants appear to have failed to meet pre-construction job creation targets. In Robertson, Otoe and Milam counties, the pre-construction employment base was sufficiently small that subsequent declines could not explain the relative lack of job creation resulting from construction of the new coal plant.

For example, prior to the start of construction of Oak Grove 1 & 2, there were a total of 128 construction jobs in Robertson County, Texas. Even if every one of those jobs were eliminated during the course of the plant construction, pre-construction estimates suggest that at peak there would be 2,400 construction jobs in Robertson County. Instead, construction employment in the county peaked at 457 jobs.

In the case of Otoe County, there were 452 construction jobs in the county prior to Nebraska City 2. During the course of construction, the construction employment total for the county never exceeded 379. In other words, if every other construction job was eliminated, there were only a total of 379 new jobs.

Finally, in Milam County, construction employment declined from a peak of 1,171 during the peak to 576 in the year when construction was completed. Even if every one of the peak jobs was attributable to Sandow 5, that would still be less than the projection of 1,370 jobs.

³⁶ This information is from the QCEW website at www.bls.gov/cew/cewover.htm.

