

Summary

Partial Impacts of CAIR-Plus Regulatory Proposals on the Wisconsin Economy

BBC Research and Consulting

December 15, 2005



Partial Impacts of CAIR-Plus Regulatory Proposals on the Wisconsin Economy

Background

BBC Research & Consulting (BBC) was retained by the Center for Energy & Economic Development (CEED), the Midwest Ozone Group (MOG) and NiSource to examine the impacts of electric utility emission controls identified in the “LADCO EGU White Paper” on the Midwest economy. LADCO is considering two levels of utility emission reductions (EGU1 and EGU2) and two intermediate levels of control (IM1 and IM2). The proposed emission reductions under these controls are approximately 50 percent to 75 percent greater than the reductions required by EPA’s 2005 Clean Air Interstate Rule (CAIR).

BBC studied the effects of additional emission controls in Illinois, Indiana, Michigan, Ohio and Wisconsin. Nine case study industries in those states were selected for study based on their intensive use of electricity. These industries included manufacturers of primary metals, transportation equipment, chemicals, food products, plastics and rubber, fabricated metals, paper, machinery and computers/electronic equipment. Coal mining was selected as the tenth case study industry because it is a major supplier to midwestern electric generation.

This study reflects only a portion of the potential impacts of regulatory reductions in electric generation emissions beyond those required by the Clean Air Interstate Rule (CAIR). The case study industries represent about one third of all industrial and commercial electricity purchases in the Midwest Region. Other industries would also be affected by higher electric

rates. However, potential health and visibility benefits from low emissions were also outside the scope of this analysis.

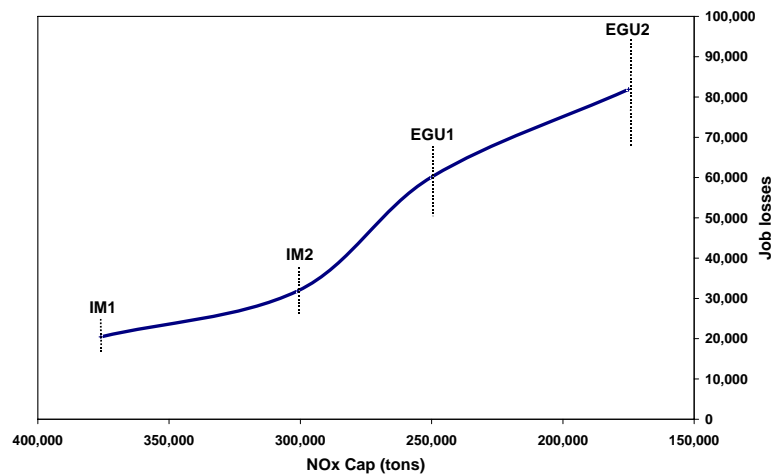
This study was conducted during the summer of 2005 based on a region-wide analysis of the LADCO proposals and the then current understanding of those proposals. LADCO’s proposals continue to be modified and refined. The findings from this study, though labeled with the names of the LADCO scenarios, may not precisely reflect the latest thinking about the emission reductions sought under each of those scenarios. However, by estimating the costs and impacts for four different levels of control, readers can examine the magnitude of impacts across a wide range of different emission reduction requirements.

Range of Regional Effects

Across the five states, annual compliance costs are estimated to range from about \$2 billion per year for an SO₂ cap of about 850,000 tons and NO_x cap of about 375,000 tons (IM1) to about \$7 billion per year for an SO₂ cap of about 240,000 tons and NO_x cap of 175,000 tons (EGU2). Corresponding regional job losses are estimated to range from approximately 20,000 jobs under IM1 to 69,000 to 95,000 jobs under EGU2. Exhibit S-1 depicts the projected annual job losses for the five Midwestern states over a range of NO_x reduction requirements. The dashed vertical lines represent the low to high range of impact estimates for each scenario.

Partial Impacts of CAIR-Plus Regulatory Proposals on the Wisconsin Economy

*Exhibit S-1.
Projected regional job losses
under range of NOx caps*



Note: Vertical lines represent range between low and high impact estimates.
Source: BBC Research & Consulting, 2005.

Impacts on Wisconsin – Direct Costs and Rate Effects

Annual compliance costs for Wisconsin utilities were estimated to range between \$204 million per year under IM1 (beginning in 2012) and \$711 million under EGU2 (beginning in 2013). These costs, and all impact estimates presented in this report, are over and above the costs of compliance with CAIR. The costs for EGU1 and EGU2 include both direct compliance costs and the costs of replacing electric generation from older

and smaller generating units that would be uneconomic to retrofit and operate under the emission cap levels in these scenarios.

Electric utilities would pass these cost increases along to consumers. Wisconsin electric rates are projected to increase, on average, by between 4.1% (under IM1) and 14.0% (under EGU2). These rate increases could increase the costs of electricity for residential consumers in Wisconsin by \$89 million (IM1) to \$304 million (EGU2) per year.

Exhibit S-2 summarizes the direct costs and rate effects of each scenario in Wisconsin.

*Exhibit S-2.
Projected annual compliance costs and rate effects in Wisconsin*

Scenario	Projected Annual Cost (\$ millions)	Projected Average Rate Increase	Projected Cost to Residential Consumers (\$ millions)
IM1 (2012)	\$204	4.1%	\$89
IM2 (2012)	\$303	6.1%	\$132
EGU1 (2013)	\$345	6.8%	\$147
EGU2 (2013)	\$711	14.0%	\$304

Note: All costs and rate effects are over and above increases to comply with CAIR.
Source: BBC Research & Consulting, 2005.

Partial Impacts of CAIR-Plus Regulatory Proposals on the Wisconsin Economy

Impacts on Wisconsin – Annual Economic Output

Projected electricity rate increases under each scenario were applied to models of the markets for each case study industry to estimate corresponding changes in the supply and demand for the goods these industries produce. The resulting changes in production were then translated into changes in output, employment and earnings for the case study industries and their suppliers using the IMPLAN regional economic model. A similar process was used to estimate the economic impacts resulting from reduced disposable income and spending by residential electric consumers because of higher electric bills.

Exhibit S-3 summarizes projected changes in annual output by the case study industries in Wisconsin and the industries that supply them and their employees. This exhibit also shows projected changes in total annual output in Wisconsin resulting from reduced expenditures for Wisconsin goods and services by residential consumers. Combining the effects on case study industries and supporting businesses with effects from reduced household spending, annual output in Wisconsin is projected to decline by between \$170 and \$330 million per year under IM1. At the other end of the spectrum, under EGU2 annual output in Wisconsin is projected to decline by between \$580 million and \$1.12 billion.

Exhibit S-3.
Projected Wisconsin output reductions under beyond CAIR scenarios (\$ millions)

<i>Scenario</i>	<i>Case Study Industries</i>	<i>Reduced Consumer Purchases</i>	<i>Total</i>
IM1 (2012)	\$60-\$220	\$110	\$170-\$330
IM2 (2012)	\$90-\$320	\$150	\$240-\$470
EGU1 (2013)	\$110-\$370	\$170	\$280-\$540
EGU2 (2013)	\$220-\$760	\$360	\$580-\$1,120

Note: Impacts on case study industries include effects on suppliers of those businesses and their employees.

Source: BBC Research & Consulting, 2005.

Partial Impacts of CAIR-Plus Regulatory Proposals on the Wisconsin Economy

Impacts on Wisconsin – Jobs

Reduced economic output also implies reductions in employment. Exhibit S-4 summarizes projected impacts on employment by the case study industries in Wisconsin and supporting industries. This exhibit also shows projected changes in Wisconsin employment due to reductions in household purchases as Wisconsin residents spend more on electricity and less on other goods and services.

Combining the effects on case study industries and supporting businesses with effects from reduced household spending, Wisconsin employment is projected to be reduced by between 1,500 and 2,300 jobs under IM1. Under EGU2, Wisconsin employment is projected to decline by between 5,300 to 8,000 jobs.

Further Information

For electronic copies of the complete study, please contact jeavons@bbcresearch.com.

*Exhibit S-4.
Projected Wisconsin job reductions under
beyond CAIR scenarios*

<i>Scenario</i>	<i>Case Study Industries</i>	<i>Reduced Consumer Purchases</i>	<i>Total</i>
IM1 (2012)	270-1,010	1,270	1,540-2,280
IM2 (2012)	400-1,540	1,880	2,280-3,420
EGU1 (2013)	450-1,720	2,110	2,560-3,830
EGU2 (2013)	940-3,600	4,350	5,290-7,950

Note: Impacts on case study industries include effects on suppliers of those businesses and their employees.

Source: BBC Research & Consulting, 2005.