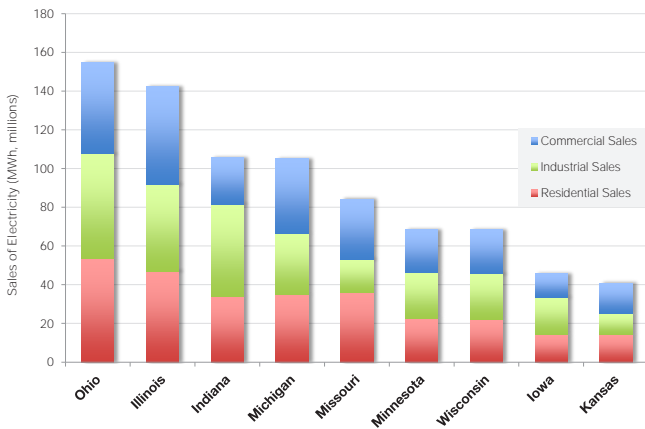




Midwest Combined Heat and Power Fact Sheet

Significant potential exists for combined heat and power (CHP) to play a larger role in the Midwest – especially within the region’s strong industrial sector where the technology can help improve economic competitiveness and reduce greenhouse gas emissions. While CHP adoption and potential vary by individual state, the Midwest stands to benefit from strategic CHP deployment.

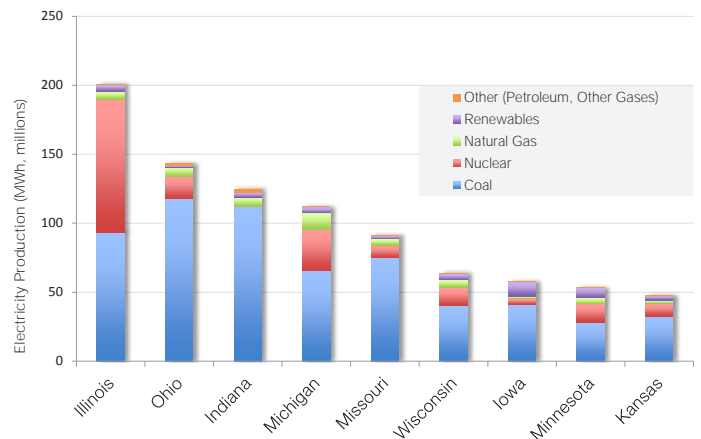
Sales of Electricity by State and Sector
MWh, 2011



Source: EIA

This column graph breaks down electricity sales by residential, commercial, and industrial sector across Midwest states. As can be seen, the total sales of electricity and the relative share of electricity sales between each sector vary widely between states.

Electric Power Industry Generation
by Primary Energy Source, MWh, 2010



Source: EIA

The graph above summarizes electricity generation by energy source and by state. Coal is used to produce the largest share of electricity in the Midwest, representing between 50-90 percent of total generation across the states. Natural gas has been the preferred fuel for CHP systems in the U.S., accounting for around 70 percent of existing CHP capacity.

State Electricity Sales (MWh)

	Ohio	Illinois	Indiana	Michigan	Missouri	Minnesota	Wisconsin	Iowa	Kansas
Residential Sales	53,687,111	47,057,002	33,912,098	34,811,337	35,941,243	22,523,727	22,149,941	14,326,771	14,343,748
Commercial Sales	47,111,763	50,468,038	24,111,250	38,612,718	30,962,081	22,371,109	23,054,970	12,087,902	15,609,278
Industrial Sales	53,913,437	44,844,111	47,774,083	31,624,220	17,329,648	23,618,724	23,406,711	19,240,204	10,807,373
Total Sales	154,712,311	142,369,151	105,797,431	105,048,275	84,232,972	68,513,560	68,611,622	45,654,877	40,760,399

Source: EIA

State Electricity Production (MWh)

Fuel Type	Illinois	Ohio	Indiana	Michigan	Missouri	Wisconsin	Iowa	Minnesota	Kansas
Coal	93,611,365	117,828,009	112,327,658	65,604,374	75,047,229	40,168,733	41,282,937	28,082,550	32,505,053
Nuclear	96,189,587	15,804,803	0	29,624,580	8,996,033	13,280,939	4,450,640	13,478,046	9,555,712
Natural Gas	5,723,733	7,127,859	6,474,986	12,249,262	4,689,867	5,496,814	1,312,195	4,340,847	2,287,323
Renewables	5,256,702	1,129,113	3,699,378	4,083,005	2,526,944	4,585,808	10,308,651	7,480,043	3,472,565

Source: EIA

Boiler MACT Affected Boilers by Fuel Type

State	Facilities	Coal Units	Biomass Units	Gas Units	Heavy Oil Units	Light Oil Units	Total Capacity (mmBtu/hr)
IA	71	41	5	208	2	6	35,935
IL	155	37	0	418	2	15	44,914
IN	160	32	10	390	11	14	50,349
KS	37	1	0	183	5	3	11,397
MI	98	54	6	192	8	7	28,039
MN	48	24	16	99	10	11	19,841
MO	56	26	2	72	3	18	11,231
OH	127	52	7	247	7	27	35,974
WI	81	43	16	148	7	8	21,331
Total	833	310	62	1,957	55	109	259,011

Source: EPA

The table above breaks down Boiler MACT affected units by fuel type and by state. Boiler MACT applies to boilers and process heaters that are installed at major source facilities and fueled by coal, oil, biomass, natural gas, or other solid, liquid, and gaseous non-waste materials. There are approximately 14,000 major source boilers that will be affected by Boiler MACT and most of them are located at industrial facilities. Overall, a majority (88 percent) of the units will need to follow work practice standards (tune ups) and 12 percent (primarily coal oil, and biomass units) will need to meet numerical emissions limits. Switching some of the impacted coal and oil boilers to natural gas fuel and implementing a CHP system can result in large efficiency gains and major reductions to the sources covered under the regulation in addition to greenhouse gas emissions.

Boiler MACT - Number of Facilities by Application

Application	IA	IL	IN	KS	MI	MN	MO	OH	WI	Total Facilities
Manufacturing	48	106	124	23	59	30	34	96	56	576
Utilities	11	18	12	5	20	12	15	16	4	113
Other Applications	3	5	12	3	6	4	3	1	8	45
Pipeline Transportation	5	18	2	5	2		2	4		38
Educational Services	4	1	4		4	1	2	4	10	30
Printing and Related Support Activities		5	4	1				4	3	17
Professional, Scientific, and Technical Services		2	2		7	1		2		14
Grand Total	71	155	160	37	98	48	56	127	81	833

Source: EPA

Boiler MACT - Total Capacity by Application (mmBtu/hr)

Application	IA	IL	IN	KS	MI	MN	MO	OH	WI	Total Capacity (mmBtu/hr)
Manufacturing	24,544	38,951	41,103	9,682	19,005	9,198	3,690	24,650	16,731	187,555
Utilities	7,578	4,669	4,361	760	4,450	7,208	7,047	9,264	3,019	48,355
Educational Services	3,089		3,028		1,571		21	2,009	1,055	10,773
Professional, Scientific, and Technical Services		40			2,002	939				2,981
Other Applications	724	368	157	916	376	0	10	10	290	2,851
Mining (except Oil and Gas)			65		634	2,150				2,849
Air Transportation			999			346				1,345
Printing and Related Support Activities		310	637					41	236	1,223
National Security and International Affairs		577		39			462			1,079
Grand Total	35,935	44,914	50,349	11,397	28,039	19,841	11,231	35,974	21,331	259,011

Source: EPA

This table summarizes Boiler MACT affected facilities according to application and by state. As this table illustrates, there are an especially large number of utilities and manufacturing facilities that will be affected by the rules. Over half of the affected boilers are located in just three states: Indiana, Illinois, and Ohio.