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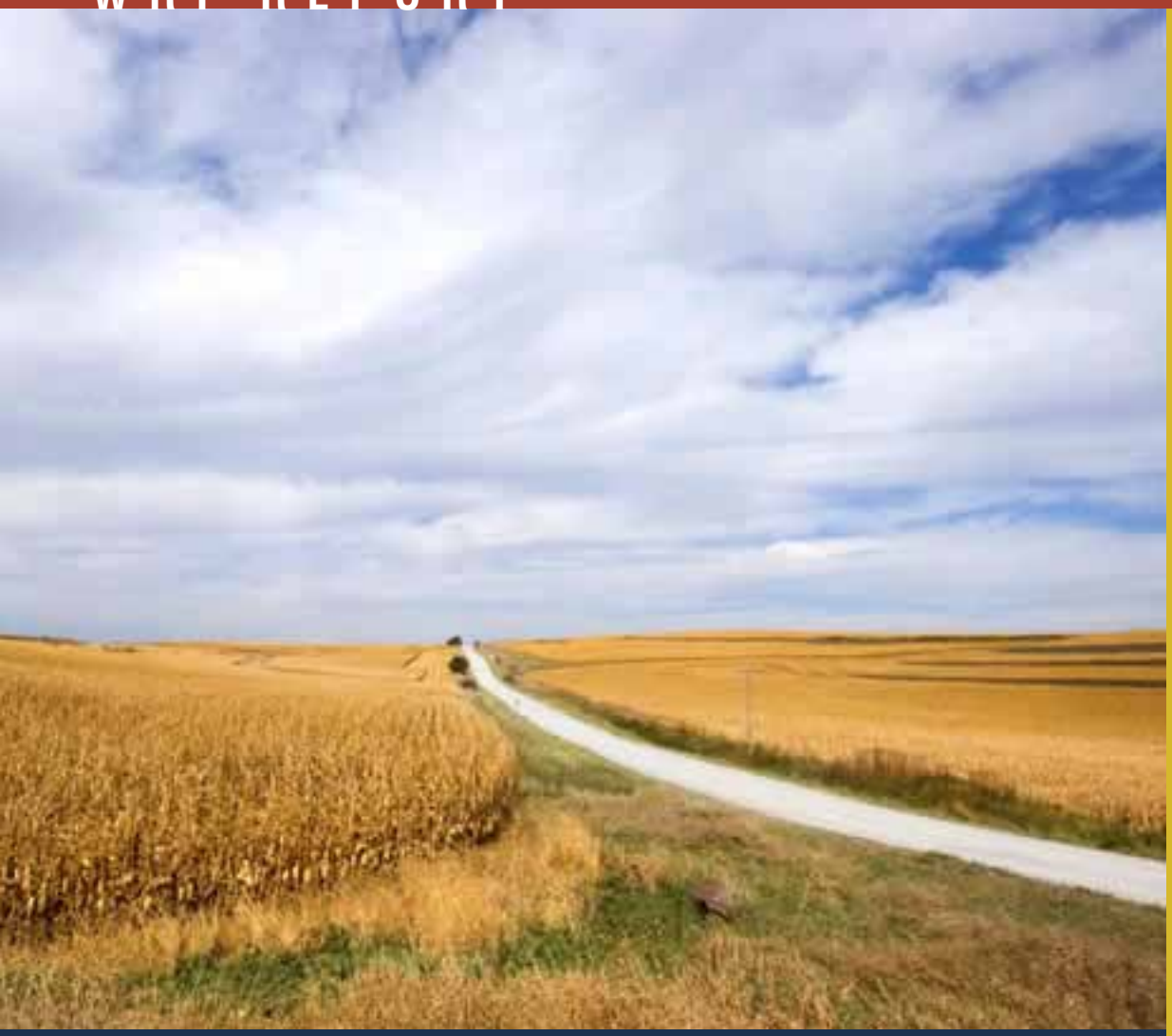
WRI REPORT



ILLINOIS

INDIANA

IOWA

MICHIGAN

MINNESOTA

MISSOURI

OHIO

WISCONSIN

CHARTING THE MIDWEST

An Inventory and Analysis of Greenhouse Gas Emissions in America's Heartland

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Note

WRI data utilized in this report uniquely provide a common methodological framework for readily comparing GHG emissions across U.S. states. However, it is not the intent of this report to serve as a substitute for emission estimates that might be available from state or local agencies, where complementary or higher-resolution data sets could provide additional information. The data contained in this report may differ from those reported by individual states, but is generally comparable. Disparities in estimates of emissions between WRI and state inventories are likely a result of one or more of the following: data availability, methodologies, and data values, which could include the activity data or emission factors used to calculate GHG emissions in a particular sector.

INDIANA

• In 2003, Indiana GHG emissions totaled 269 $MtCO_2e$, representing 17 percent of Midwest emissions and 4 percent of U.S. emissions.

• Indiana's top-emitting sectors include electric generation, industrial energy use, transportation, and industrial processes.

• Between 1990 and 2003, approximately 90 percent (24 $MtCO_2e$) of Indiana's growth in emissions from energy sectors was attributable to an increase in emissions from electric generation and transportation.

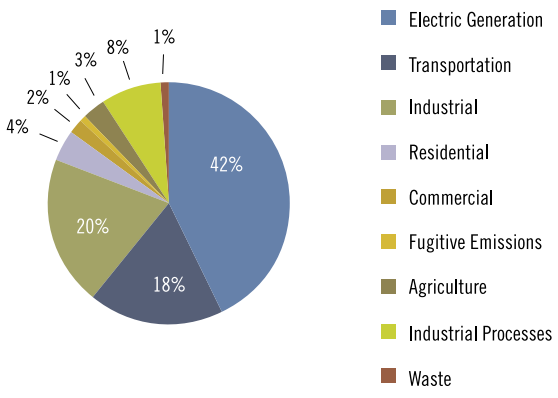
• GHG emissions from industrial energy use represent the second highest total of any sector in Indiana (behind electric generation). Between 1990 and 2003, industrial emissions decreased by 2 percent, which was one-seventh of the average decline in emissions from this sector for all other Midwest states.

Indiana is the second largest GHG emitter in the Midwest and the sixth largest emitter in the nation in terms of absolute emissions. The state's GHG emissions account for approximately 17 percent of the Midwest's emissions and 4 percent of U.S. emissions. Indiana's per capita emissions (44 metric tons of CO_2e) are the highest in the Midwest, nearly 70 percent higher than the Midwest per capita emissions average and 90 percent higher than the national average. The primary reason for Indiana's relatively high emissions per capita is the state's reliance on coal to fuel electricity production (see Indiana State Spotlight).

Approximately 80 percent of Indiana's GHG emissions are produced by the major energy sectors: electric generation (42 percent), industrial energy use (20 percent), and transportation (18 percent). Indiana is the only Midwest state where total emissions from industrial energy use are greater than those from the transportation sector. In addition, GHG emissions from industrial processes are higher than those from any other state in the Midwest, accounting for approximately 22 $MtCO_2e$, or 8 percent of total state emissions (Figure 4.5). The majority of these emissions are from the manufacturing of iron and steel as Indiana accounts for the largest share—approximately 22 percent—of the U.S. steel industry (USGS, 2003). As a result of Indiana's industrial economy and its coal-based electricity generation, CO_2 emissions comprise a greater portion of total emissions compared to other Midwest states, the region, and the nation, while CH_4 and N_2O emissions make up a smaller-than-average percentage of total emissions (Figure 4.6).

Between 1990 and 2003, Indiana's total GHG emissions grew by 11 percent, equal to that of the Midwest

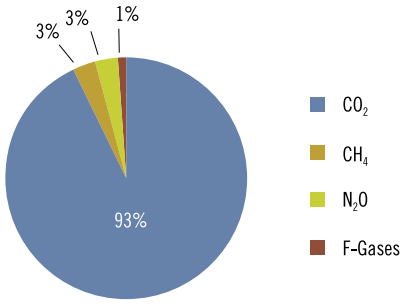
Figure 4.5 | **Indiana GHG Emissions by Economic Sector: 2003**



Source: WRI, CAIT-US (2007).

and comparable to the nation as a whole. While the percentage of emissions growth for Indiana's electric generation and transportation sectors during this period was below regional and national averages, the increase in GHG emissions in the commercial sector was nearly three times the national average (Table 4.3). Indiana's commercial sector, however, accounts for only 2 percent of state emissions. Likewise, fugitive emissions, which constitute less than 1 percent of total emissions, increased by 36 percent between 1990 and 2003, while region-wide and national data for this sector show decreases of comparable magnitude. It is also worth noting that although total industrial energy use emissions in Indiana are greater than in any other Midwest state, reductions in emissions from the industrial sector were lower than declines experienced elsewhere on a percentage basis.

Figure 4.6 | **Indiana GHG Emissions by Gas: 2003**



Source: WRI, CAIT-US (2007).

Recently, Indiana, like much of the Midwest, has experienced slowing rates of growth in population (U.S. Census, 2006). Despite this trend, state GDP has risen 16 percent since 1997, significantly above the Midwest regional average of 12 percent (BEA, 2007). Indiana and national growth in GHG emissions have generally followed the latter driver (GDP); emissions growth in Indiana between 2002 and 2003 is comparable to that experienced in the late 1990s (around 4 percent annually), prior to the recession of 2000–2001.

Table 4.3 | **Indiana GHG Emissions and Trends by Economic Sector: 1990-2003**

SECTOR	1990 EMISSIONS ($MtCO_2e$)	2003 EMISSIONS ($MtCO_2e$)	1990-2003 EMISSION TRENDS		
			INDIANA % CHANGE	MIDWEST % CHANGE	U.S. % CHANGE
Energy Sectors	*208*	*234*	*12*	*14*	*14*
Electric Generation	95	114	19	25	24
Transportation	42	48	14	20	19
Industrial	55	54	-2	-11	-3
Residential	10	11	9	8	12
Commercial	5	6	18	9	7
Fugitive Emissions	1	2	35	-40	-35
Agriculture	11	9	-16	-8	0
Industrial Processes*	3	22	-15	-5	8
Waste	3	4	17	-21	-9
Total*	***226***	***269***	***11***	***11***	***13***

Source: WRI, CAIT-US (2007).

Notes: Totals exclude emissions from international bunker fuels and land-use change and forestry.

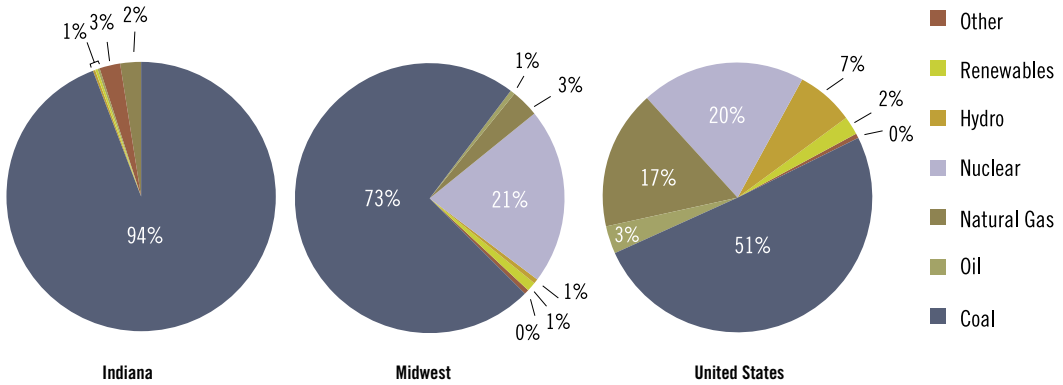
*Due to inconsistencies in industrial processes emissions data prior to 1997, the 1990 emission value for this economic sector has been replaced with the 1997 estimate. Trend calculations for industrial processes reflect the time period 1997 to 2003.

**While the 1990 total emissions value presented here includes industrial processes emissions for 1997 as noted above, calculations of total state, regional, and national emission trends do not include any industrial processes data in order to maintain consistency between 1990 and 2003.

INDIANA STATE SPOTLIGHT: ELECTRICITY PRODUCTION FROM COAL

Indiana's relatively high emissions per capita value and its GHG-intensive economy are largely attributable to the state's dependence on coal for electricity production. Nearly 95 percent of Indiana's electricity comes from coal combustion, and it is the only state in the Midwest without any nuclear generation, which produces no direct GHG emissions (Figure 4.7). For comparison, the Midwest's major sources for electricity generation, on average, include 73 percent coal and 21 percent nuclear; the national average fuel mix is 51 percent coal, 20 percent nuclear, and 17 percent natural gas. Because coal is the most GHG-intensive fossil fuel and Indiana has an electricity resource mix strongly weighted toward coal, emissions from Indiana's electric generation sector comprise an above-average proportion (42 percent) of total emissions compared to the region as a whole. In addition, CO_2 makes up a larger portion (94 percent) of Indiana's GHG emissions profile than any other state in the Midwest.

Figure 4.7 | **Indiana, Midwest, and U.S. Electricity Generation by Source: 2003**



Source: EIA (2007).