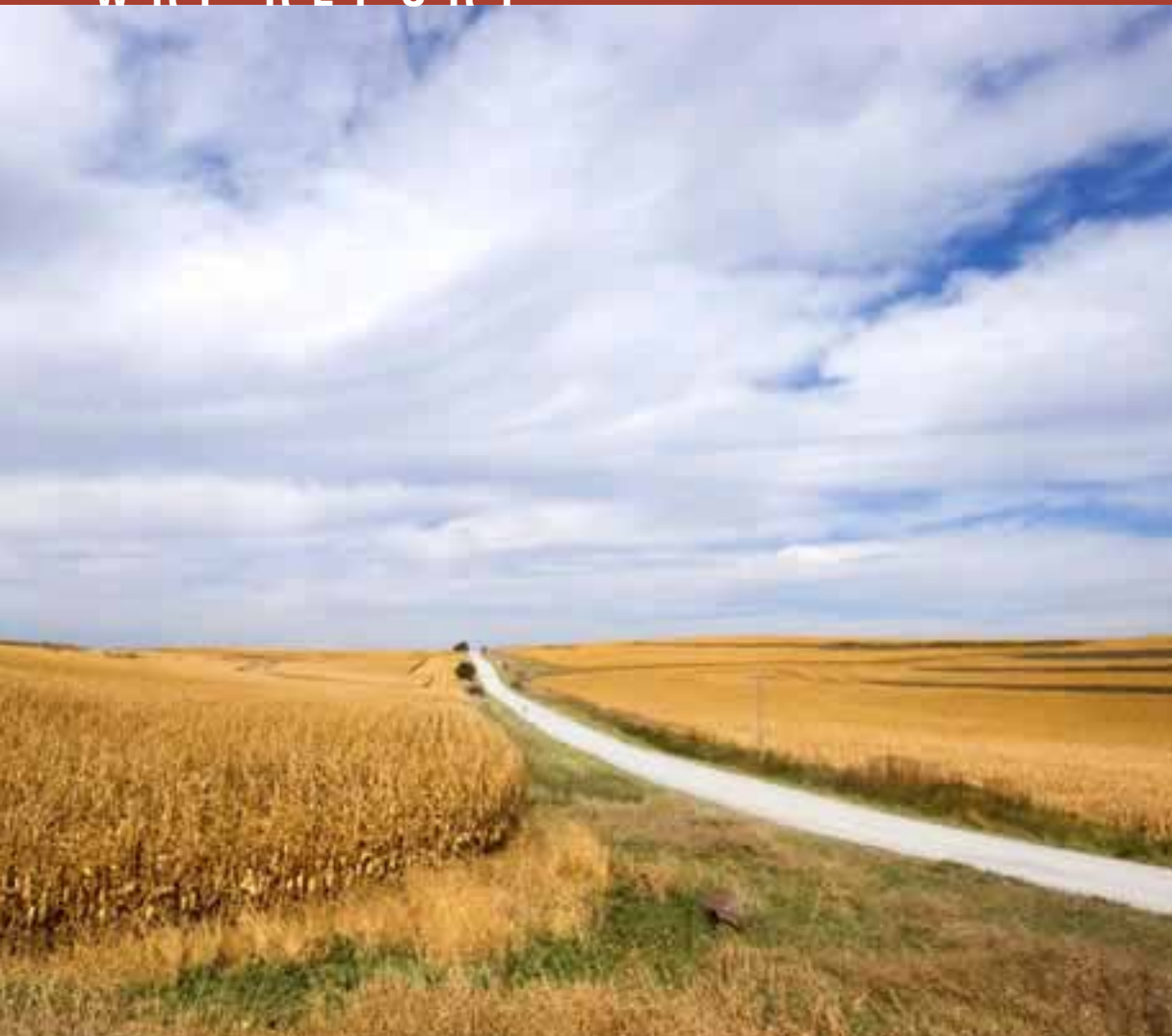


W R I R E P O R T



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

ILLINOIS

INDIANA

IOWA

MICHIGAN

MINNESOTA

MISSOURI

OHIO

WISCONSIN

JOHN LARSEN

THOMAS DAMASSA

RYAN LEVINSON

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.



ILLINOIS

- In 2003, Illinois GHG emissions totaled 269 MtCO₂e, representing 17 percent of Midwest emissions and 4 percent of U.S. emissions.
- Illinois' top-emitting sectors include electric generation, transportation, industrial energy use, and residential energy use.
- GHG emissions from electric generation increased by 53 percent (30 MtCO₂e) between 1990 and 2003—more than twice the national average. Transportation sector emissions increased by 19 percent (10 MtCO₂e) during this period.
- More than 80 percent (approximately 12 MtCO₂e) of Illinois' N₂O emissions come from the agriculture sector, most likely resulting from the production of fertilizer-intensive crops, such as corn.

Illinois is the third largest GHG emitter in the Midwest and the seventh 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 total U.S. emissions. Per capita emissions in Illinois are the lowest in the Midwest (with Michigan) and 9 percent less than the U.S. average. This is largely due to Illinois' reliance on nuclear power—an energy source that does not emit GHGs directly—for about half of its total electricity generation (see Illinois State Spotlight).

Approximately 72 percent of Illinois' GHG emissions are produced by the major energy sectors: electric generation (32 percent), transportation (25 percent), and industrial energy use (15 percent). Residential energy use contributes 10 percent of total state emissions (Illinois is the most populous state in the Midwest), and all other sectors contribute 5 percent or less (Figure 4.3). Illinois' gas emissions profile is comparable to that of the Midwest region as a whole. Most notably, N₂O emissions comprise a greater percentage of total emissions than CH₄ emissions, indicating the relatively important contribution of crop fertilizer and manure management in determining Illinois' emissions profile (Figure 4.4).

Between 1990 and 2003, Illinois' total GHG emissions grew by 12 percent, approximately equal to the growth in total emissions of the Midwest and the nation. Most of Illinois' emissions growth during this time period is attributable to the 53 percent increase in emission from the electric generation sector (Table 4.1). Growth in emissions from electricity generation, in turn, is partially a result of changes in Illinois' fuel mix for electricity generation. Specifically, between 1990 and 2003, Illinois increased its use of coal to generate electricity by 60 percent (EIA, 2007). Generation from nuclear power, Illinois' other primary source of

Figure 4.3 | Illinois GHG Emissions by Economic Sector: 2003

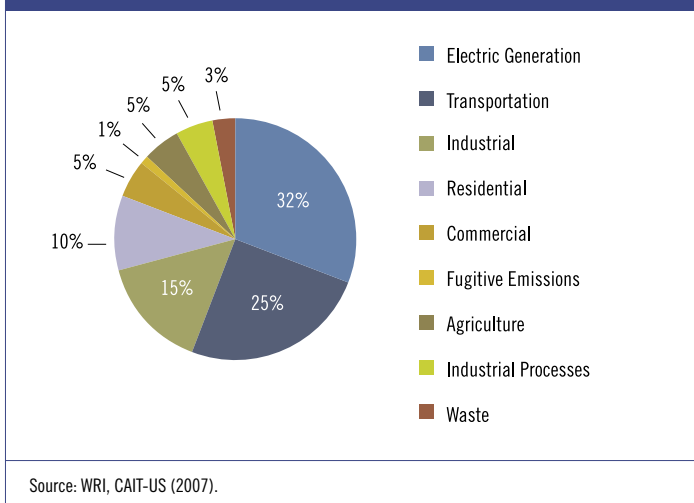


Table 4.1 | Illinois GHG Emissions and Trends by Economic Sector: 1990-2003

SECTOR	1990 EMISSIONS (MtCO ₂ e)	2003 EMISSIONS (MtCO ₂ e)	1990-2003 EMISSION TRENDS		
			ILLINOIS % CHANGE	MIDWEST % CHANGE	U.S. % CHANGE
Energy Sectors	201	234	16	14	14
Electric Generation	57	87	53	25	24
Transportation	56	66	18	20	19
Industrial	46	39	-14	-11	-3
Residential	26	27	3	8	12
Commercial	13	13	1	9	7
Fugitive Emissions	4	2	-56	-40	-35
Agriculture	18	15	-17	-8	0
Industrial Processes*	4	13	3	-5	8
Waste	9	7	-26	-21	-9
Total**	231	269	12	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.

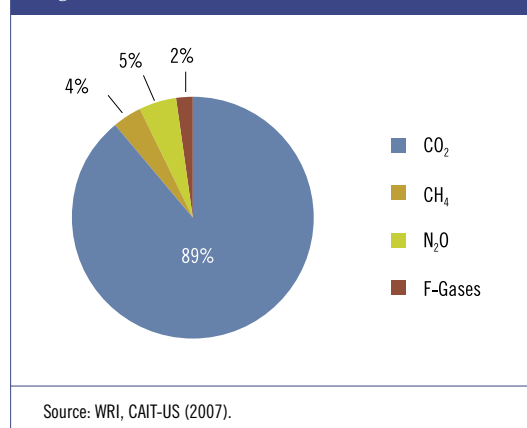
**While the 1990 total emissions value presented here includes industrial processes emissions for 1997 as noted above, calculations of total state, regional, and national emission trends do not include any industrial processes data in order to maintain consistency between 1990 and 2003.

electricity, increased by only 32 percent over the same period. As the share of total generation from coal—the most carbon-intensive fuel source—has increased, so has the share of emissions from Illinois’ electric generation sector and the state’s overall GHG emissions. Emissions growth in the state’s electric generation sector is also due to increased electricity demand both within and outside the state, since Illinois also exports a portion of the electricity it generates (see Chapter 3, Electric Generation).

Since Illinois has the largest population and economy of any state in the Midwest, it is not surprising that recent trends in population and economic output are comparable to the region as a whole (see Figure 2.3). GHG emissions in Illinois declined early in 2000–2001 due to national economic declines. However, while state GDP rebounded between 2002 and 2003, growing by nearly 3 percent, emissions growth did not track:

declines in overall population growth⁶ combined with efficiency improvements in certain sectors (see Chapter 3) most likely helped to temper a similar return to emission growth rates of the late 1990s.

Figure 4.4 | Illinois GHG Emissions by Gas: 2003



Source: WRI, CAIT-US (2007).

⁶ According to U.S. census estimates, approximately 30,000 more people were added to Illinois’ population in 1998 than in 2003.

ILLINOIS STATE SPOTLIGHT: NUCLEAR GENERATION



Coal is the fuel source for more than 70 percent of the total electricity generated in the Midwest. In Illinois, however, more electricity is generated from nuclear power than coal. In fact, Illinois produces more electricity from nuclear sources than any state in the nation (Table 4.2). In 2005, the most recent year for which these data are available, Illinois generated more than 93 million megawatt hours (MWh) of electricity from nuclear sources, accounting for nearly 50 percent of its total electricity generation. Because using nuclear power to generate electricity produces no direct GHG emissions,⁷ were it not for Illinois' relatively high nuclear capacity, the state's GHG emissions profile would likely be significantly more GHG intensive, since Illinois is currently the seventh largest U.S. emitter, based on absolute emissions. (For more details on the Midwest electric generation sector, see Chapter 3.)

Table 4.2 | Top 10 Nuclear Generation States: 2005

STATE	NUCLEAR GENERATION (Thousand MWh)	% OF STATE GENERATION FROM NUCLEAR POWER
1. Illinois	93,263	48.0
2. Pennsylvania	76,289	35.0
3. South Carolina	53,138	51.8
4. New York	42,443	28.9
5. North Carolina	39,982	30.8
6. Texas	38,232	9.6
7. California	36,155	18.1
8. Michigan	32,872	27.0
9. Alabama	31,694	23.0
10. Georgia	31,534	23.1
Midwest	176,262	20.7
Total U.S.	781,986	19.3

Source: EIA (2007).

Note: 19 states and Washington, DC, have zero nuclear generation.

⁷ Though nuclear power does have environmental impacts (including GHG emissions) from fuel mining and processing as well as waste disposal, it does not directly emit GHGs when generating electricity.