Midwest's carbon footprint declined over past decade; state-level data also highlight shift from coal to natural gas and renewables

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The Midwest’s carbon footprint got smaller over the past decade, a period of time in which the region’s mix of sources for electric power also changed significantly.

According to federal data released in May, total energy-related emissions of carbon dioxide declined in all but four Midwestern states between 2000 and 2010: Iowa, Nebraska, North Dakota and South Dakota. On a per-capita basis, South Dakota’s carbon footprint was smaller as well.

The majority of these CO2 emissions come from two sectors: electric power and transportation.

Several factors contribute to state-by-state variations in emissions as well as changes over time. For example, economic growth leads to greater overall energy use, and vice versa. Over the past decade, Michigan — the state with the smallest gains in per capita GDP — had the sharpest reduction in carbon emissions in the Midwest. In contrast, the four Midwestern states with rising levels of CO2 emissions had the strongest GDP growth during the last decade.

Other factors include population density (the denser the population, the less vehicle miles traveled) and the state’s climate (moderate climates require less heating and cooling needs). New York has the nation’s smallest per-capita carbon footprint thanks to the wide use of public transportation in that state as well as how electricity is generated — coal accounts for only about 7 percent of generation.

Most states in the Midwest, on the other hand, continue to have relatively large per-capita footprints, and one reason is the reliance on coal as a power source. With the exception of South Dakota (one of the nation’s leaders in hydroelectric power), every state in the region uses coal at a rate higher than the national average. However, it is becoming a smaller part of the power mix, with natural gas and renewable sources such as wind becoming a larger part of the mix (see below).

In Ohio, for example, the share of power generated by natural gas more than doubled between 2000 and 2010. In Iowa, coal’s share of power generation fell by nearly 31 percent, and by the end of the decade, renewable sources accounted for nearly one-quarter of total electric power generation in that state.

Every Midwestern state except Nebraska now has renewable-energy portfolio goals or standards (most adopted since 2000); they are mandatory in Illinois, Iowa, Kansas, Michigan, Minnesota, Ohio and Wisconsin.