With renewed federal commitments and state and county leadership pushing for clean energy and climate policies, people are seeking to understand how the Midwest fits into the global climate action puzzle. The U.S. has the by far the largest amount of cumulative carbon emissions in the world and our Midwest region’s emissions remain incredibly high—which means we have a crucial role to play in reducing emissions moving forward. If it were ranked as an independent country, the Midwest would be the fifth-largest emitter in the world.

As Fresh Energy, partners, and supporters continue working to speed Minnesota and the Midwest’s transition to a clean energy economy, it’s imperative that we understand where action for clean energy and climate can have the most impact on greenhouse gas emissions. And we know that our region has a critical role to play. Why? We dive into a handful of reasons below.

The Midwest leads U.S. emissions, here’s why

U.S. Emissions by Region

GLOBAL
(Top 10 Emitters)
1. China
2. U.S.
3. India
4. Russia
5. Japan
6. Germany
7. Islamic Republic of Iran
8. South Korea
9. Saudi Arabia
10. Indonesia

U.S.
(Emissions by Region)

Updated November 2021
U.S. Energy Information Administration (2018) Energy-Related CO2 Emission Data, Table 1

Midwest
Pollutants from vehicle exhaust span a wide range, from particulate matter (PM), volatile organic compounds (VOCs), and nitrogen oxides (NOx) to other greenhouse gases (GHGs) like carbon dioxide. While their names may seem innocuous, the impact of these GHGs on human health when regularly inhaled is dire, posing the greatest concern for youth, the elderly, and under-resourced communities.

Air pollution risks are unequal

In 2019, vehicle exhaust overtook coal plants as Illinois' single biggest source of carbon emissions. And the problem extends across the Midwest. Experts have predicted that what Illinois experienced with its carbon emissions sources in 2019 will be seen in other Midwest states too: Coal will be replaced with clean, renewable, carbon-free sources of energy—but transportation-related emissions, particularly from on-road vehicles, will continue to rise. That's why implementing policies and programs that reduce tailpipe emissions are critical to public health and the planet.

Fortunately, electric vehicles (EVs)—which have low or no tailpipe emissions—serve as one part of a multi-pronged solution for decarbonizing our economy and lowering GHG emissions in addition to more active transportation forms like walking, rolling, and biking (including e-biking). The EV evolution is underway, and—thanks to decades of work by Fresh Energy and its partners—Minnesota is leading the Midwest in making huge strides in both generating cleaner electricity that emits less GHGs and powering end-use sectors like transportation with that cleaner electricity.

In 2021, Minnesota demonstrated its commitment to transportation that prioritizes cleaner air and healthier communities with the passage of Clean Cars Minnesota, a long-standing Fresh Energy priority, making Minnesota the first state in the Midwest to become a Clean Cars state! But we're not stopping there! In tandem with our high-profile clean cars work, Fresh Energy's policy experts have been pursuing myriad other policy-based solutions for advancing clean transportation of all kinds in the state by working at the agency and regional levels to spur progress to electrify transit and school buses, mapping a path to zero emissions for medium- and heavy-duty vehicles, ensuring equitable access to EV charging and electricity rates, and more!
2. Midwestern utility companies rely heavily on coal.

Compared to national standards, the Midwest is disproportionately reliant on coal power. In 2020, Missouri, Indiana, and North Dakota were the second-, third-, and sixth-largest coal-consuming states, EIA figures show, followed closely by other Midwest states like Ohio, Illinois, and Michigan. From cars to furniture, machinery, the production and distribution of metal products, trailers, motor homes and appliances, the production and distribution of chemical products, and the lumber used to build homes, for the past 150+ years, the Midwest has had an economy powered by manufacturing. The heavy machinery used in these operations is often located in geographic areas which still get a majority of their power from fossil fuels like coal, as well as fossil gas.

Coal plants in and serving Minnesota

Fortunately for Midwesterners, a growing abundance of renewable resources is allowing some large utilities—like Xcel Energy, Minnesota Power, and Otter Tail Power here in Minnesota—to close their coal plants early and replace the power with less-costly renewables. (Check out Fresh Energy’s first-of-its-kind Minnesota Coal Countdown interactive tool for real-time updates.) In states like Minnesota, utilities are also changing how they run their coal plants. This change is in part a response to close scrutiny of coal plant operations by organizations like Fresh Energy, as well as our engagement at regulatory venues like the Public Utilities Commission.

Now, as an outcome of our work, all Minnesota coal plants are, or will soon be, only operating when it makes the most economic sense in electricity markets —this practice is called economic commitment or seasonal idling. Fresh Energy and our partners are working hard on large, impactful state and federal clean energy policies, but in the meantime, we are also going plant-by-plant to secure closure dates. Closing a plant is incredibly complicated, with significant impacts on local communities. Fresh Energy is using data-based research and policy to set as-soon-as-possible closure dates that meet the urgent challenge of our climate crisis while ensuring that utilities, workers, and communities have the time and resources necessary to plan a successful transition.

Visit the Minnesota Coal Countdown interactive tool for real-time coal plant updates.
And with utility-scale wind and solar energy increasingly proving to be more cost-effective than coal (with renewable energy sometimes costing up to three times less than coal), more and more utilities across the Midwest are realizing that utility-scale renewables are a worthy alternative to fossil fuels. For example, in 2020, renewables like wind and solar, and carbon-free sources such as hydropower and nuclear power, provided 55 percent of the electricity generation in Minnesota—a 7 percent increase over the prior year. And 2020 also marked the first time that wind and solar generation surpassed coal in Minnesota (see Chart 1 below)!

The bottom line: States across the Midwest have seen significant growth in electricity generated from renewables as they swap fossil fuels for clean energy, a trend expected to continue as utilities add more megawatts of wind and solar to the grid.

In 2020, wind and solar generation in Minnesota surpassed coal! Graphic/Fresh Energy.
3. Midwest homes and buildings rely heavily on fossil gas for heating.

If you haven’t noticed, it gets cold up here! A large range in seasonal air temperature across the Midwest causes energy demand for both heating and cooling, with the highest demand for winter heating. In Minnesota alone, the industrial sector consumes one-third of the fossil gas (also known as natural gas) that is delivered to consumers. And, of Minnesota households, two out of three heats with fossil gas.

It’s true that the U.S. and states across the Midwest have been turning a corner in electricity generation, having steadily worked to increase usage of carbon-free sources for years. But our commercial and residential building emissions continue to increase. Burning natural gas and propane in buildings accounts for about 14 percent of greenhouse gas emissions released in the Midwest. In the region’s urban areas, natural gas and propane use in buildings and homes can account for 30 percent or more of greenhouse gas emissions.

Fortunately, there are numerous programs and policies underway to accelerate equitable and just building decarbonization across the Midwest. The Midwest Building Decarbonization Coalition, a project of Fresh Energy, is helping lead that charge. We’re seeing more and more homes and buildings adopt cold climate heat pumps as part of their weatherization and energy efficiency updates, which save money and cut carbon emissions. And with Fresh Energy’s new Gas Decarbonization program, we’re already actively engaging with our partners and key stakeholders to maximize the major opportunities for decarbonization and drive equitable, transformational change here in Minnesota and throughout the Midwest.

4. The Midwest is an agricultural hub.

Often called the “Corn Belt,” it might seem like the Midwestern states (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin) only grow corn and soybean as crops. But, in reality, the Midwest offers incredibly diverse agricultural production. There are over 127 million acres of agricultural land in the Midwest. Nearly 75 percent of that area is dedicated to growing corn and soybeans; on the other 25 percent, you might find everything from alfalfa, apples, and asparagus to green beans, blueberries, and cabbage to cherries, cranberries, and oats or peaches, plums, pumpkins, and wheat.

Overall, the region serves as one of the most intense areas of agricultural production in the
Agricultural production relies on both direct energy consumption—referring to the use of diesel, coal- or fossil gas-powered electricity, and, increasingly, renewable fuels for agricultural activities—and indirect energy consumption, such as the use of fuels and feedstock, especially natural gas, in the manufacturing of agricultural chemicals such as fertilizers and pesticides.

What’s more, large-scale land use changes like deforestation, soil erosion, and machine- or fertilizer-intensive farming methods that are often used across the Midwest emit nitrous oxide and methane, greenhouse gases that exacerbate the climate crisis. In 2019, 75 percent of U.S. nitrous oxide emissions came from agricultural soil management. And don’t forget about that manure! Manure is waste from livestock (poultry, cattle, horses) that is combined with bedding such as sawdust, wood shavings and/or feed waste to create fertilizer. In 2019, four percent of U.S. nitrous oxide emissions came from manure management alone.

Yet, agriculture is not only economically important to our region but serves as a rich tradition for communities across the Midwest. Moving forward, it is critical that we approach the realm of agriculture with an eye toward both agricultural productivity and the already-present increase in extreme weather events. The good news is that this is already happening. Agricultural leaders and communities across the region are seeking to improve soil health and water quality with sustainable agricultural practices while encouraging farmers to enter into the emerging carbon economy and approving siting of wind and solar farms—even blending renewable energy generation with agricultural production—across the region’s expansive rural territories.

Looking ahead

One thing is clear: The Midwest is crucial to achieving the country’s climate goals and building the clean energy economy we’re all striving for. Midwestern states like North Dakota and Iowa are leaders in wind energy deployment, and others like Illinois, Michigan, and Minnesota are leaders in the clean energy policy arena. With more communities across the region helping expand the clean energy transition in both rural and urban communities and throughout agricultural, transportation, manufacturing, and building sectors, we’re sure to see deep decarbonization accelerate throughout the Midwest this decade.

This progress will require sustained efforts from all of us. Energy policy, public demand for clean energy and clean energy jobs, and customer protection have already played a crucial role in driving the Midwest’s transition thus far, and they will continue to do so. Fresh Energy and our partners and supporters across the Midwest will be there to elevate and advocate for community priorities at every step and in each arena along the way.