



Environmental Benefits

Wind's Environmental Record

Wind power has some of the lowest environmental impacts of any source of electricity generation. Unlike conventional sources, wind power significantly reduces carbon emissions, saves billions of gallons of water a year, and cuts pollution that creates smog and triggers asthma attacks. Wind farms also leave the overwhelming majority of land they're built on undisturbed.

AWEA Wind Power 101: Environmental Benefits



Emissions

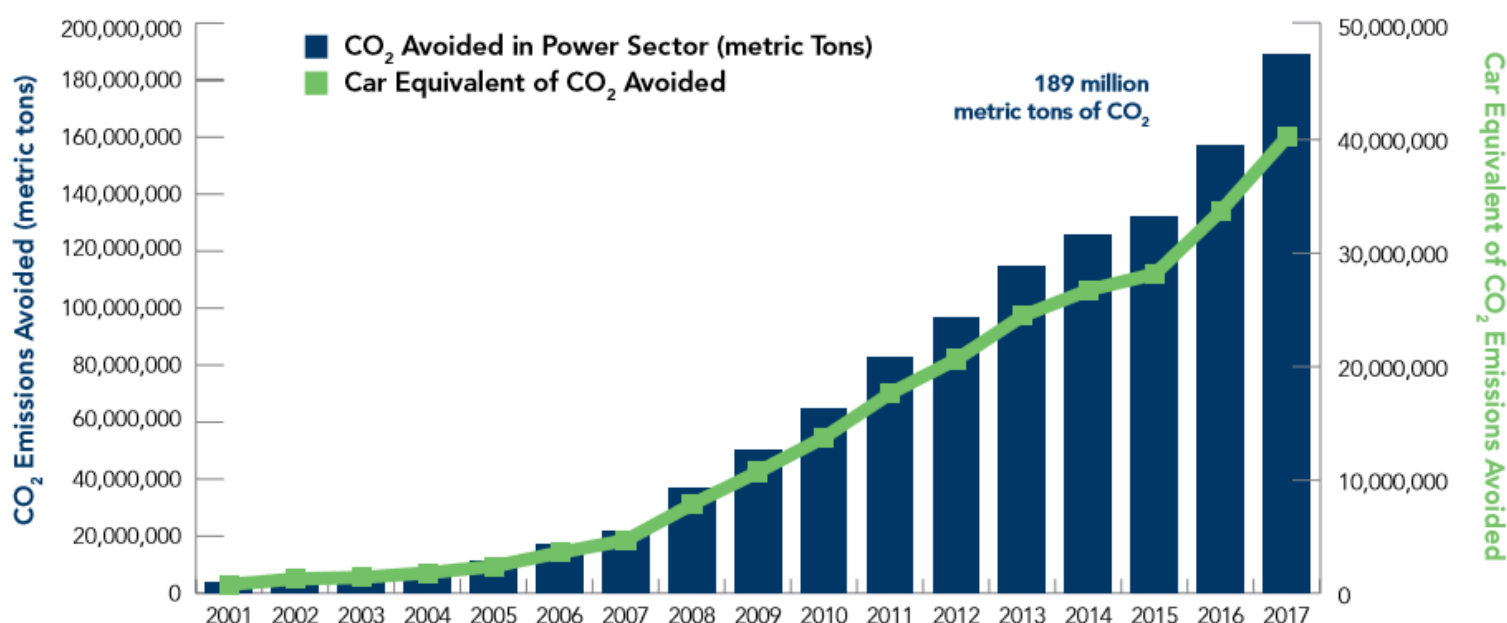
Carbon

Wind power is a low-carbon energy source—when a wind turbine generates electricity it produces zero carbon emissions. The development of clean wind energy avoids significant carbon dioxide (CO₂) pollution.

- In 2017, the electricity generated from wind turbines avoided an estimated 189 million tons of carbon pollution. This reduction is equal to roughly 11 percent of 2017 power sector emissions, or 40.3 million cars' worth of CO₂ emissions.

- A typical wind project repays its carbon footprint in **six months or less**, providing decades of zero-emission energy.

Figure 96
Wind Energy Impact on Avoiding Carbon Dioxide Emissions



Sulfur Dioxide and Nitrogen Oxides

Wind also helps cut significant amounts of sulfur dioxide (SO₂) and nitrogen oxides (NO_x), air pollutants known for creating smog and triggering asthma attacks. Reducing these pollutants helps to reduce rates of asthma and other respiratory issues.

- According to the EPA's AVERT tool, in 2017 alone, electricity generated from wind turbines displaced about 188,000 tons of sulfur dioxide (SO₂) and over 122,000 tons of nitrogen oxides (NO_x).
- These reductions in air pollution created \$8 billion in public health savings in 2017 alone.

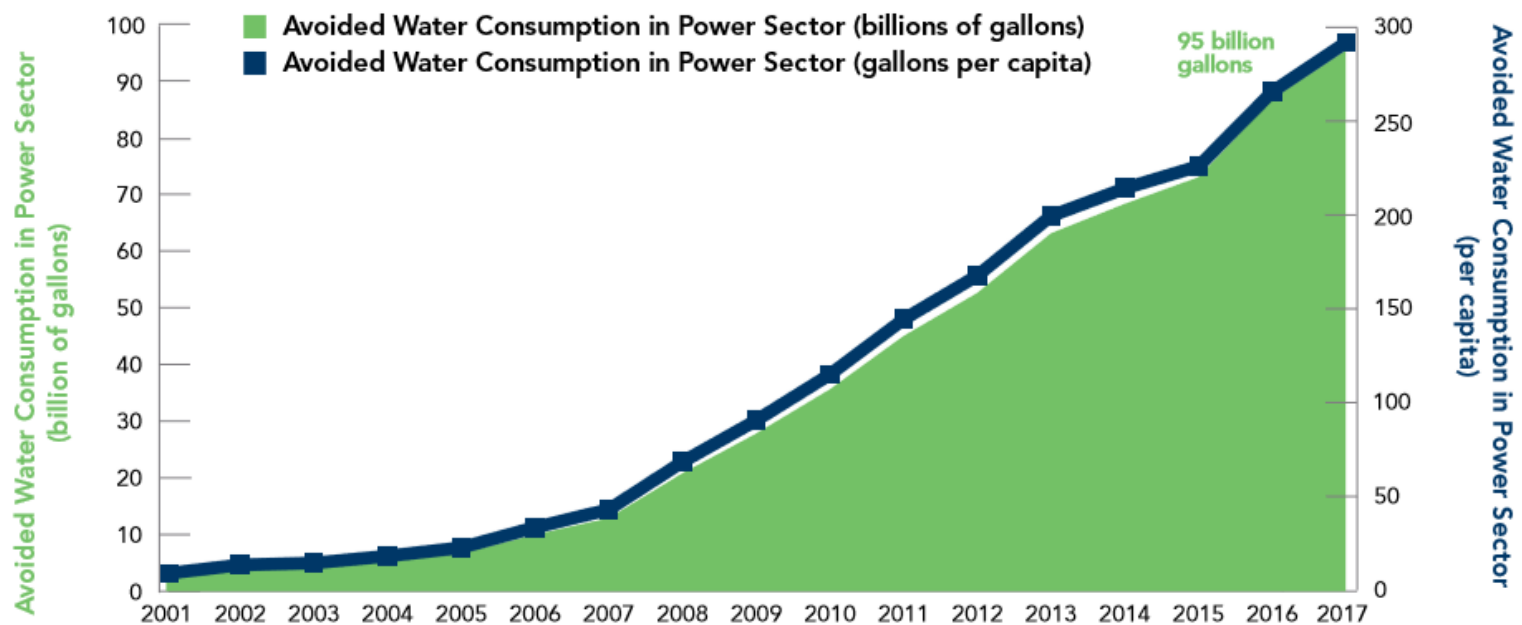
Water Conservation

Wind energy also saves billions of gallons of water every year. Unlike thermal power plants, wind turbines require no water to produce electricity or cool power generating equipment. Older, conventional power plants (coal, natural gas, nuclear), use substantial amounts of water for cooling the plant. In fact, the power sector withdraws more water than any other sector in the U.S., including agriculture. That means the more wind power the country uses, the more water that can be conserved.

- In 2017, wind energy generation reduced water consumption at existing power plants by approximately 95 billion gallons—the equivalent of 723 billion bottles of water.

Figure 97

Wind Energy Impact on Avoiding Water Consumption from Thermal Power Plants



Land Use and Wildlife

Besides cutting air pollution and reducing water use, wind farms have small footprints, allowing natural habitats and human economic activities to continue beneath them. That means farmers are able to earn more value from their land and wildlife can flourish with little disruption.

- The average wind farm leaves **98 percent of the land undisturbed**, leaving it free for other uses like farming and ranching.
- Studies show that wind has the lowest impacts on wildlife and their surrounding habitats of any large-scale way to generate electricity.

Wind 101

Basics of Wind Energy

Benefits of Wind

Winds Powers Job Growth

Economic Development

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Wind In My Community

Agriculture

Living Near Wind Turbines

Property Values

Distributed Wind

FAQs: The Truth about Wind Power

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