

PERSPECTIVES ON WASTE: WIND TURBINES

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EVERY ENERGY SOURCE PRODUCES WASTE

- The waste produced from repowering wind turbines is stable and nontoxic. [1]
- Coal combustion waste presents immediate and long-term dangers to human health through air pollution and the leaching of toxic chemicals like arsenic into groundwater used for drinking water. [2][3]
- The 17,169 blades from Iowa's 5,723 wind turbines (as of 2020) represent less than 5% of the annual waste sent to Iowa landfills in 2019. This waste load is projected to be a once-per-20 years waste stream. [4][5]
- If the operation of coal continues at the 2020 rate, Iowa's coal plants will generate 4.2 million tons of waste over 20 years while wind turbines will generate just 143,100 tons in the same period. [6][7][8] Put another way, we could repower all the wind turbines in Iowa one and a half times every year and not produce as much waste as we do from coal ash each year. [9]
- At the 2020 rate of operation, Iowa coal plants produce 30 tons of coal ash for every 1 ton of wind turbine waste over a 20-year period.
- If the operation of coal continues at the 2020 rate, Iowa's coal plants will pollute our air with 305 million tons of carbon dioxide, 292 thousand tons of sulfur dioxide, 199 thousand tons of nitrogen oxides, and 1,435 pounds of mercury over 20 years, while wind turbines will never generate air pollution. [10][11][12]
- Replacing coal generation with wind offers enormous waste and pollution reduction potential for Iowa.

TURBINES ARE SUSTAINABLE, AND COULD BE EVEN MORE SUSTAINABLE

- Wind energy creates no air or water pollution when it generates electricity. [13]
- 90% of a wind turbine can already be recycled or repurposed. [14]
- The glass fiber-reinforced plastics used to make turbine blades can be difficult to recycle and blades in Iowa have been sent to landfills. [15] However, researchers and businesses are working on ways to repurpose and recycle existing blade material. Some examples:
 - Example 1: [GE Renewable Energy Partnership with Veolia North America](#)
 - Example 2: Research - [Recycling wind turbine blade composite material as aggregate in concrete](#)
 - Example 3: [Re-wind Network - Repurposing Wind Blades](#)
- Rather than presenting a burden, reprocessing and repurposing of wind turbine composite materials could be an economic opportunity for the state of Iowa and help close the loop to make wind an even more sustainable source of energy.

SOURCES

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