This is the print version of the Skeptical Science article 'Wind turbines are very noisy', which can be found at http://sks.to/windnoise.

Are wind turbines noisy?

What The Science Says:
Depending on distance, wind turbines are comparable in noise to typical household AC-units.

Climate Myth: Wind turbines are very noisy
"Noise created by commercial-scale wind turbines has become a major concern around the world as wind power development continues to proliferate." (Wind Watch)

In a 2021 environmental impact statement for the 120-turbine, 500-MW Rail Tie Wind Project in Wyoming, which is anticipated to serve the energy needs of 180,000 households, the Department of Energy found that noise generated by site operations likely would not exceed 55 A-weighted decibels (dBAs)[1], except in a worst-case scenario in which noise "might reach slightly above 55 dBA."[2] The DOE provides as a point of comparison that sounds at 60 dBA resemble those of a residential air conditioner 20 feet away, whereas sounds at 50 dBA resemble those of a residential air conditioner 50 feet away.[2]

When measured from inside a building located 124–330 meters from a wind turbine, noise produced by the turbine's motion has ranged from 30.7–43.4 decibels (Chiu et al. 2021). When measured from outside at the same distance, noise level has ranged from 38.2-50.0 decibels in summer, and 38.9–44.6 decibels in winter (Chiu et al. 2021). For context, a soft whisper is 30 decibels, a refrigerator hum is 40 decibels, and a typical conversation takes place at 60 decibels.[3] The CDC has set 70 decibels as the cutoff at which prolonged exposure can cause annoyance and hearing damage. Also, noise has substantially decreased with turbine innovation: while earlier turbines created a steady noise from gears turning, modern turbines have been designed to insulate these sounds.[4]

Footnotes:

[1] A-weighted decibel measurements factor into their assessment how the human ear actually perceives sound. See Fundamentals of Noise and Sound, Federal Aviation Administration (last visited March 25, 2024).

[2] Rail Tie Wind Project Final Environmental Impact Statement, Nov. 2021, at ES-vi.

[3] What Noises Cause Hearing Loss?, Centers for Disease Control and Prevention (CDC) (last visited March 25, 2024)

[4] Wind Turbines, Environmental Protection Agency, Ministry of Environment of Denmark (last visited March 25, 2024).

This rebuttal is based on the report 'Rebutting 33 False Claims About Solar, Wind, and Electric Vehicles' written by Matthew Eisenson, Jacob Elkin, Andy Fitch, Matthew Ard, Kaya Sittinger & Samuel Lavine and published by the Sabin Center for Climate Change Law at Columbia Law School in 2024. Skeptical Science sincerely appreciates Sabin Center's generosity in collaborating with us to make this information available as widely as possible.

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Skeptical Science explains the science of global warming and examines climate misinformation through the lens of peer-reviewed research. The website won the Australian Museum 2011 Eureka Prize for the Advancement of Climate Change Knowledge. Members of the Skeptical Science team have authored peer-reviewed papers, a college textbook on climate change and the book Climate Change Denial: Heads in the Sand. Skeptical Science content has been used in university courses, textbooks, government reports on climate change, television documentaries and numerous books.

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