

Wind Energy Facts

Is wind energy more expensive than conventional energy?

No, wind energy is now one of the lowest-cost options for new electricity generation in Canada. In December 2017, a competitive electricity-supply auction in Alberta yielded the lowest-ever rate paid for wind energy in the country, a weighted average of \$37/MWh¹. A November 2018 report from the U.S. investment firm Lazard found that in the U.S., wind energy is the lowest-cost option for any new supply without any subsidies. It estimates the levelized cost of unsubsidized wind energy in the United States at \$32-\$62/MWh. For comparison, energy generated from coal ranges from \$60-\$143/MWh, nuclear energy even from \$97-\$136. Between 2009 and 2018, wind energy prices in the U.S. decreased by 69 per cent².

Are Wind Farms Noisy?

The continued development of wind farm technology over the past decade has decreased noise from turbines significantly. Thanks to technologies such as vibration control and optimized blade shapes, at a distance of 500 meters the noise from one wind turbine is comparable to a quiet conversation or the noise emitted by a modern fridge (approximately 40 dBA). Health Canada published a study in 2014, which found that wind turbine noise exposure was not associated with self-reported medical illnesses and health conditions³.

Examples of common sound levels (dBA)



140	Threshold of pain
130	Jet take off
120	Rock concert
110	Jackhammer
100	Power saw
90	Street traffic
80	Doorbell
70	Office
60	Normal conversation
50	Quiet urban neighborhood, daytime
40	Wind energy turbine
30	Soft whisper
20	Ticking of a wrist watch
10	Rustling leaves

Are wind farms inefficient and work only for a fraction of the time?

Efficient turbines that are installed today are a result of decades of research and development. The blades typically start to turn when the wind speed reaches approximately 12 km/h and shut down if winds reach approximately 88 km/h. At these wind speeds, turbines will produce electricity between 70-90 % of the time⁴. The average installed turbine generates enough power for approximately 1000 homes.

Are wind farms dangerous to human health?

A growing number of scientific, medical and acoustical experts have studied the subject of wind turbines and health around the world and published more than 40 studies on potential health effects. They conclude that there is no scientific evidence for any negative effects of wind turbines on human health when wind farms are sited properly⁵. According to a study published in Environmental Health, electromagnetic fields surrounding wind turbines are lower than those produced by common household items and therefore fall below regulatory guidelines with respect to human health⁶. In fact, wind energy creates a healthier environment for people and wildlife by providing electricity without emitting greenhouse gases or air pollutants and using no fresh water to generate electricity.

Are wind farms a danger for birds?

During the assessment phase of any new wind energy project, a series of environmental studies is conducted. The proposed site will be monitored and bird populations evaluated. Project developers put mechanisms in place such as setbacks around nests or shutdown during bird migration to reduce potential risks to birds. A series of 10 scientific papers in the Canadian journal Avian Conservation and Ecology found that cat predation and collisions with windows, vehicles, and transmission lines caused more than 95 per cent of all avian mortality⁷.

Does wind turbine production cause harm to the environment?

Quite the opposite. Wind farms have an excellent carbon footprint. Within the first 5 to 12 months, a modern wind farm generates all the energy necessary for its production, operation and disposal⁸. After the end of their operation, turbines can be recycled almost completely⁹.

Does a wind farm lower property value?

In a series of studies, the Municipal Property Assessment Corporation (MPAC) examined the assessments of properties in Ontario located at a distance of 1 km, 2 km and 5 km from wind turbines. The studies found that for both 2012 and 2016, there was no significant impact on sale prices of residential properties resulting from the proximity to a wind turbine^{10 11}. A 2013 study funded by the US Department of Energy came to similar conclusions. It looked at more than 50,000 home sales in 9 states, all within 10 miles of a wind farm, and at about 1,200 homes within 1 mile. This study too found “no statistical evidence that home values near turbines were affected”¹².

Learn more about Wind Energy in Canada: www.canwea.ca

1 Delphi Group, prepared for: Canadian Wind Energy Association (2017): Alberta Wind Energy Supply Chain Study

2 Lazard (2018): Levelized Cost of Energy and Levelized Cost of Storage 2018

3 Michaud, DS, Feder, K, Keith, SE, Voicescu, SA, Health Canada (2016): Exposure to wind turbine noise: Perceptual responses and reported health effects. The Journal of the Acoustical Society of America

4 CanWEA: “The secret is out wind is in”

5 Knopper LD, Ollson CA, McCallum LC, Whitfield Aslund ML, Berger RG, Souweine K and McDaniel M (2014): Wind turbines and human health. Front. Public Health

6 McCallum LC, Whitfield Aslund ML, Knopper LD, Ferguson GM, Ollson CA (2014): Measuring electromagnetic fields (EMF) around wind turbines in Canada: is there a human health concern? Environmental Health

7 Calvert AM, Bishop CA, Elliot RD, Krebs EA, Kydd TM, Machtans CS, Robertson GJ (2013): A synthesis of human-related avian mortality in Canada. Avian Conservation and Ecology

8 Institut für Energiewirtschaft und Rationelle Energieanwendung (Universität Stuttgart) (2007): Lebenszyklusanalyse ausgewählter Stromerzeugungstechniken

9 ICT – Fraunhofer-Institut für Chemische Technologie (2013): Recycling von Windkraftanlagen. Woidasky J, Seiler E

10 Municipal Property Assessment Corporation (2012): Impact of Industrial Wind Turbines on Residential Property Assessment in Ontario

11 Municipal Property Assessment Corporation (2016): Impact of Industrial Wind Turbines on Residential Property Assessment in Ontario

12 Hoen B, Wiser R, Cappers P, Thayer M, Sethi G (2011): Wind Energy Facilities and Residential Properties: The Effect of Proximity and View on Sales Prices. Journal of Real Estate Research