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Ecology Action Centre

IN OUR POWER:

Recharging Nova Scotia's Energy System

Wind: *A Reliable Source of Energy*

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Our energy system must meet the needs of all Nova Scotians. This is not wishful thinking. Energy is a human right, essential for health, safety, comfort and access to information. A system that is reliable, affordable and sustainable is essential.

We need that system now.

Is onshore wind energy reliable?

In a word, yes. According to the Canadian Climate Institute, o nshore wind is a "proven, mature technology with a well-established global supply chain and a track record of more than a quarter century of reliable performance and falling costs." We can count on wind to provide a clean, reliable source of energy. Wind is also the single most affordable form of electricity generation.

But wind energy is an intermittent source of energy, which means it is not always available. If the wind isn't blowing, then the turbines aren't active. When this happens, other sources are used for what is called fast-acting dispatchable energy.

However, it is important not to over-estimate the need for high-emitting alternative energy sources. It is equally important to explore renewable options for dispatchable energy such as using car batteries to recharge the electrical grid.

What about claims that wind energy caused blackouts in Texas, Spain and Portugal?

Wind was not the actual reason these areas experienced energy problems. Investigations into these incidents found that the primary cause of the Texas cold snap blackouts (2021) and the Spain/Portugal blackouts (April 2025) were caused by systemic failures across multiple energy sources and lack of weatherization, not the failure of wind energy specifically.

Has wind energy failed Nova Scotia during key weather events?

Most large power outages in Nova Scotia are caused by trees falling on power lines, not by a lack of wind generation. While wind is an intermittent energy source, it is often strongest during winter storms when energy demand is high.

Combined with modernized transmission systems, climate-adaptation measures and battery storage, wind energy can – and does – play a reliable role in a clean, affordable and resilient energy grid.

Are birds and bats in danger?

In Nova Scotia, a full year of bird and bat monitoring is required as part of the provincial environmental assessment. Modelling can also be used to help determine the best approach to protect birds and optimize generation. Wind projects in Ontario were studied for 10 years, and it was found that each turbine kills around five birds and 12 bats every year.

Action is being taken in some areas to reduce harm to animals. At the 20-turbine Digby Neck wind farm, for example, an estimated 286 birds were killed in the first year of operation in 2011, but this number dropped to only 29 when the lighting was extinguished.

It is also worth noting that turbines pose a much smaller risk to birds and bats than other energy sources. For example, the American Bird Conservancy estimated that collisions with wind turbines in the United States killed about 1.17 million birds in 2021. To put this in perspective, in the U.S., collisions with buildings are estimated to cause anywhere from 365 million to nearly a billion bird deaths every year, traffic collisions are responsible for roughly 214 million bird deaths per year and cats are responsible for as many as four billion bird deaths per year. Furthermore, wind energy is responsible for nearly five

times less bird fatalities per gigawatt-hour of electricity produced than fossil fuels, meaning that a transition to wind power (especially when following best practices to mitigate risk) would result in a substantial decrease in bird fatalities.

Do we need wind energy in Nova Scotia?

Wind is a very important source of energy for our province, and we are a leader in this important renewable energy. Indeed, if we are to reach the provincial government target of having 80 per cent of the grid powered by renewable energy by 2030, wind will play an even more critical role in our energy system moving forward.

Is offshore wind energy a viable option for power generation?

Offshore turbines are actually more efficient than onshore turbines. Wind tends to be stronger and more consistent offshore, and it is not impeded by the landscape. Offshore wind turbines are also larger than their onshore counterparts. In fact, they are expected to have triple the capacity of onshore turbines by 2035.

How do offshore wind turbines work?

Offshore wind turbines work the same way as those on land: wind turns the blades, which spins the generator, which produces electricity to power homes, schools and businesses. The power from each turbine flows first to an offshore substation, where the electricity is converted from AC to DC and then transmitted efficiently to onshore grids

Does battery storage play a role in enhancing the reliability of wind energy?

Yes. Battery storage is essential for making wind energy a reliable, on-demand power source. It solves the fundamental challenge of intermittency. When the wind stops blowing, batteries immediately discharge stored power to keep the grid running smoothly.

One study found that energy storage enhances grid stability by reducing short- and long-term wind power fluctuations and ensuring steady energy flow. Grids with energy storage were found to be more reliable and resilient, enabling better integration of variable wind-energy sources.

Resources

Canadian Climate Institute. *Onshore Wind.*

Let's Talk Science. *How do Wind Farms Affect Birds and Bats?*

MIT Climate Portal. *Do wind turbines kill birds?*

The Birding Insights. *The Causes of Bird Deaths in North America*

Scott R. Loss, Tom Will and Peter P. Marra. January 2013. *The impact of free-ranging domestic cats on wildlife of the United States*

Mastoi, Muhammad Shahid et al. December 2025. *Study of energy storage technology approaches for mitigating wind power fluctuations to enhance smart grid resilience*

Nova Scotia. *Environmental Assessment Supplemental Checklist: Wind Energy Projects*

Saskatchewan Research Council. *Smoothing It Out: Improving Wind Turbine Reliability with Energy Storage*

Withers, Paul. CBC News. May 16, 2024. *Is more needed to protect migratory birds as N.S. expands land-based wind farms?*