WIND ENERGY FACT SHEET

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Save the Loon with Wind Energy:

Comparative Impacts of Wind and Other Energy Sources on Wildlife

One of wind energy's important environmental benefits is its minimal impact on wildlife and natural habitat.

While no electricity generation is entirely benign, the impacts of some energy sources dwarf others in terms of the harm they cause to wildlife. Electricity in the U.S. is mostly produced from coal and other fossil fuels (70%), nuclear energy (20%), and dams, sources which take a heavy toll or impose significant risks on wildlife. [i]

Example: The common loon and other aquatic wildlife are at risk from high concentrations of the toxic heavy metal mercury, emitted largely from coal power plants, according to the National Wildlife Federation. "Rain falling over cities in the Great Lakes region contains as much as 65 times the EPA's "safe level" of mercury, which holds extremely serious health implications for both humans and wildlife," according to the Federation.[ii] Coal power plants are the single largest source of mercury emissions in the U.S., and those emissions are not regulated.[iii] Half of that mercury is airborne, and travels anywhere from 30 to 600 miles downwind of a plant.

Other impacts of U.S. electricity generation on wildlife include:

--**Harm from the sulfur dioxide (SO_2) and nitrogen oxide (NOx) released by coal and other fossil fuel power plants.** These pollutants not only cause respiratory ailments in humans—and probably also in wildlife—but also acidify rain, snow, and fog. Because of acid rain, in the Northeast in particular, many lakes and streams once thriving with aquatic creatures are now almost void of life in spite of their pristine appearance. Acidity depletes calcium, so acid rain also results in weaker eggshells for birds. Power plants account for 70% of SO_2 and 33% of NOx emitted in the U.S. "Protected" areas such as state and national parks offer no protection to wildlife from this and other forms of airborne pollution.

--Loss of habitat from mining for coal, uranium, gas and petroleum used to generate electricity. Birds and other wildlife lose their habitat and can be killed as land is blown up (for mountaintop removal**,** a coal-mining technique) or strip-mined for coal. An estimated 130,000 acres are disturbed every year for coal used for electricity generation in the U.S. In addition to the land and waste that fills riverbeds, acid mine drainage can occur for years after mines are closed, harming river systems and endangering waterfowl. No total national tally is kept of the impact on wildlife of extraction of fuels for electricity generation in the U.S..

--**Direct and indirect kills from hydroelectric and nuclear power plants**. Dams have caused the extinction or dramatic decline of several species of ocean-going fish, including

wild salmon of the Pacific Northwest and shad of the Eastern Coast. Even if the fish get past the dams to spawn upstream thanks to fish ladders, many of the young perish in the retention ponds above the dam. Local river and coastal ecosystems are also altered by nuclear and other power plants using "once-through" river or coastal water to cool their reactors and equipment. Waters are warmed above their normal temperature, and fish and other aquatic creatures including seals can be killed in the cooling systems.[iv]

--Global warming. The earth's temperatures are growing warmer, with build-up of carbon dioxide (CO_2) and other greenhouse gases a key factor, according to the U.S. National Oceanic and Atmospheric Administration and other scientific organizations. Some species may thrive with the ecosystem changes brought about by global warming, but many others are likely to perish, as they are unable to adapt. A new report by the World Wide Fund for Nature (WWF) finds that the gradual warming of the Arctic is already endangering the lives of birds in the polar region. Fossil fuel power plants account for about 34% of CO_2 emitted by the United States, itself the largest emitter of CO_2 worldwide.

--**Risks from radioactivity and radioactive wastes.** The operation of nuclear power plants presents low-probability, but potentially catastrophic risks for wildlife as well for human beings. Transportation and storage of radioactive waste similarly pose risks to wildlife.

By contrast, the impacts of wind energy on wildlife are minimal, **even where wind energy is widely used**.

--Minimal harmful impacts on birds: In Denmark, the country with the most intensive use of wind energy, wind turbines generate 10% of electricity and are widespread, but have not been found to cause significant harm to wildlife including birds. Power lines pose a much greater threat to birds, according to Danish and U.S. studies. The National Audubon Society recently issued a statement in support of responsibly sited wind project development.[v]

--**Positive impacts on wildlife**: In 1998-99, 925 megawatts (MW)—equivalent to about four medium-size coal or one nuclear power plant—of wind energy generating capacity were added in the U.S., mostly on Iowa and Minnesota farmland. Based on the average U.S. electricity mix, this new wind power is, every year, saving 170 acres of land from mining, and displacing 10,128 tons of SO_2, over 2 million tons of CO_2, 6,500 tons of NOx, and many other pollutants, thereby helping provide cleaner air and healthier habitat for wildlife.

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[i] *The Environmental Imperative for Renewable Energy: An Update*, April 2000, Renewable Energy Policy Project.
[ii] *Great Lakes Power Plants Top List of Mercury Polluters*, Nov. 17, 1999, National Wildlife Federation press release.
[iii] *Mercury Falling, An Analysis of Mercury Pollution from Coal-Burning Power Plants,* Nov. 1999, Environmental Working Group, Clean Air Network and Natural Resources Defense Council.
[iv] Over 40 million fish die per year in the intakes of 90 Great Lakes power plants using once-through systems, according to *Environmental Costs of Electricity*, 1991, Richard Ottinger et al., Pace University Center for Environmental Studies.
[v] *National Audubon Applauds Enron Wind Corp. Decision to Pursue Alternate Site for Wind Power Development*, Nov. 3, 1999, Audubon press release. In the U.S. the only site that has caused major bird kills is the Altamont Pass, developed in the 1980s in California. See *A Continued Examination of Avian Mortality in the Altamont Pass Wind Resource Area,* BioSystems, January 1996.