

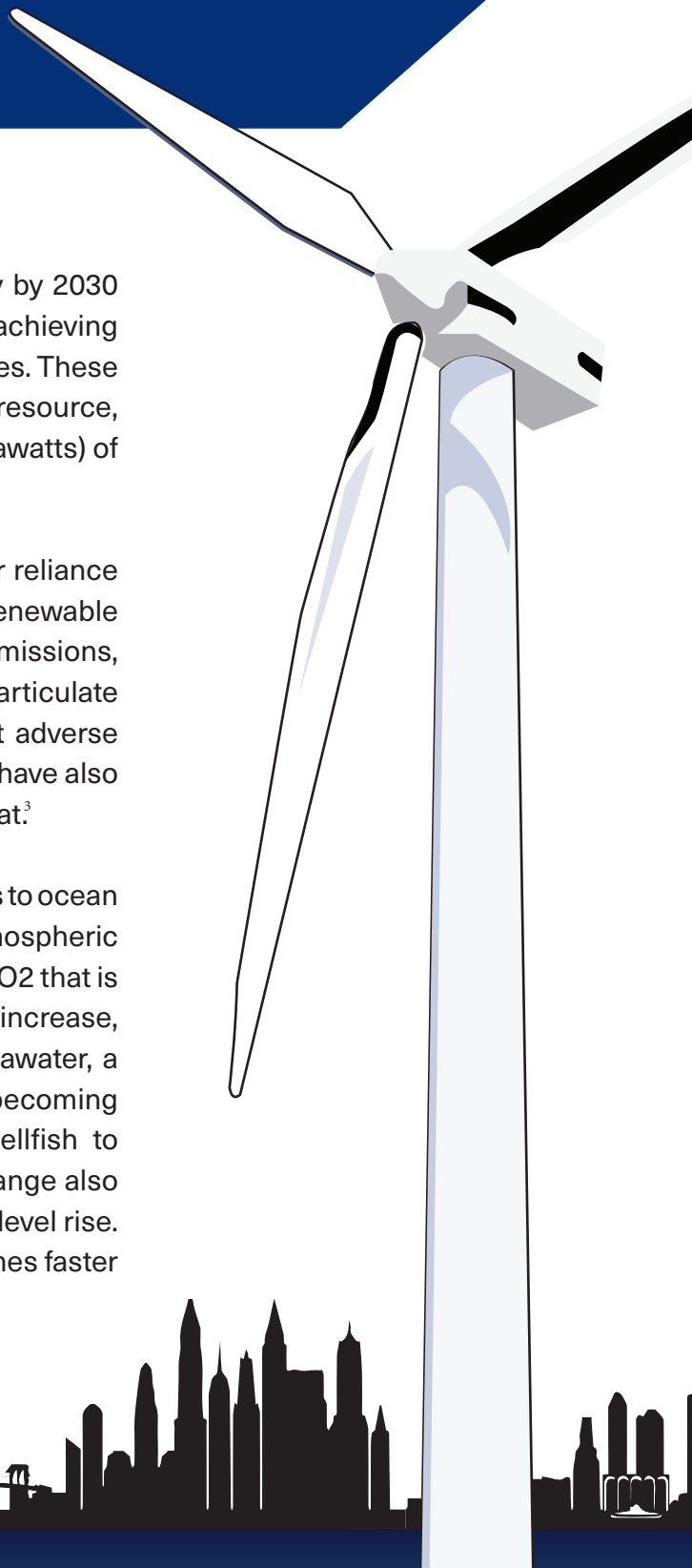
OFFSHORE WIND & WILDLIFE

Offshore Wind in New York

New York has set ambitious goals of 70% renewable energy by 2030 and carbon-free electrical generation by 2040. A key asset in achieving these critical goal is to harness our vast offshore wind resources. These goals can be achieved by harnessing our vast offshore wind resource, which is why New York has also set a goal of 9,000 MW (megawatts) of offshore wind by 2035—enough to power six million homes.¹

Offshore wind helps us fight climate change and reduces our reliance on coal, oil, and natural gas. Transitioning from fossil fuels to renewable energy will reduce greenhouse gases and other harmful air emissions, including mercury pollution, acid rain, ozone pollution and particulate matter. In New York, acid rain has been linked to significant adverse impacts on fish and wildlife, as well as songbird declines.² We have also seen mercury contamination in fish, making them unsafe to eat.³

Relying on polluting fossil fuels, such as oil and gas, contributes to ocean acidification. According to the National Oceanic and Atmospheric Administration (NOAA) the ocean absorbs about 30% of the CO₂ that is released in the atmosphere, and as levels of atmospheric CO₂ increase, so do the levels in the ocean. When CO₂ is absorbed by seawater, a series of chemical reactions occur, resulting in seawater becoming more acidic. Ocean acidification impacts the ability of shellfish to form their outer shells, thereby reducing survival. Climate change also contributes to increasing temperatures in our waters and sea level rise. Ocean warming in the northeastern U.S. is occurring three times faster than the global average.⁴



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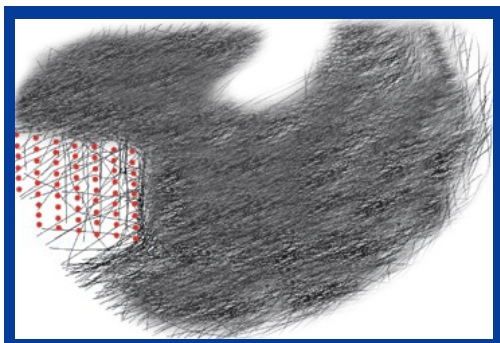
OFFSHORE WIND & BIRDS

Wind & Birds

The leading causes of bird deaths in America are habitat loss, tall buildings and cats.⁵ Studies show that wind energy is one of the safest ways to produce energy with respect to bird impacts (see figure 1). Best practices, improved technology, and a rigorous regulatory framework are further reducing impacts to birds. Pre-construction bird migration studies are used to determine appropriate areas to site offshore wind turbines to avoid bird mortality, while post-construction studies are utilized to inform operational mitigation strategies. Technology has also improved—turbines now utilize a monopole design so birds are unable to nest on turbines. Turbine blades are larger and rotate more slowly; allowing birds to perceive and avoid them. Research from Europe has demonstrated how birds tend to fly around offshore wind farms, avoiding the turbines (see figure 2).⁶



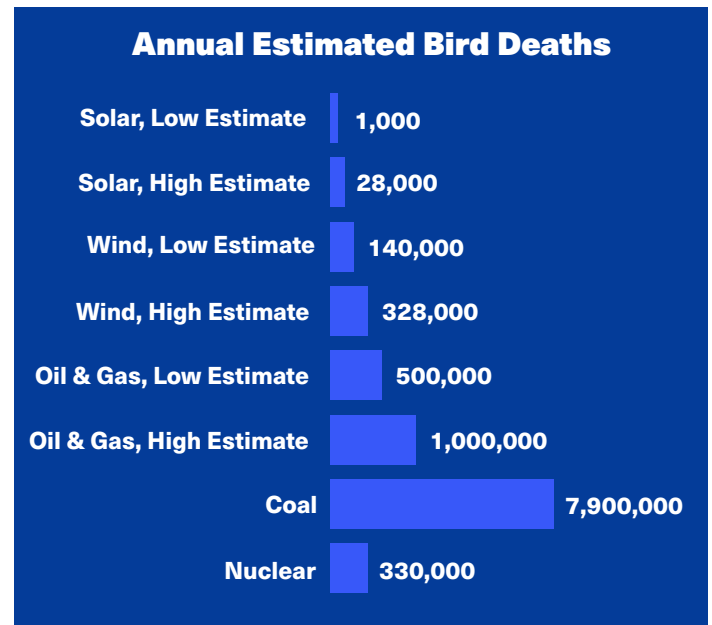
Figure 2



Radar registrations from the Nysted offshore wind farm applied on a GIS-platform. Red dots indicate individual wind turbines and black lines migrating waterbird flocks determined visually at the Nysted offshore wind farm. Adopted from Kahlert et al. 2004.

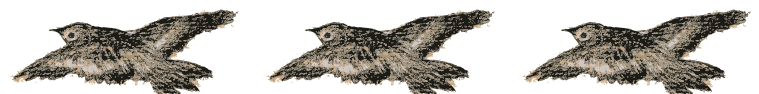


Figure 1



Estimated bird deaths by different energy types (U.S. News and Worlds Report 2014)

In 2014, the National Audubon Society conducted a study assessing climate change's impacts to North America's birds. The study found that 314 of 588 species would lose more than half their 2010 geographic range by 2080 due to climate change. Among the most affected birds are the bald eagle, osprey, and piping plover.⁷ Additionally, sea level rise threatens sea turtle and shorebirds habitat.⁸ Offshore wind mitigates the impacts of climate change!



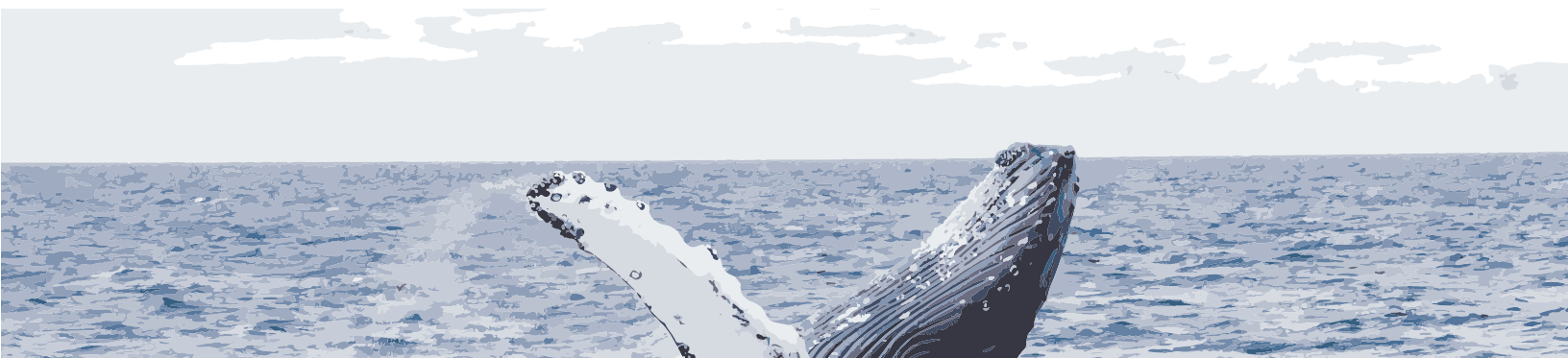
OFFSHORE WIND & WHALES

Wind & Whales Can Co-Exist

The NYS Department of Environmental Conservation (DEC) has documented several whale species, including humpback, fin, blue, and right whales, migrating off the coast of New York in the Atlantic Ocean. Whale cruises are reporting an increase of whale sightings and even beachgoers have documented whales off the south shore of Long Island. Collisions or ship strikes are the second leading anthropogenic cause of death for large whales.⁹ The number of vessels in the worldwide shipping fleet has increased 13% in the last decade.¹⁰ These ships transport everything from kid's toys, to food, to building materials, to many other consumer goods. Construction plans for offshore wind farms will include important mitigation measures used to reduce harm to marine mammals and that will continue to allow the flow of consumer goods to be unimpeded. We can move forward with offshore wind projects AND protect whales and other marine mammals in our waters.

The construction agreement for the Block Island wind farm contained an important commitment by the wind developer to shut down construction operations if marine mammals were spotted in the vicinity.¹¹ In 2019, Vineyard Wind signed an agreement for an offshore wind farm, off the coast of Massachusetts, which curtailed construction during active migration of the endangered Right Whale, put limits on the speed of any vessels, and put rigorous monitoring measures in place to protect marine mammals.¹²

Another potential concern for marine mammals is noise from construction activities; this is a short term impact, with documentation of marine mammals returning to the site after the construction is over. For example, porpoises at offshore wind farms in Europe moved away from construction areas during pile driving activity. Once the construction ended, the porpoises returned to the site.¹³ Equinor Wind—a developer proposing a project off the coast of Long Island—is considering using alternative foundations called gravity foundations that completely eliminate the need for pile driving, significantly reducing construction noise. This technology has been used successfully in Europe since 1991.¹⁴ Operational wind turbines do produce some underwater noise, but it is at or below background noise.¹⁰



CREATION OF ARTIFICIAL REEFS

Offshore Wind Farms Create Habitat

Turbine foundations create “artificial reefs” where marine life, such as seaweed and mussels, can grow. These artificial reefs attract fish and other species to the wind farm. In Europe, a type of sea duck known as scoters were displaced during construction, but returned and were seen foraging around the turbines when the wind farms were operational. Seals are also spotted around European offshore wind turbines. In just a few short months, Orsted recorded video footage at their Block Island Wind Farm that shows how quickly the “reef effect” happens.¹⁵

It’s important to note that other activities in the ocean can have an adverse environmental impact, such as commercial fishing. Commercial fishing impacts the marine environment in a number of ways, including bycatch and entanglement of non-targeted species such as fin fish, seabirds, sea turtles, and marine mammals. Commercial fishing also can contribute to habitat loss of the ocean bottom, abandoned and lost fishing gear harms sea animals, and vessel traffic introduces noise and risk of ship strikes to marine species.

All energy production has an environmental impact. We need to choose energy that has the LEAST environmental impact. Lights, charging cell phones and computers, double-door refrigerators, giant-screen TVs, pool heaters, and operating hotels, restaurants, bakeries and other businesses all require energy. Offshore wind energy has the potential to provide clean, renewable energy to our homes, communities, and state .

¹ <https://www.nyserdera.ny.gov/All-Programs/Programs/Offshore-Wind>

² Environmental Protection Agency 2017. Effects of Acid Rain. <https://www.epa.gov/acidrain/effects-acid-rain>

³ National Wildlife Federation 2006. Poisoning Wildlife: The Reality of Mercury Pollution. <https://www.nwf.org/~media/PDFs/Global-Warming/Policy-Solutions/NWF%20Poisoning%20Wildlife%20Report.ashx>

⁴ NOAA Northeast Fisheries Science Center. January 2016 “Northwest Atlantic Ocean May get warmer Sooner.” <https://www.sciencedaily.com/releases/2016/01/160114113637.htm>

⁵ North American Bird Conservation Initiative 2014. The State of the Birds 2014 Report. www.stateofthebirds.org/2014/2014%20SotB_Final_low-res.pdf

⁶ Desholm, Mark & Fox, A. & BEASLEY, P. & Kahlert, Johnny. (2006). Remote techniques for counting and estimating the number of bird-wind turbine collisions at sea: A review. *Ibis*. 148. 76 - 89. 10.1111/j.1474-919X.2006.00509.x. https://www.researchgate.net/publication/227533395_Remote_techniques_for_counting_and_estimating_the_number_of_bird-wind_turbine_collisions_at_sea_A_review

⁷ Verchot, M 2014. 10 States Could Lose State Birds. Audubon. <http://climate.audubon.org/article/9-state-birds-may-abandon-homes-thanks-climate-change>

⁸ National Climate Assessment 2014. <https://nca2014.globalchange.gov/>.

⁹ New York State Energy Research and Development Authority (NYSERDA). 2019. The Dynamic Ocean: Offshore Wind Energy and Other Activities in the New York Bight. NYSERDA Report 19-36. Prepared by: K.A. Williams, I. Stenhouse, J. Gulk, and D. Meattey, Biodiversity Research Institute (Portland, ME). 20pp. Available at: <https://www.nyserdera.ny.gov/About/Publications/Offshore-Wind-Plans-for-New-York-State>

¹⁰ Ibid

¹¹ Fiorentino, J. 2014. Issuance of incidental harassment authorizations to Deepwater Wind for the take of marine mammals incidental to construction of the Block Island wind farm and Block Island transmission system. NOAA, National Marine Fisheries Service. Available at <https://repository.library.noaa.gov/view/noaa/5007>

¹² <https://www.southcoasttoday.com/news/20190123/environmental-groups-vineyard-wind-sign-pact-to-protect-right-whales>

¹³ Responses of two marine top predators to an offshore wind farm. Gillian C. Vallejo, Kate Grellier, Emily J. Nelson, Ross M. McGregor, Sarah J. Canning, Fiona M. Caryl, Nancy McLean. *Ecol Evol*. 2017 Nov; 7(21): 8698–8708. Published online 2017 Sep 18. doi: 10.1002/ece3.3389 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5677494/>

¹⁴ <https://www.nrdc.org/experts/francine-kershaw/shhh-quiet-offshore-wind-foundations-protect-marine-life>

¹⁵ https://www.aweablog.org/photo-evidence-fish-feeding-frenzy-block-island-wind-farm/?fbclid=IwAR0npjowjuBH5ol2CzNk8k57r2Dr5nGoVn-w1hwfZ8WM41NzvLNfhG_jvN0