



Frequently Asked Questions about Offshore Wind

How many jobs will offshore wind power create?

Developing 1 GW of offshore wind power for Maryland over the next five years could create 4000 jobs for construction and 800 permanent jobs for operations and maintenance.¹ Aggressively developing offshore wind power over the next twenty years will create thousands more reliable jobs.²

Will the windmills be visible from the beach?

The Department of Interior accepted recommendations from Maryland's Department of Natural Resources to open offshore blocks for leasing at least ten miles off the coast of Ocean City and 20 miles off the coast of Assateague Island.³ At this distance, the windmills will be barely visible, if at all, from the shore.⁴

How will offshore wind power impact my electricity bills?

In the past decade, Maryland electricity rates have risen more than 75 percent due in large part to wildly fluctuating fossil fuel prices.⁵ Offshore wind power offers reliable prices as the fuel (wind) is free and the rate can be locked in over a 25-year period.⁶ In 2008, the Delaware Public Service Commission found that the rate impact of a new wind contract was likely to be minimal and could ultimately save money in the case of rising fossil fuel rates and an inevitable price on carbon dioxide pollution.⁷

How much electricity can Maryland generate from offshore wind power?

With current technology, offshore wind power could meet more than one-third of our region's need for electricity.⁸ The capacity of offshore wind power will become even greater with advances in technology. It has the potential to produce the equivalent of two-and-a-half times Maryland's current electricity load.⁹

How will offshore wind power help to combat global warming?

Just one moderate sized (600-megawatt) offshore wind park could prevent two million metric tons of heat-trapping pollution per year.¹⁰ That's the equivalent of taking nearly one in ten vehicles off of Maryland roads.¹¹

Is offshore wind power reliable, even though the wind isn't always blowing?

Offshore wind parks provide a local source of electricity and improve the reliability of the electricity system.¹² European nations have demonstrated that it is possible to shift 20 percent or more of their power generation to wind without adverse effects on the reliability of the electric system.¹³

Will offshore windmills affect marine life?

A 2010 study by the Stockholm University Zoology Department found that properly sited offshore windmills do not harm marine life, instead encouraging more marine life because artificial reefs form at their foundations.¹⁴

Will offshore windmills affect birds?

Studies over the past two decades in Europe have found that properly sited offshore wind parks have no meaningful impact on migratory or shore bird populations.¹⁵ Utilizing offshore wind power will also avoid global warming pollution, which is causing sea level rise and the destruction of wetland habitats for birds and other wildlife in Maryland.¹⁶

How will offshore wind power affect the health of Maryland residents?

By avoiding harmful emissions from fossil fuels, Harvard and Delaware professors found that a 600-megawatt offshore wind park in neighboring Delaware would avoid 200 premature deaths and more than \$1 billion in health costs in that state alone.¹⁷ Developing more offshore wind power could save more lives.

Why are government incentives, subsidies, and mandates necessary in energy markets?

As industrialized societies rely heavily on [energy consumption](#), governments should work with business to ensure an adequate, sustainable, clean, and safe energy supply.

Historically, the U.S. government has heavily subsidized fossil fuel energy. According to the [Environmental Law Institute](#), from 2002-2008, the federal government provided substantially larger subsidies to fossil fuels than to renewable resources.¹⁸ From a public policy perspective, stronger support for clean, safe, and indigenous renewable power makes logical sense.

Will renewable energy development create net positive employment?

According to the National Renewable Energy Laboratory, the European Union found that realizing a 20% renewable energy standard (RES) by 2020 would provide a net effect of about 41,000 additional jobs and 0.24% additional gross domestic product (GDP).¹⁹ Recent research has found "that it is only when conventional energy prices are forecast to be very low that net employment impacts from [renewable energy] are negative."²⁰

How does the cost of offshore wind power compare with other low-carbon sources of power?

Offshore wind power is more cost-effective than building a new nuclear power plant or a new coal plant with carbon capture and sequestration (CCS) technology.²¹

Has wind power reduced emissions in real-world electric systems?

The journal, [Energy Policy](#), found that offshore wind power produces fewer emissions over its life cycle ((9 g CO₂e/kWh) than any other power source today.²² For comparison, Nuclear averaged (66 g CO₂e/kWh), natural gas (443 g CO₂e/kWh), and coal (960-1050 g CO₂e/kWh).²³

[According to the U.S. Department of Energy](#), coal consumption fell in Denmark from 16.6 million short tons in 1996 to 7.8 million short tons in 2008 as more wind power was brought on line.²⁴ In the same period, carbon dioxide emissions fell by over 20 million tons!²⁵ The primary reason for the decrease in emissions was a conversion to less carbon intensive fuels and an increased use of renewable energy sources, including wind.²⁶

Will wind power be part of a future zero-carbon grid?

Our goal right now is to reduce emissions as much and as quickly as possible. There are technological scenarios in which we will achieve a zero carbon grid with wind power providing part of the solution.²⁷

The variability factor of many renewable energy technologies can be mitigated by a smart balance of sources (geothermal, tidal and concentrated solar thermal for baseload, photovoltaic solar power for energy during the day, and wind power for energy at night), interconnecting geographically spread-out renewable energy sources, using renewable load-following/peaking power, such as hydropower to balance demand, using smart meters to charge electric vehicles when other energy demand is low, and storing electric power for later use to balance demand.²⁸ These technologies are already available and are being developed further.²⁹

¹ Press Release of Governor Martin O'Malley. "Governor Martin O'Malley Announces Major Steps Forward in Offshore Wind Efforts." 8 November 2010. Accessed 30 November 2010. <<http://www.governor.maryland.gov/pressreleases/101108.asp>>

² Based on offshore wind job-creation figures from: Hagerman, George; Hatcher, Patrick; Miles, Jonathan, Newbold, Kenneth. Virginia Offshore Wind Studies, July 2007 to March 2010. Virginia Coastal Energy Research Consortium. 20 April 2010. Accessed 31 August 2010. <http://www.vcerc.org/VCERC_Final_Report_Offshore_Wind_Studies_Full_Report_new.pdf>. Page 29.

³ Press Release of Senator Ben Cardin. "Cardin Says Accelerated Leasing Plan for Wind Energy Development off Atlantic Coast Puts Maryland Clean Energy Jobs on Fast Track." 23 November 2010. Accessed 1 December 2010. <<http://cardin.senate.gov/news/record.cfm?id=328704>>

⁴ Shutt, Jennifer. "Offshore Wind Effort Picks Up." [Delmarva Media Group](#). 14 November 2010. Accessed 23 November 2010. <<http://www.delmarvanow.com/article/20101114/NEWS01/11140301>>

⁵ Heavner, Brad and Travis Madsen. "The Power of Offshore Wind: A Source of Clean, Reliable, Affordable Electricity for Maryland's Future." Environment Maryland. November 2009. Accessed 27 August 2010. <

<http://www.environmentmaryland.org/uploads/97/42/974203a2678ea9019f8fffbce65a5e32/Power-of-Offshore-Wind.pdf>>. Page 14.

⁶ Ibid, Page 5

⁷ Ibid.

⁸ Ibid, Page 17.

⁹ Firestone, Jeremy, Kempton Willett, Sheridan Blaise, and Baker Scott. "Maryland's Offshore Wind Power Potential." Abell Foundation. 2010. Accessed 18 August 2010. <http://www.abell.org/pubstems/env_Offshore.full.report-2-18-10.pdf> Page 20.

¹⁰ Heavner, Brad and Travis Madsen. "The Power of Offshore Wind: A Source of Clean, Reliable, Affordable Electricity for Maryland's Future." Environment Maryland. November 2009. Accessed 27 August 2010. <

<http://www.environmentmaryland.org/uploads/97/42/974203a2678ea9019f8fffbce65a5e32/Power-of-Offshore-Wind.pdf>>. Page 21.

¹¹ Ibid.

¹² Ibid, Page 6.

¹³ Ibid, Page 23.

¹⁴ Kraemer, Susan. "Marine Life Flourishing beneath Off-Shore Wind Turbines." CleanTechnica and Scientific American. 19 January 2010. Accessed 23 November 2010. < <http://www.scientificamerican.com/article.cfm?id=marine-life-flourishing-beneath-off-2010-01>>

¹⁵ Tidwell, Mike. "Windfall." Audobon Magazine. September 2010. Accessed 15 September 2010. < <http://www.audubonmagazine.org/features1009/specialreport-oilspillenergy.html>>

¹⁶ "Climate Change Impacts on Maryland and the Cost of Inaction." A Review and Assessment by The Center for Integrative Environmental Research (CIER) at the University of Maryland, Prepared for the Maryland Commission on Climate Change. August 2008. Accessed 1 September 2010. <<http://www.cier.umd.edu/climateadaptation/Chapter3.pdf>>

¹⁷ Kempton, Willett and Levy, Jonathan. Delaware PSC Testimony on the health impact of a proposed 600 MW offshore wind project in Delaware. Harvard School of Public Health and University of Delaware College of Marine and Earth Studies. 3 May 2007. Accessed 1 November 2010. < <http://www.ceoe.udel.edu/windpower/DE-Qs/IRP-KempLevy-Health.pdf>>

¹⁸ "Estimating U.S. Government Subsidies to Energy Sources: 2002-2008. Environmental Law Institute. September 2009. Accessed 2 January 2010. <http://www.elistore.org/reports_detail.asp?ID=11358&topic=Energy_and_Innovation>

¹⁹ Lantz, Eric and Suzanne Tegen. "NREL Response to the Report Study on the Effects on Employment of Public Aid to Renewable Energy Sources from King Juan Carlos University (Spain)." Natuional Renewable Energy Laboratory of the U.S> Departement of Energy. White Paper. NREL/TP-6A2-46261. August 2009. Accessed 2 January 2011 <<http://www.nrel.gov/docs/fy09osti/46261.pdf>>

²⁰ Ibid.

²¹ Heavner, Brad and Travis Madsen. "The Power of Offshore Wind: A Source of Clean, Reliable, Affordable Electricity for Maryland's Future." Environment Maryland. November 2009. Accessed 27 August 2010. <

<http://www.environmentmaryland.org/uploads/97/42/974203a2678ea9019f8fffbce65a5e32/Power-of-Offshore-Wind.pdf>>. Page 25.

²² Sovacool, Benjamin. "Valuing the greenhouse gas emissions from nuclear power: A critical survey." Energy Policy. 36 (2008) 2940-2953. Accessed 2 January 2011 <http://www.nirs.org/climate/background/sovacool_nuclear_ghg.pdf>

²³ Ibid.

²⁴ "Denmark Energy Profile." U.S. Energy Information Administration. Department of Energy. Last Updated June 30, 2010. Accessed 3 January 2011 <http://www.eia.doe.gov/country/country_energy_data.cfm?fips=DA>

²⁵ Ibid.

²⁶ "Environmental Report 2007." Energynet.dk. July 2007. Accessed 3 January 2011. <<https://selvbetjening.preprod.energinet.dk/NR/rdonlyres/20F79A25-71A2-4B69-9F2E-125B6703F345/0/EnvironmentalReport2007.pdf>>

²⁷ Jacobson, Mark and Mark Delucchi. "A Path to Sustainable Energy by 2030." Scientific American. November 2009. Accessed 2 January 2011. < <http://www.stanford.edu/group/efmh/jacobson/Articles/I/sad1109Jaco5p.indd.pdf>>

²⁸ Ibid.

²⁹ Nuccitelli, Dana. "Renewable Baseload Energy." [SkepticalScience.com](http://www.skepticalscience.com). 27 November 2010. Accessed 2 January 2011 < <http://www.skepticalscience.com/news.php?n=472>>