

# OFFSHORE WIND POWER

## CLEAN, RELIABLE, JOB-PRODUCING ENERGY FOR MASSACHUSETTS

Offshore wind power is a solution that matches the scale of the Commonwealth's growing energy challenges. Now is the moment to embrace the many benefits it can deliver to our environment, communities, and economy.

**Massachusetts is poised to tap into this world-class, home-grown clean energy supply.** Areas already designated for offshore wind development in deep Atlantic waters approximately 15 miles from our south coast could produce enough electricity to power all the homes in Massachusetts. Leading global developers have competitively purchased leases in these areas. They are ready to build clean energy projects that can provide critical replacement power for two major retiring sources – the Brayton Point coal-fired power plant and Pilgrim Nuclear Power Station.

**Offshore wind power technology is proven, advanced, and cost-competitive with traditional fossil fuels in established markets.** Since the first installation in 1991, over 3,000 offshore wind turbines are currently spinning in 82 projects overseas. Today, the European offshore wind industry supports over 75,000 full-time jobs and has sparked massive investments in coastal and inland communities across the region. This incredible economic development story can be replicated in the Commonwealth once an offshore wind industry is launched here in America.

**Massachusetts will not be the first state to build offshore wind power, but we can be a national leader in launching this transformative energy source at the scale needed to solve the region's energy challenges.** America's first offshore wind power project is currently under construction off the coast of Rhode Island and is on track for completion in 2016. Demonstrating the pollution reduction and cost savings benefits of offshore wind power, this project will replace dirty diesel electric generators and reduce electric rates on the island by more than 40 percent.

**As Governor Baker and the Massachusetts legislature consider pivotal decisions that will determine our energy portfolio for decades, now is the moment to ensure that responsibly developed offshore wind power plays a central role in the Commonwealth's energy future.**



# OFFSHORE WIND POWER WILL:

## Combat Climate Change and Reduce Local Air Pollution

Massachusetts' coastal communities and treasured marine resources sit on the front lines of climate change, and our current energy mix contributes to the problem. All fossil fuel-fired power plants emit climate-disrupting carbon pollution, which drives sea level rise and extreme weather events that we know to be both devastating and expensive. The 2013 State Hazard Mitigation Plan reported that real estate valued at more than \$7 billion is exposed to the risk of coastal erosion in Massachusetts. Carbon pollution is causing the ocean to rapidly warm and acidify, altering and destabilizing marine ecosystems. Local examples of such impacts include declining shrimp populations in the Gulf of Maine and cod stocks throughout the region.



Fossil fuel-fired power plants also create local air pollution that poses a serious public health risk. According to the American Lung Association (ALA) and other leading medical organizations, every county in the state exceeds healthy levels of smog pollution. Further, ALA identifies 2 million Massachusetts residents – including over 110,000 children – at risk for aggravated asthma, difficulty breathing,

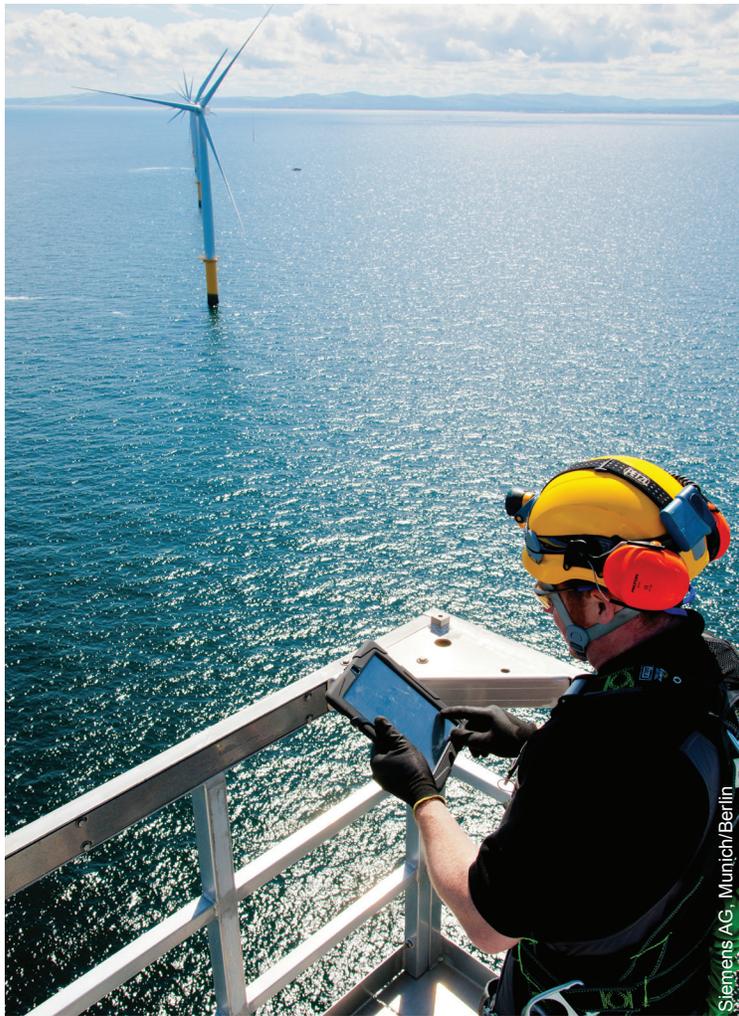
cardiovascular harm, lower birth weight, and premature death. Researchers at the Massachusetts Institute of Technology estimate that over 800 Massachusetts residents die prematurely every year due to particulate pollution from electricity generation. Shifting to large-scale clean energy solutions like offshore wind power is essential to protect present and future generations from the urgent threats of climate change and local air pollution.

## Protect Ratepayers

Much like sound retirement investing, Massachusetts homeowners and businesses need a diversified energy portfolio that maximizes return and reduces risk. In the winter of 2014, natural gas prices soared between 29 and 37 percent, creating a significant budgeting challenge for families across the Commonwealth.

Wind measurement towers have confirmed strong, consistent wind speeds off the coast of Massachusetts, especially during critical high demand periods – afternoons, summer heat waves, and winter cold snaps. This unique profile means that offshore wind will displace the most expensive and polluting power sources kept online for those strained moments, decreasing the market clearing price for electricity and creating significant cost savings across the electric system. This directly benefits ratepayers by providing a buffer against the volatile natural gas market.

Offshore wind power is an increasingly affordable clean energy choice, with costs dropping dramatically in Europe far ahead of industry projections. A 2015 U.S. Department of Energy study reports that Massachusetts will benefit from the 30-40% cost reductions that have been achieved overseas due to improvements in turbine technology and other innovations in the global offshore wind market. As a result, offshore wind power developers are currently prepared to offer competitive prices for their power, the cost of which will continue to drop once Massachusetts and other states make long-term commitments to offshore wind power.



### Create Jobs and Strengthen Our Economy

Massachusetts has always been at the forefront of innovation, from our proud fishing and manufacturing history to today's high-tech and health care industries. Offshore wind power offers an unmatched opportunity to continue this leadership in meeting the dramatic need to develop clean energy technology at scale.

Now is our moment to tap into a booming global industry, expected to attract over \$300 billion in investments over the next ten years. The U.S. Department of Energy projects that in 15 years a domestic offshore wind industry will support 43,000 construction, operation, and maintenance jobs – jobs that cannot be exported. The sheer size and complexity of offshore wind turbines, each containing over 8,000 components, opens many doors of opportunity to our local workforce, including: turbine and foundation manufacturers, electrical equipment suppliers, marine contractors, electrical cable suppliers and installers, port operators and many more. The Block Island Wind Farm under construction in Rhode Island has already created more than 300 local jobs for a

project consisting of only five turbines. Massachusetts is particularly poised to host thousands of jobs for future large-scale projects with its recent investment in the New Bedford Marine Commerce Terminal – the nation's first ever port terminal equipped to deploy offshore wind infrastructure.

Every year Massachusetts residents and business owners send over \$18 billion to other states and countries for our energy. Investing in offshore wind power will direct these energy purchases locally, spurring economic development and furthering energy independence and security.

### Protect Wildlife by Modeling Responsible Energy Development

The Atlantic Ocean and its coastal areas are home to thousands of treasured fish and wildlife species that are vital to the Commonwealth's economy and quality of life. One of the greatest threats to these resources is our reliance on fossil fuels. Responsibly developing our offshore wind resources represents a commitment to stewardship that can be replicated all along the coast.

While all energy sources have some impacts on wildlife and habitats, decades of research in Europe shows that offshore wind power can be an environmentally responsible energy solution. Initial research in the United States indicates the importance of steering projects farther offshore and avoiding biologically sensitive areas, as was done with the federally designated Wind Energy Areas. Additionally, we can and must require strong measures to ensure our most vulnerable species such as the critically endangered North Atlantic right whale are protected at each stage of development.



# THE URGENCY OF NOW

The pressure has never been greater to chart a new energy course for the Commonwealth. Offshore wind power is ready to rise to the challenge.

The present and future impacts of climate change and the growing list of power plants slated for retirement underscore the urgent need for offshore wind power. This unparalleled energy source is an essential component of a responsible energy strategy, perfectly complementing the Commonwealth's continued leadership on energy efficiency and solar power.

It is a critical moment for Massachusetts' leaders to act. Fossil fuel companies want to build more pipelines and polluting power plants. Canadian hydropower companies want to build more costly transmission lines that cut through forests and neighborhoods. Each of these special interests is heavily engaged in pushing its agenda forward on Beacon Hill.

Of all the region's energy sources, offshore wind power offers the most hope to simultaneously reduce pollution, create well-paying local jobs, and provide reliable, proven and cost-effective power at scale now and into the future.

**Now is the time for a clear commitment to offshore wind power for Massachusetts that can launch the Commonwealth's next energy chapter.**

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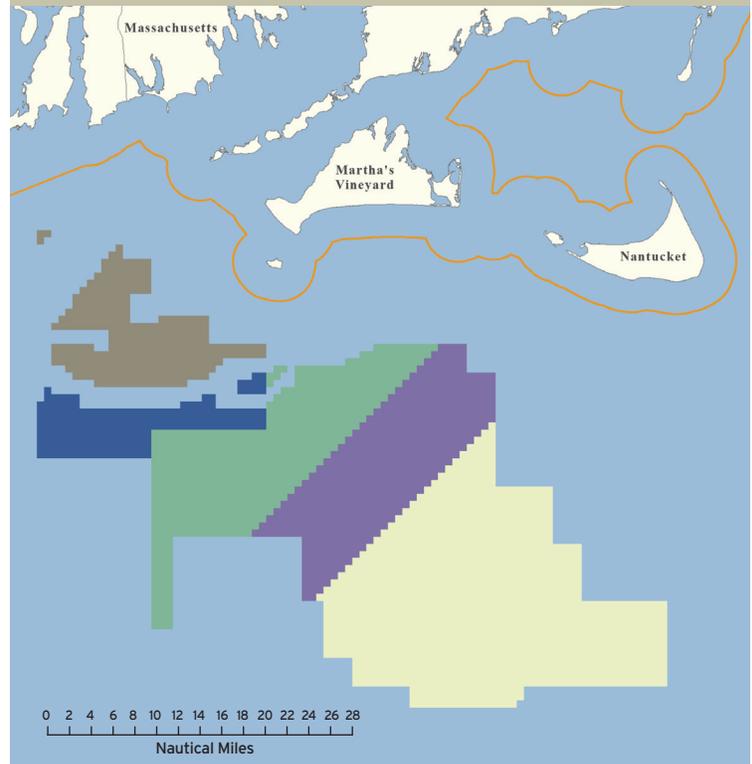
*National Wildlife Federation and our state affiliate, the Environmental League of Massachusetts, work with a broad coalition of national, state, and local organizations calling for responsibly developed offshore wind power.*

*For more information and ways to get involved, contact:*

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**[www.NWF.org/OffshoreWind](http://www.NWF.org/OffshoreWind)**

## THE STAGE IS SET



SOURCE: Bureau of Ocean Energy Management

The National Renewable Energy Laboratory estimates that the above areas designated for offshore wind power development could produce over 8,000 megawatts – enough to power all the homes in Massachusetts.

### Current Leaseholders:

- Deepwater Wind (brown and blue)
- DONG Energy - Bay State Wind (green)
- Offshore MW (purple)

Yellow area remains eligible for leasing.