



Sustainable Career Pathways Clean Energy

Massachusetts Clean Energy Center

<https://www.masscec.com/>

Report: Massachusetts Clean Energy Workforce Needs Assessment

The report provides a comprehensive analysis of the clean energy workforce needed to meet the state's ambitious 2030 greenhouse gas emission reduction targets, coupled with strategies to expand and diversify the clean energy workforce. The clean energy industry will need to add more than **38,000** new clean energy workers by the end of the decade to meet our climate targets, growing the current clean energy workforce of 104,000 workers by **37%**.

<https://www.masscec.com/resources/massachusetts-clean-energy-workforce-needs-assessment>

MassCEC Clean Energy Careers Training & Education Directory

Since 2010, the Massachusetts clean energy industry has experienced 73% job growth – adding 44,016 new workers, which accounts for 14% of all net jobs created in the state during that period. In 2022, subsectors that experienced the greatest job growth included electric vehicles, offshore wind, smart grid, and solar power. [2022 Massachusetts Clean Energy Industry Report](#)

Thousands of jobs are being filled in offshore wind construction, operation, and maintenance

The [2018 Massachusetts Offshore Wind Workforce Assessment](#) estimates that 1,600 MW of offshore wind development will provide 6,800 to 9,800 total job-years of employment (a job-year is one full-time job for one year) during construction and installation.

<https://www.masscec.com/workforce/training-career>

Bristol Community College Wind Certificate Course:

Bristol Community College (BCC) has campuses in New Bedford, Fall River, Attleboro and Taunton and began offering a [certificate program in wind power](#) in 2013. The 14-credit program offers training in safety, electricity, hydraulics, pneumatics, mechanical systems, electrical power generation and wind power systems.

Massachusetts Offshore Wind Jobs and Education Programs

<http://newbedfordwindenergycenter.org/dependable-winds>

Background: Clean Energy

North America's Most Dependable Winds

In the 19th Century, when whale oil illuminated homes and businesses, New Bedford – the City That Lit the World – dispatched hundreds of whale ships to supply an energy sector that made ours the world's wealthiest and most productive port. Today, the winds that once filled the sails of New Bedford's whaling fleet offer renewed potential with New Bedford as the center of the new offshore wind industry being built just off our coast.

The Basics

➤ What is Wind Power?

Wind turbines capture the natural wind in our atmosphere, convert it into mechanical energy, and then to electricity. Today's wind turbine is a highly evolved version of the windmills that were used to generate wind power centuries ago. Most wind turbines have three blades and range in size from 80 feet tall that can power a single home, to utility-scale turbines that are over 350 feet tall and power thousands of homes.

➤ How Wind Energy Works

When wind blows past a turbine, the blades capture the energy and rotate. This rotation triggers an internal shaft to spin, causing the internal generator to produce electricity. A wind turbine is equipped with wind assessment equipment and will automatically rotate into the face of the wind and angle or "pitch" its blades to optimize energy capture – generating the maximum amount of electricity possible for our homes and businesses.

➤ Wind Energy in the United States

The United States has abundant wind resources across the country. The current estimate of wind energy potential is 10 times the amount of electricity consumption for the entire United States. Already, land-based wind farms produce about 10,000 MW of power – that's nearly as much wind power as is generated by Europe's offshore wind industry, which employs more than 75,000 workers. The US Department of Energy has set a goal of 300,000 MW of wind power by 2030, with offshore wind providing 54,000 MW of that total. Much of it from right off the New England coast, home to some of the planet's most reliable winds.

The United States has a goal of generating 300,000 MW of wind energy by 2030, and with strong and consistent winds off our coasts, offshore wind has the potential to provide 54,000 MW of energy towards this national goal. How much power is 54,000 MW? Enough to provide electricity to more than 12 million homes.

The Benefits

➤ Economic Opportunity and Jobs

The U.S. Department of Energy estimates that by 2030 there will be 43,000 offshore wind related jobs on the East Coast. The development of this new national growth industry has the potential to attract substantial private sector investments, and generate long-term economic growth in New Bedford, the SouthCoast and across Massachusetts. New Bedford's first-mover status in this emerging industry, its close proximity to offshore wind sites, specialized port infrastructure, foreign trade zone and experienced maritime workforce position the city to assemble and deploy a pipeline of multi-billion-dollar offshore wind projects in the years ahead. Over time, this project pipeline will create thousands of jobs at every step of the supply chain, from offshore permitting to turbine design, from construction management to component manufacturing to ongoing operations and maintenance.

➤ Combating Climate Change

The development of the offshore wind industry is the fulfillment of an urgent national priority – combating climate change. Across the SouthCoast of Massachusetts, we recognize the critical threat that climate change represents to our fundamental way of life. An average utility-scale wind farm has the potential to eliminate more than 650,000 tons of carbon dioxide from being emitted into our atmosphere annually – a significant step in securing a cleaner future for our environment.

➤ Controlling Our Energy Future

Since 1970, the usage of electricity in New England has doubled. Technological needs and population growth will continue to drive up demand for energy in the years ahead. Investments in domestic renewable energy sources, such as offshore wind, can provide abundant clean energy to meet increased demand without consuming scarce natural resources, polluting the environment, or relying on imported non-renewable energy sources.

<http://newbedfordwindenergycenter.org/offshore-wind-basics>

New Bedford: The Resource

Just a few miles south of New Bedford blow some of North America's strongest and most reliable winds. Those winds, which average more than 20 mph throughout the day and night, are the result of the collision between the warm waters of the Gulf Stream and the cold air of the northern jet stream. The winds have the capacity to produce about 6,000 MW of electrical power – about 40 percent of Massachusetts' current energy needs.

The federal government has identified more than 1,000 square miles of ocean off Massachusetts for developers to build North America's first industrial scale wind farms over the next decade. Those wind farms will provide 1,600 MW of electrical power that can become part of the electrical grid in one of the most populous and energy-starved region's in the United States. That's enough power to provide electricity for about 500,000 homes.

New Bedford's close proximity to federally leased offshore wind development sites near both Massachusetts, Rhode Island and New York, its protected deep-water harbor, and first-in-the-nation offshore wind terminal makes the city the ideal location to launch this new American green energy industry.

Because our winds blow most dependably on warm summer days and cold winter nights, offshore wind power – which creates no pollution – delivers electricity when it is needed most, helping to stabilize electricity costs and reduce our reliance on expensive and dirty power produced by burning fossil fuels like oil, coal and natural gas.

The waters off **Martha's Vineyard** are just the beginning. The U.S. has enough potential offshore wind energy to produce several times over the total amount of electrical power than the nation now consumes. The US Department of Energy set a goal generating 30,000 megawatts of wind energy nationally by 2030. With strong and consistent winds off our coasts, offshore wind has the potential to provide 54,000 MW of energy toward that goal.

With over 350 years of maritime history, it is no surprise that today New Bedford is one of the most important commercial ports on the East Coast. From its whaling days to its current position as the nation's number one fishing port in terms of value of catch, to its future as a major hub for industrial scale offshore wind and an intermodal shipping center, the **Port of New Bedford** has been and will always be a working port.

The Port serves as the city's greatest natural resource and most critical asset to stimulate investment, attract new industry, create jobs and develop a healthy economy. Over 6,200 people are employed by New Bedford's commercial port. New Bedford is the number one value fishing port in the nation generating direct business revenues of \$3.3 billion and a total economic impact of \$9.8 billion, representing 2% of the states GDP.

Today, the busy Port of New Bedford is home to over 200 maritime businesses, a commercial fleet of 500 fishing vessels, two inter-island ferry services, an active cargo shipping industry, a cruising industry, bulk and break-bulk cargo facilities, and numerous shipyards and vessel repair facilities.

Ferry services are available in the port, including passenger and cargo service to Cuttyhunk Island and passenger service to Martha's Vineyard. Launch, water taxi, and charter boat services also operate in the port.

Like many modern working ports, New Bedford/Fairhaven Harbor balances maritime interests and local economic needs with environmental concerns. Several economic and environmental designations, such as the Foreign Trade Zone and No Discharge Area, currently apply to the port.

<http://newbedfordwindenergycenter.org/a-full-service-port>

The Port of New Bedford is currently undertaking a more than \$200 million commercial makeover: deepening channels and berths as well as repairing and enlarging maritime terminals and wharves to accommodate the needs of the growing shipping and emerging offshore wind industries. With excellent road, vessel, and rail connections to New England, the nation, and the world, New Bedford is poised to become a leading intermodal port into the 21st century and beyond.

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