NEW JERSEY’S OFFSHORE WIND ECONOMY
New Jersey is committed to a clean energy future and building a local offshore wind industry is core to this vision.

- Phil Murphy
Governor

Why choose New Jersey for OFFSHORE WIND?

**An emerging hub for US offshore wind**
- Broad and strong political commitment to offshore wind industry leadership
- 1.1 GW of projects awarded and 7.5 GW of procurements scheduled over the next 8 years
- Financial support to grow a local supply chain and develop the required offshore wind workforce
- Major investments in port infrastructure to support offshore wind

**Heart of the East Coast Wind Belt**
- Incredible offshore wind resources and access to lease areas across the East Coast
- Lease areas designed for utility-scale projects and cost-optimization
- Unmatched regional connectivity by locating at the heart of the Northeast corridor
- Easily access the globe with ~600 nonstop destinations from airports in the region

**Talent for the entire wind ecosystem**
- One of the largest offshore wind talent pools in Northeast, with 90,000+ workers
- Access to the high-skilled office and industrial workers needed across your entire business
- Robust talent pipeline, supported by 150+ higher education institutions supporting meaningful R&D in energy innovation

**A place for every employee**
- Access to the #1 ranked pre-K-12 education system in the nation
- Choice of commutable city, small town, country, and coastal living
- A fraction of the cost of New York and Philadelphia – and just a short train ride away!

1 Includes Newark Liberty International Airport, Philadelphia International Airport, John F. Kennedy International Airport, and LaGuardia International Airport
EMERGING HUB FOR U.S. OFFSHORE WIND

- STRONG POLITICAL COMMITMENT TO THE WIND INDUSTRY
- 7,500 MW OF PROCUREMENT OVER THE NEXT 8 YEARS
- A VALUE AND SUPPLY CHAIN GROWTH STRATEGY
- PORT INVESTMENTS TO SUPPORT OFFSHORE WIND
Offshore wind is the our Government’s top priority

One of the largest single solicitation of 1,100 MW awarded in June 2019

Offshore Wind Pipeline of 7,500 MW

Draft Energy Master Plan released June 2019 (roadmap to achieving a 100% clean energy economy by 2050)

Wind Innovation & New Development (WIND) Institute (public-private partnership) will serve as a hub for research, innovation, and workforce development for the offshore wind industry

“Our state will be making focused investments in the clean energy economy and positioning New Jersey as the leader in offshore wind.

- Phil Murphy
New Jersey Governor
New Jersey has a clear procurement timeline for the 7.5 GW

New Jersey has made clear commitments to offshore wind and clean energy in the law…

**Renewable Energy Bill**
- Offshore Wind Economic Development Tax Credit and job training commitment

**BPU OREC Solicitation**
- Award for first 1.1 GW in June 2019, in time for ITC

**Executive Order 28**
- Energy Master Plan to achieve 100% clean energy by 2050
- 2.0 GW of storage by 2030

<table>
<thead>
<tr>
<th>Year</th>
<th>GW</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>1.1 GW</td>
</tr>
<tr>
<td>2020</td>
<td>1.2 GW</td>
</tr>
<tr>
<td>2022</td>
<td>1.2 GW</td>
</tr>
<tr>
<td>2024</td>
<td>1.2 GW</td>
</tr>
<tr>
<td>2026</td>
<td>1.4 GW</td>
</tr>
<tr>
<td>2028</td>
<td>1.4 GW</td>
</tr>
</tbody>
</table>

Rutgers University’s Center for Ocean Observing Leadership (RU COOL)

New Jersey is perfectly situated to lead in offshore wind development ... At Rutgers, we are committed to leveraging our research capabilities.

- S. David Kimball
Interim VP for Research and Economic Development at Rutgers

Rutgers University is a premiere institution that can provide us with ongoing research that will help propel New Jersey.

- Thomas Brostrøm
CEO, Ørsted North America

RU COOL provides the most comprehensive ocean and atmospheric data supporting business and local-state-federal agencies to ensure smart and sustainable use of the coastal waters in the Mid-Atlantic.

SOURCE: Rutgers University website
Who’s here: major global offshore wind companies, like Ørsted, have already moved here

Orsted is a Danish renewable energy company with $11B in revenue

Won New Jersey’s 1,100 MW solicitation in 2019 to build Ocean Wind project

A market leader in offshore wind projects (~30% share, more than double its closest competitor; provides power for 12M+ people)

Established Atlantic City, NJ office in 2018

Operates America’s first offshore wind farm (Block Island)
New Jersey is taking a value-oriented approach to procurement, including considering economic and environmental benefits of offshore wind development

To receive Offshore Renewable Energy Credits (ORECs), Developers must demonstrate positive economic and environmental benefits for New Jersey

**ECONOMIC BENEFITS**

- **In-state activity** from construction, operations and maintenance, and equipment purchases
- **In-state impacts** from employment, wages, indirect business taxes, and output, with a particular emphasis on manufacturing employment

**ENVIRONMENTAL BENEFITS**

- Greenhouse gas reductions
- Other reduced emissions
New Jersey has the port capacity and infrastructure to support development, operations, and maintenance.

**Largest and most advanced port**
on the US East Coast (Port of New Jersey/New York)

**$170M+ invested in Port of Paulsboro**
(specifically for offshore wind)

130+ miles of coastal access

to NJ, NY, and Delaware lease sites support O&M businesses

**Offshore Wind Strategic Plan**
studying additional port capacity

**Extensive warehousing and logistics capabilities**

**#1 state for fiber and broadband**
(best prepared for smart and connected ports)

SOURCE: US Department of Transportation, ChooseNJ, New Jersey website
THE HEART OF THE EAST COAST WIND BELT

ACCESS TO ALL OF THE US EAST COAST LEASE AREAS

REGIONAL CONNECTIVITY IN THE NORTHEAST AND MID-ATLANTIC

EASY ACCESS TO THE REST OF THE GLOBE
New Jersey has access to the United States’ largest and most competitive offshore wind lease areas

Lower-cost, faster development in New Jersey
- **344,000 acres close to shore** (10-21 nautical miles)
- **Shallow water depths** (under 30m)
- **Strong wind speeds** (avg. annual wind speed of 8.5 m/s, significantly higher during peak)
- **1,100 MWs or more** supported by each lease
- **Designed for utility scale development**

Access to wind resources all along the East Coast
- **Proximity** to existing and proposed lease areas
- **Ability to interconnect** with New York (Equinor) and Delaware (Orsted) sites

New Jersey is in close proximity to current and future offshore wind lease areas
Day trips by train to Washington DC and Boston

Train times from Newark Penn Station

- New York: ~20 min
- Trenton: ~40 min
- Philadelphia: ~1.5 hours
- Baltimore: ~2 hours
- Washington, DC: ~3 hours
- Boston: ~4 hours

Unmatched regional connectivity in the Northeast corridor

$2.8 trillion GDP within 150 miles
(15% of US)

38 million consumers within 150 miles

NOTE: All train times referenced from Newark Penn Station

1 Includes the GDP and population of counties whose centers are within 150 miles of New Jersey

Source: Moody’s Analytics
Easy access to employees, clients, and customers across the globe

340+ NONSTOP DOMESTIC DESTINATIONS

260+ NONSTOP INTERNATIONAL DESTINATIONS

SOURCE: Diio Mi - Includes Newark Liberty International Airport, Philadelphia International Airport, John F. Kennedy International Airport, and LaGuardia International Airport.
TALENT FOR THE ENTIRE WIND ECOSYSTEM

LARGE AND ACCESSIBLE TALENT POOL

4th highest share of bachelor degree+ holders in the US

A WORKFORCE READY FOR OFFSHORE WIND

90,000+ workers with offshore wind-adjacent skills

PIPELINE OF TOP TALENT

150+ higher education institutions in the region

SOURCE: US Census Bureau, WalletHub, The Integrated Postsecondary Education Data System (IPEDS)
### A large, accessible, and talented workforce for the offshore wind industry

<table>
<thead>
<tr>
<th>Large and accessible talent pool...</th>
<th>...across a range of talent needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>~4.5M Total workforce</td>
<td>40% with bachelor’s degree+ (#4 in the US)</td>
</tr>
<tr>
<td>#1 state by population density</td>
<td>~2.5M high-skilled population¹</td>
</tr>
<tr>
<td>~1,200 residents per square mile</td>
<td>~1.7M middle-skilled population²</td>
</tr>
</tbody>
</table>

1. Bachelor’s degree or higher
2. High school diploma holders without a post-secondary degree

SOURCE: Workers defined as civilian labor force from Bureau of Labor Statistics (April 2019); population density from US Census Bureau (2018 estimates) and TIGER database for land area (2018); educational data from American Community Survey (2017 1-year estimates)

We intend to combine our unique blend of German engineering expertise with our local team’s know-how in energy policy and community engagements to advance [New Jersey’s] goals for clean energy.

- Holger Grubel
  Head of Offshore Wind Portfolio Development
  EnBW
One of the largest offshore wind-ready workforces in the North Atlantic

Talent pool with skills directly relevant to offshore wind

<table>
<thead>
<tr>
<th>State</th>
<th>Talent Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td></td>
</tr>
<tr>
<td>New Jersey</td>
<td></td>
</tr>
<tr>
<td>Massachusetts</td>
<td></td>
</tr>
<tr>
<td>Connecticut</td>
<td></td>
</tr>
<tr>
<td>Maryland</td>
<td></td>
</tr>
<tr>
<td>New Hampshire</td>
<td></td>
</tr>
<tr>
<td>Maine</td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td></td>
</tr>
<tr>
<td>Delaware</td>
<td></td>
</tr>
</tbody>
</table>

90,000 workers with wind-adjacent skills

1 Based on the workforce in a given region with individuals that have skills directly translatable to offshore wind occupations (i.e. Earth drillers, Structural iron and steel workers, etc.)

A workforce ready for the future

22% of graduates are in STEM\(^1\) disciplines

4\(^{th}\) highest share of STEM graduates in the country

1\(^{st}\) in scientists and engineers per square mile

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STEM includes Computer and Information Sciences and Support Services, Engineering, Engineering Technologies and Engineering-Related Fields, Biological and Biomedical Sciences, Mathematics and Statistics, Physical Sciences, Science Technologies/Technicians

Source: The Integrated Postsecondary Education Data System (IPEDS), National Science Foundation
Access to 150+ premier higher education institutions

- 150+ institutions in the region\(^1\)
- $6.6 billion R&D expenditures\(^1\)
- 25 Doctoral universities\(^{1,2}\)
- #1 University in the country and
- 3 of top 10\(^{1,3}\)

1. New Jersey region includes New Jersey state, New York-Newark-Jersey City, NY-NJ-PA MSA and Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA
3. Includes Princeton, Columbia University and University of Pennsylvania

SOURCE: Carnegie Classification of Higher Education Institutions, Higher Education Research and Development Survey (National Science Foundation), The Integrated Postsecondary Education Data System (IPEDS), US News
Diverse talent needed to compete in a globally diverse world

WHERE DIVERSITY THRIVES...

#1

MOST ETHNICALLY DIVERSE CITY IN THE US (JERSEY CITY)

#7

OVERALL RACIAL AND ETHNIC DIVERSITY

31%

SPEAK A LANGUAGE OTHER THAN ENGLISH AT HOME

40%¹

FOREIGN-BORN RESIDENTS HAVE A BACHELOR’S DEGREE OR HIGHER

#1

IN K-12 STUDENTS ENROLLED IN FOREIGN LANGUAGE CLASSES

4th

IN THE NATION FOR LINGUISTIC DIVERSITY

...AND INTERNATIONAL RESIDENTS ARE WELCOME (~2 MILLION OF THEM!)

1 United States average is 32%

SOURCE: WalletHub, American Community Survey, IPUMS, American Councils
A PLACE FOR EVERY EMPLOYEE

Newark
TRANSIT-RICH, DIVERSE NEIGHBORHOODS

Montclair

Hoboken
BUSTLING, GROWING CITIES

Jersey City

Collingswood
ACCESSIBLE, SMALL TOWNS

Asbury Park
COASTAL ENCLAVES

Princeton

Ocean City
Montclair
A safe and vibrant suburb with incredible schools, world-class dining options, and direct access to New York City

86% bachelor’s degree or higher
17 miles from Midtown Manhattan
12.5 student-teacher ratios
7 Parks and nature reserves

A DISTINCTIVE COMMUNITY

Downtown Montclair
Brookdale Park

1 Refers to Upper Montclair specifically. Parks include Anderson Park, Yantacaw Brook Park, the Bonsal Nature Reserve, Mountainside Park, the Presby Memorial Iris Gardens, and parts of Mills Reservation and Brookdale Park.

SOURCE: TownFacts, Niche, Township of Montclair
The #1 Pre-K-12 education system in the country

Ranked in Pre-K-12 education\(^1\)

Compared to...

1. PA 9
2. NY 8
3. TX 41
4. CA 28

1 States are graded and ranked in three categories: Chance for Success (January), School Finance (June), and K-12 Achievement (September).

If your income in Manhattan is...

~$100,000 after taxes

Moving to Newark would get you...

~$200,000 of purchasing power

Typical savings moving from Manhattan to Newark
% savings vs. original dollar spend

<table>
<thead>
<tr>
<th>Category</th>
<th>Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>70%</td>
</tr>
<tr>
<td>Groceries</td>
<td>24%</td>
</tr>
<tr>
<td>Transportation</td>
<td>13%</td>
</tr>
<tr>
<td>Utilities</td>
<td>10%</td>
</tr>
<tr>
<td>Healthcare</td>
<td>10%</td>
</tr>
</tbody>
</table>

Access to New York City and all of its amenities at a fraction of the cost

Easy access to New York City...

Weekday commute time to Midtown Manhattan (Penn Station), minutes

...at New Jersey prices

Median market rent ($ per month, 2019)

<table>
<thead>
<tr>
<th>Destination</th>
<th>Near in NJ</th>
<th>Near in NY</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW JERSEY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Montclair</td>
<td>~1 hour</td>
<td></td>
</tr>
<tr>
<td>Newark</td>
<td>18m</td>
<td></td>
</tr>
<tr>
<td>Jersey City</td>
<td>26m</td>
<td></td>
</tr>
<tr>
<td>Newark Airport</td>
<td>26m</td>
<td></td>
</tr>
<tr>
<td>NEW YORK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midtown Manhattan</td>
<td></td>
<td>$4,637</td>
</tr>
<tr>
<td>Upper West Side</td>
<td></td>
<td>$4,249</td>
</tr>
<tr>
<td>Upper East Side</td>
<td></td>
<td>$4,081</td>
</tr>
<tr>
<td>Downtown Brooklyn</td>
<td></td>
<td>$3,030</td>
</tr>
<tr>
<td>Hoboken</td>
<td></td>
<td>$2,817</td>
</tr>
<tr>
<td>Montclair</td>
<td></td>
<td>$2,457</td>
</tr>
<tr>
<td>Jersey City</td>
<td></td>
<td>$2,087</td>
</tr>
<tr>
<td>Newark</td>
<td></td>
<td>$1,533</td>
</tr>
</tbody>
</table>

SOURCE: Google Maps estimates via public transportation at 8:00 am on Monday morning; in cases where time range is provided, estimate uses average of low and high range; rent data from Zillow Rent Index (April 2019); not standardized by square feet or number of bedrooms given sample size (not able to get more detailed estimates for Montclair or Newark)
### Endless opportunities for leisure

- **130** miles of coastline
- **400+** Lakes, pond & reservoirs
- **16** theme parks
- **28** State parks
- **10** sports stadiums
- **16** golf courses
- **9,000** farms
- **930** miles of hiking
- **144** Museums
- **55** Historical sites
- **3** ski mountains
- **216**

#1 beach town in America

1. America’s Happiest Seaside Town

SOURCE: Stockton University, State of New Jersey Department of Environment Protection, GolfMax, FunNewJersey.com, Coastal Living, Department of State, Division of Travel and Tourism, State of New Jersey, New York-New Jersey Trail Conference, JerseyFresh, Institute of Museum and Library Services
A progressive agenda that helps attract diverse, highly-skilled talent

Governor Murphy Signs Executive Order Creating Future of Work Task Force
October 5, 2018, 3:09 pm | In

TRENTON — Governor Phil Murphy today signed an Executive Order establishing the Future of Work Task Force, charged with studying how technological innovation will impact the development of jobs and New Jersey’s economy. He also announced that the task force will be chaired by Chief Innovation Officer Dr. Beth Simone Noveck. The Governor previewed this task force in the Economic Development Strategic Plan he unveiled on Monday.

New Jersey advances plans for 330,000 zero-emission vehicles by 2025

In his first bill signing, Murphy restores funding for Planned Parenthood
By KATHERINE LANDERGAN | 02/21/2018 01:06 PM EST

Governor Murphy Signs Legislation to Make Student Loans More Affordable
04/25/2019

Two New Laws Help Borrowers of NJCLASS Loans Manage their Student Debt and Repair their Credit Scores
TRENTON — Governor Murphy today signed two pieces of legislation to assist student loan borrowers who are struggling with repayment.
A true partner for your business with supports to help at every stage

**GET STARTED**
Targeted financing programs for young companies

**GET ESTABLISHED**
Innovative supports for growth companies

**GROW**
Venture funding and loan programs to help companies scale

"The support we’ve received from the State has not only helped us grow, but has enabled us to enhance our platform, thereby helping more advisors and investors."

**John Michel**  
CEO, CircleBlack

"The NJEDA has been instrumental in supporting our growth, and we are confident that our participation in NJ Ignite will allow us to draw new tenants to Indiegrove."

**Zahra Amanpour**  
Founder, Indiegrove

SOURCE: NJEDA press releases and announcements
Offshore Wind Tax Credit

Program Overview
Designed to provide reimbursement for capital investments in industry-specific facilities located in the seven southern counties of New Jersey

- Minimum investment of $50 million in a qualified wind energy facility;
- Tenant’s investment of at least $17.5 million

Corporate business tax credit is equal to **100% of a taxpayer’s capital investment** in a wind energy facility located in an eligible wind energy zone

**10%** of the credit per year over a ten-year period

Must employ at least **300 new, full-time** employees within the State

Net benefits cap valued on a 10-year basis, but can be **extended up to 20-years** with verifiable commitments to maintain a longer-term presence in the state

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1. New jobs created with supply chain partners can count towards overall jobs requirements

www.NJEDA.com/OffshoreWind
Offshore Wind Supply Chain Technical Assistance Program

Program Overview
Supports local companies to develop the skills and competencies needed to participate in New Jersey’s growing offshore wind (OSW) industry

- An OSW advisory and certification company will help participating NJ small- and medium-sized businesses:
  - Assess their current capacity to supply the OSW market
  - Develop an action plan to get up to the current industry standards

- 75% of program cost will be covered

- Proposal anticipates that participating companies will be responsible for a portion of the cost to ensure their commitment to full participation and completion of the program

Companies that complete the program will be independently certified with industry credentials that are important for securing contracts.

The proposed Offshore Wind Technical Assistance Program is another positive step to assure the industry that New Jersey businesses are ready and eager to support developers and manufacturers as they continue to advance projects in New Jersey

- Joseph L. Fiordaliso
  President, NJBPU
Offshore Wind Supply Chain Registry

Program Overview
The free, searchable registry creates a profile of each business, including their contact information and core competencies, and makes the information available to other businesses and projects throughout the offshore wind industry.

500+ businesses have joined the registry

Resource for companies looking to buy from and partner with NJ-based firms

Registers you in the Business Network for Offshore Wind’s national supply chain registry

Receive special invitations to offshore wind events and resources

Governor Murphy has set a bold vision for 100 percent clean energy by 2050 and businesses up and down the supply chain will be a driving force behind achieving this critical goal

- Tim Sullivan
CEO, NJEDA
We’d love to connect with you!

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