

# NEW JERSEY'S OFFSHORE WIND ECONOMY

NJEDA



choose:  
newjersey



# 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<sup>1</sup>



## 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!

“

New Jersey is committed to a clean energy future and building a local offshore wind industry is core to this vision

- Phil Murphy  
Governor





## EMERGING HUB FOR U.S. OFFSHORE WIND



**STRONG POLITICAL COMMITMENT  
TO THE WIND INDUSTRY**

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**7,500 MW OF PROCUREMENT OVER  
THE NEXT 8 YEARS**

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**A VALUE AND SUPPLY CHAIN  
GROWTH STRATEGY**

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**PORT INVESTMENTS TO  
SUPPORT OFFSHORE WIND**

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## 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

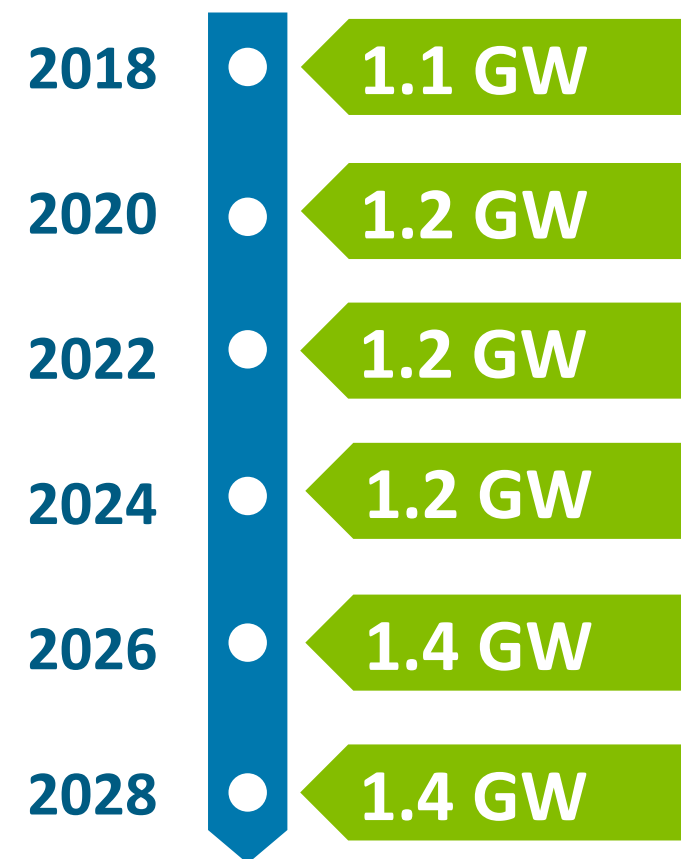
### BPU OREC Solicitation

- Award for first 1.1 GW in June 2019, in time for ITC

### Executive Order 28

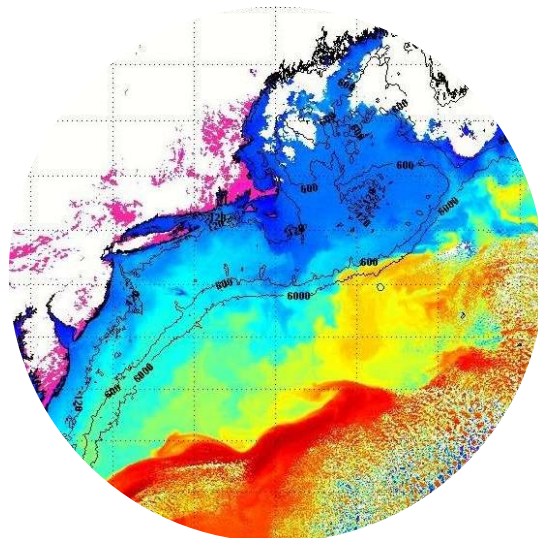
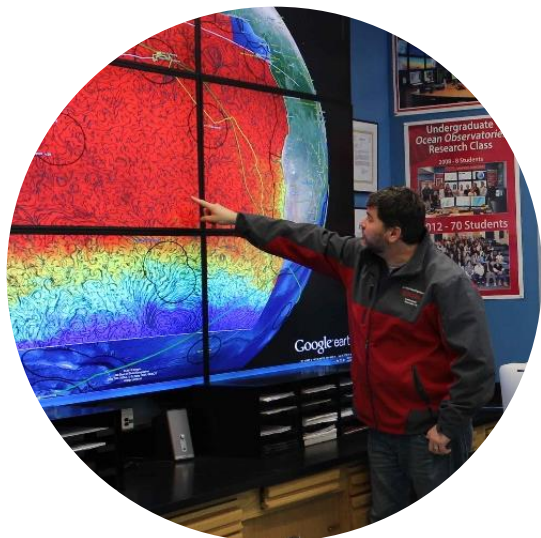
- Energy Master Plan to achieve 100% clean energy by 2050
- 2.0 GW of storage by 2030

...and identified a clear procurement schedule





## Rutgers University's Center for Ocean Observing Leadership (RUCOOL)



RUCOOL 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.



**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 Broström**  
CEO,  
Ørsted North America



Who's here: major global offshore wind companies, like Ørsted, have already moved here



► **Ørsted 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



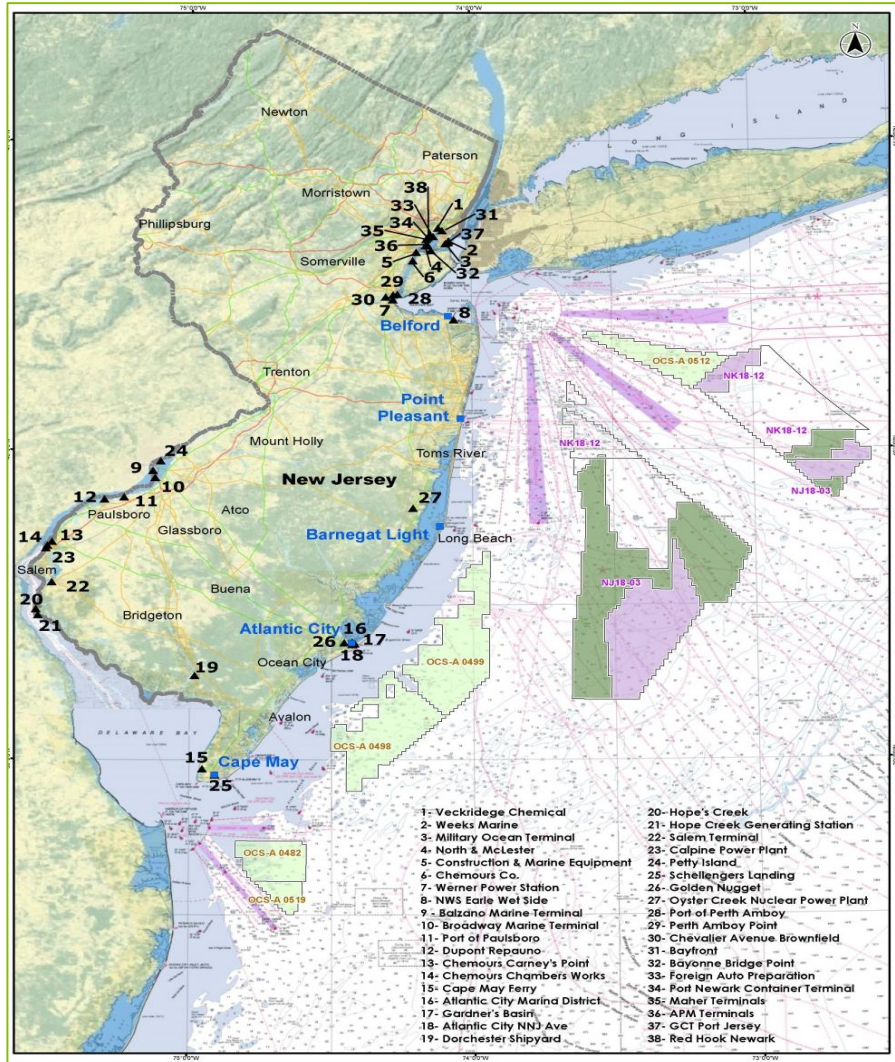
### ENVIRONMENTAL BENEFITS

**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)



# 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**



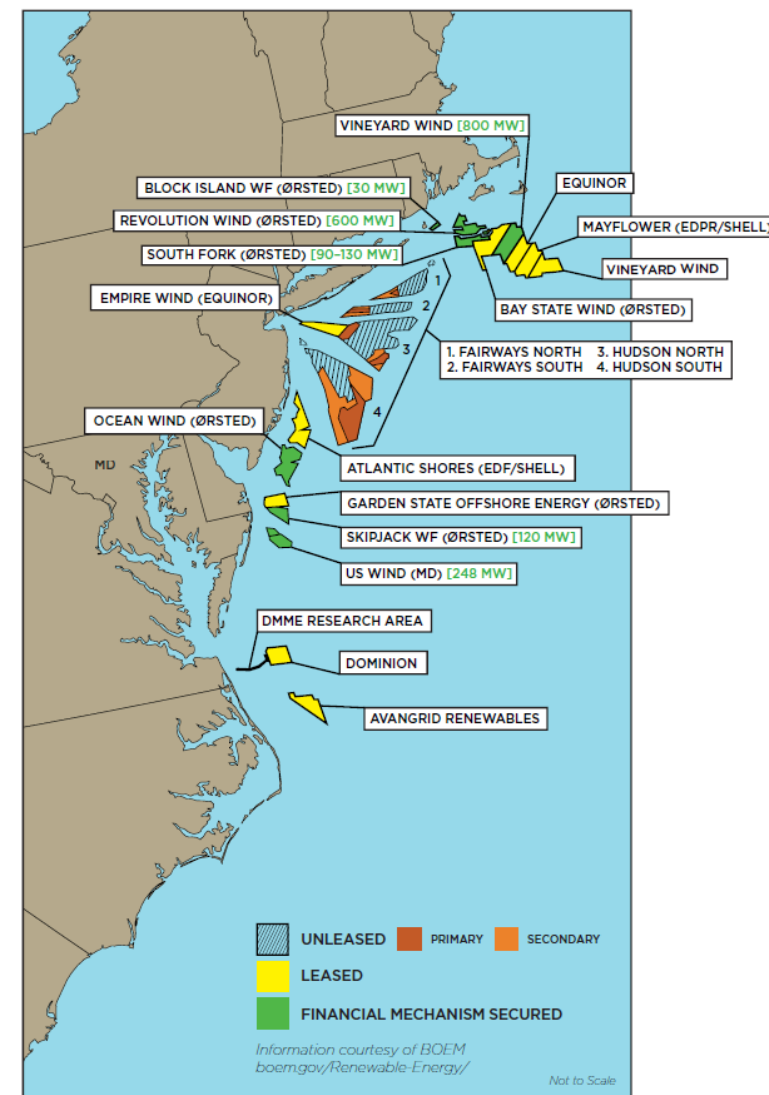
## New Jersey has access to the United States' largest and most competitive offshore wind lease areas

### 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

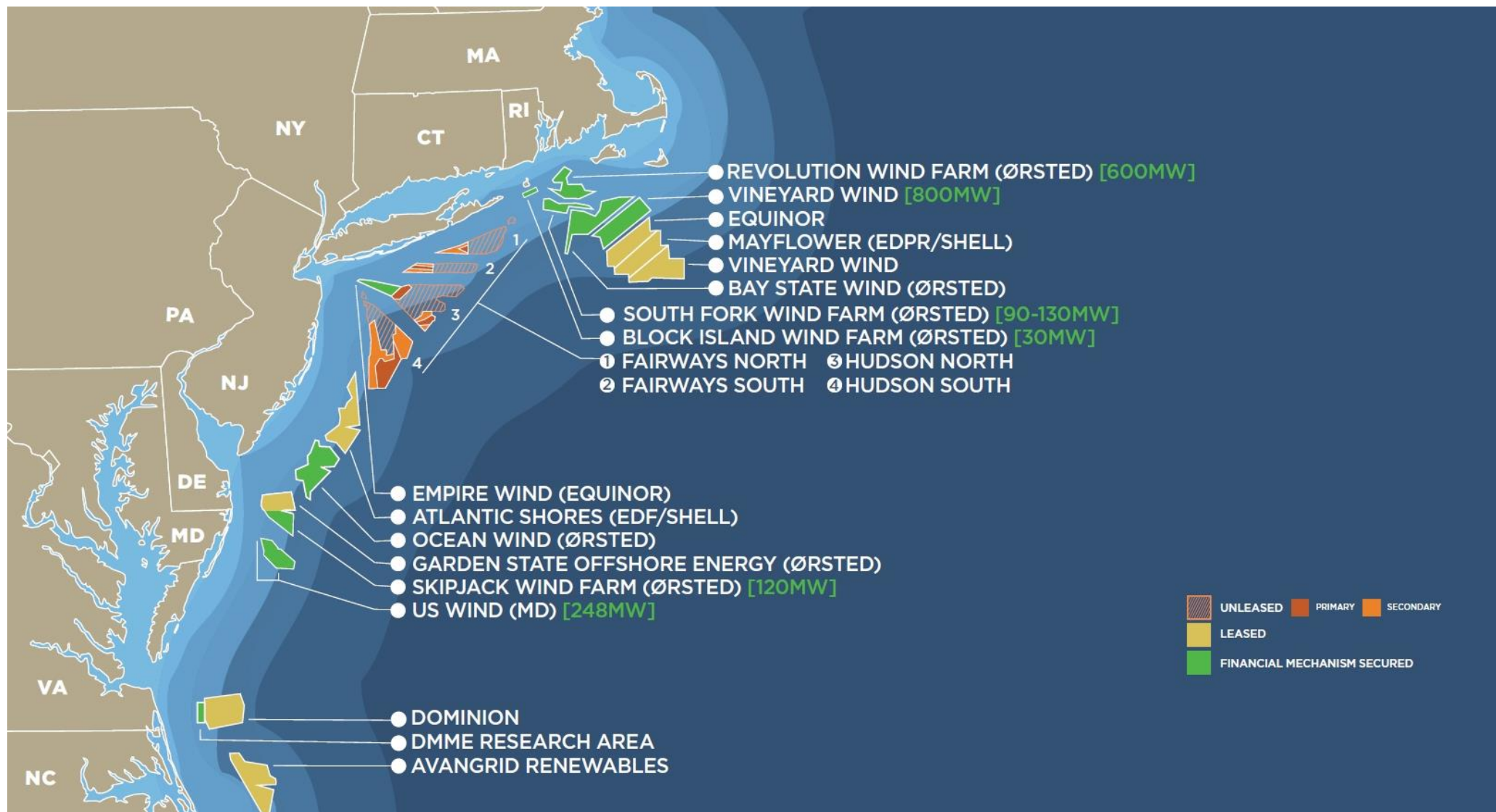
- **Proximity** to existing and proposed lease areas
- **Ability to interconnect** with New York (Equinor) and Delaware (Orsted) sites



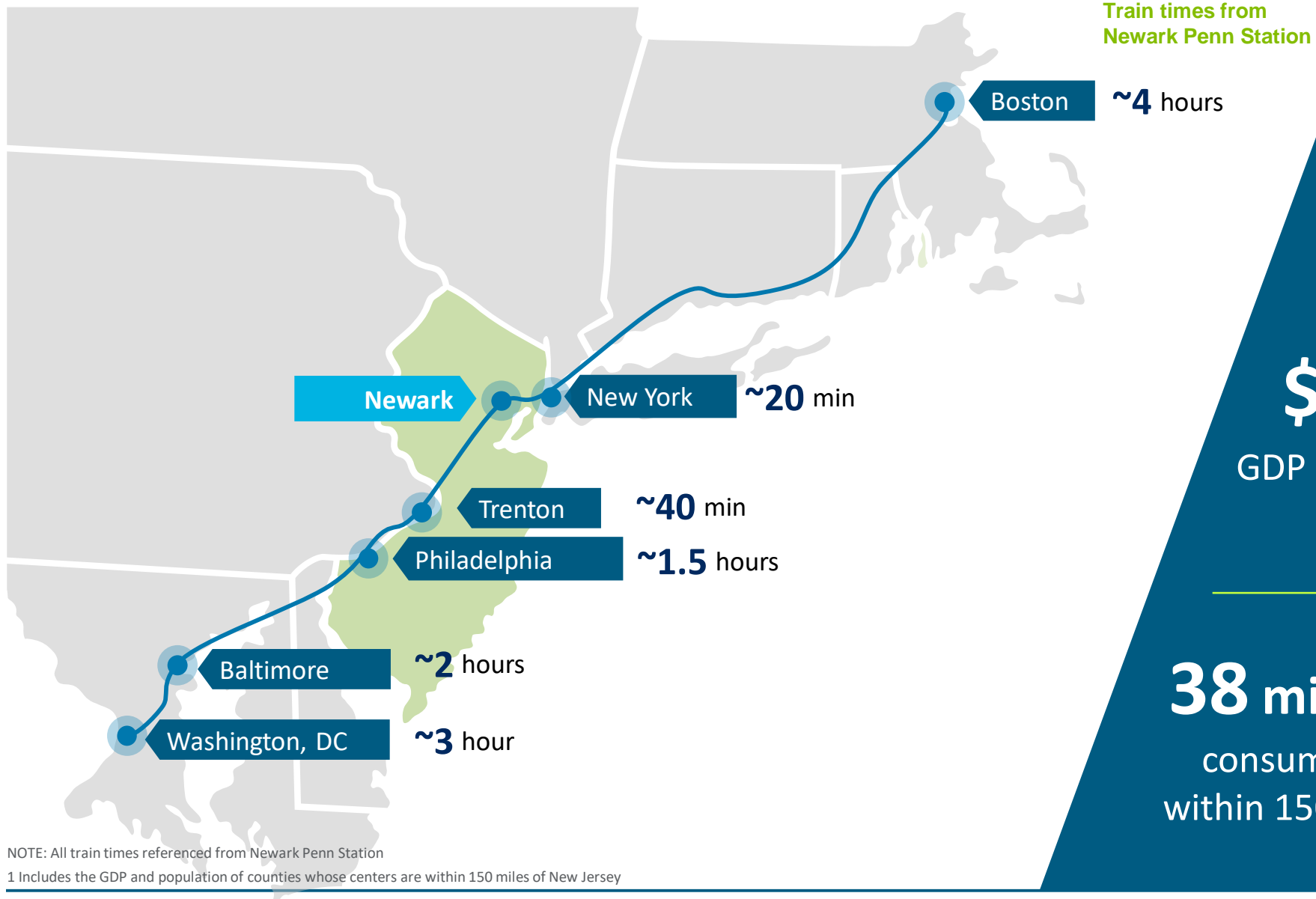




## New Jersey is in close proximity to current and future offshore wind lease areas



## Unmatched regional connectivity in the Northeast corridor



Day trips by train  
to Washington DC  
and Boston

**\$2.8 trillion**

GDP within 150 miles<sup>1</sup>  
(15% of US)

**38 million**  
consumers<sup>1</sup>  
within 150 miles

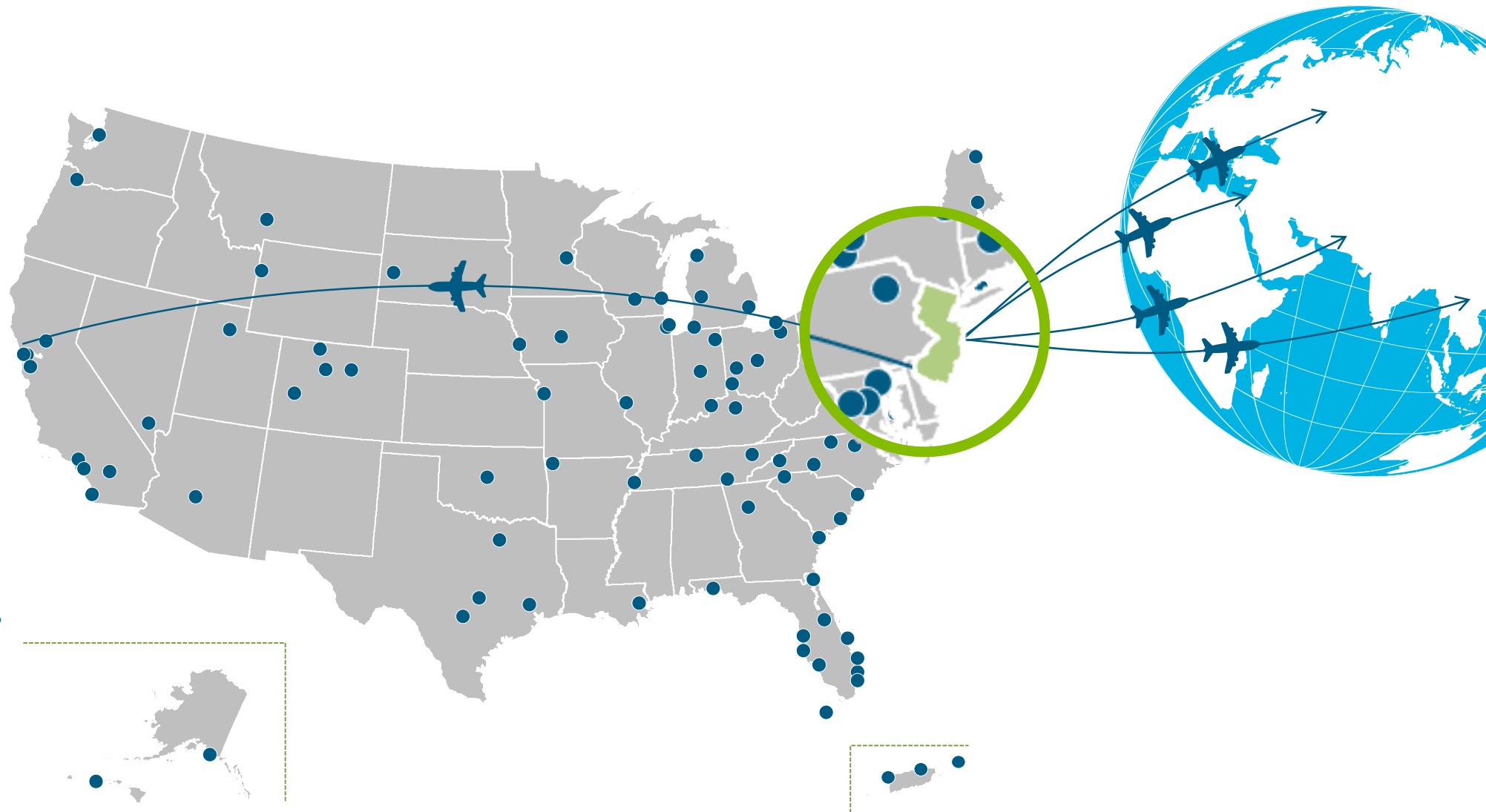
NOTE: All train times referenced from Newark Penn Station

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

 Easy access to employees, clients, and customers across the globe

**340<sup>+</sup>**  
NONSTOP  
DOMESTIC  
DESTINATIONS

**260<sup>+</sup>**  
NONSTOP  
INTERNATIONAL  
DESTINATIONS





# 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**



# A large, accessible, and talented workforce for the offshore wind industry

## Large and accessible talent pool...

~4.5M

Total workforce

#1

state by population density

~1,200

residents per square mile



## ...across a range of talent needs

40%

with bachelor's degree+  
(#4 in the US)

~2.5M

high-skilled population<sup>1</sup>

~1.7M

middle-skilled population<sup>2</sup>



“

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

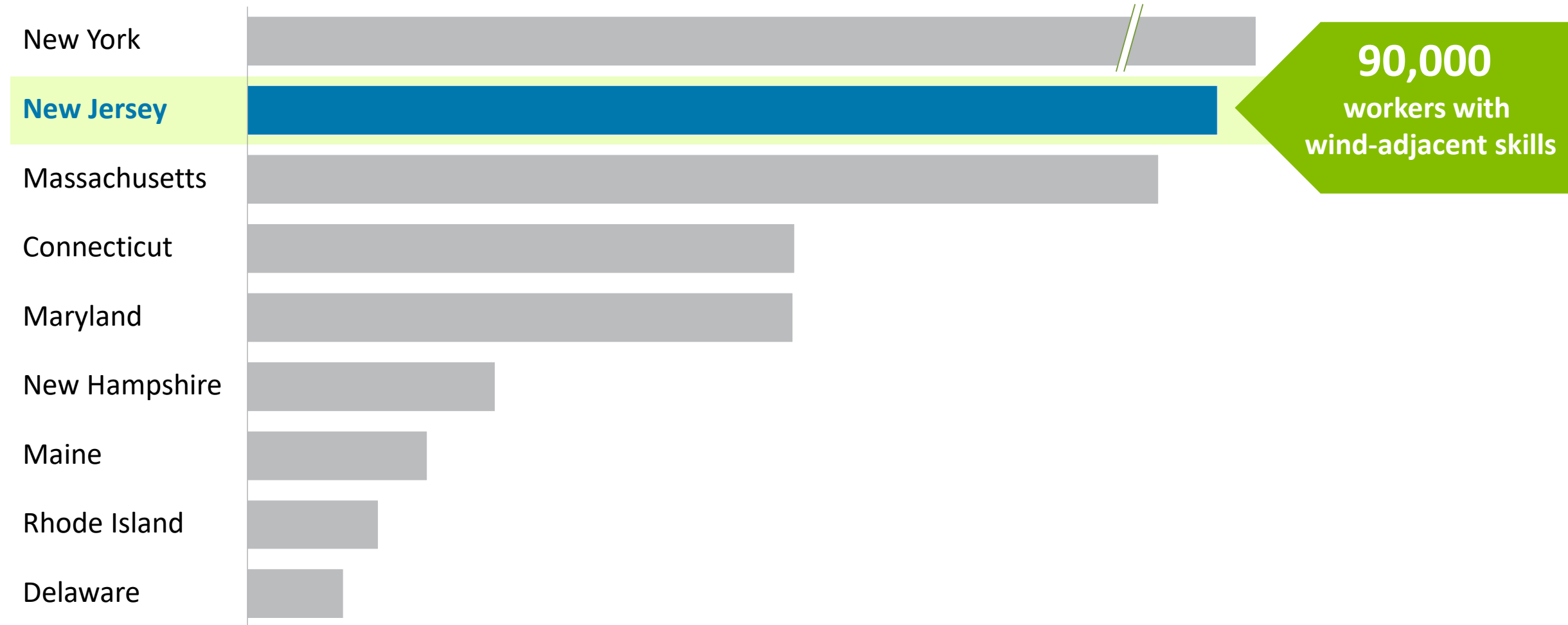
<sup>1</sup> Bachelor's degree or higher

<sup>2</sup> High school diploma holders without a post-secondary degree



## One of the largest offshore wind-ready workforces in the North Atlantic

### Talent pool with skills directly relevant to offshore wind<sup>1</sup>



<sup>1</sup> 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<sup>1</sup>** disciplines



4<sup>th</sup>

highest share of  
**STEM graduates** in  
the country

9<sup>th</sup>

PA

11<sup>th</sup>

MA

12<sup>th</sup>

CA

24<sup>th</sup>

NY

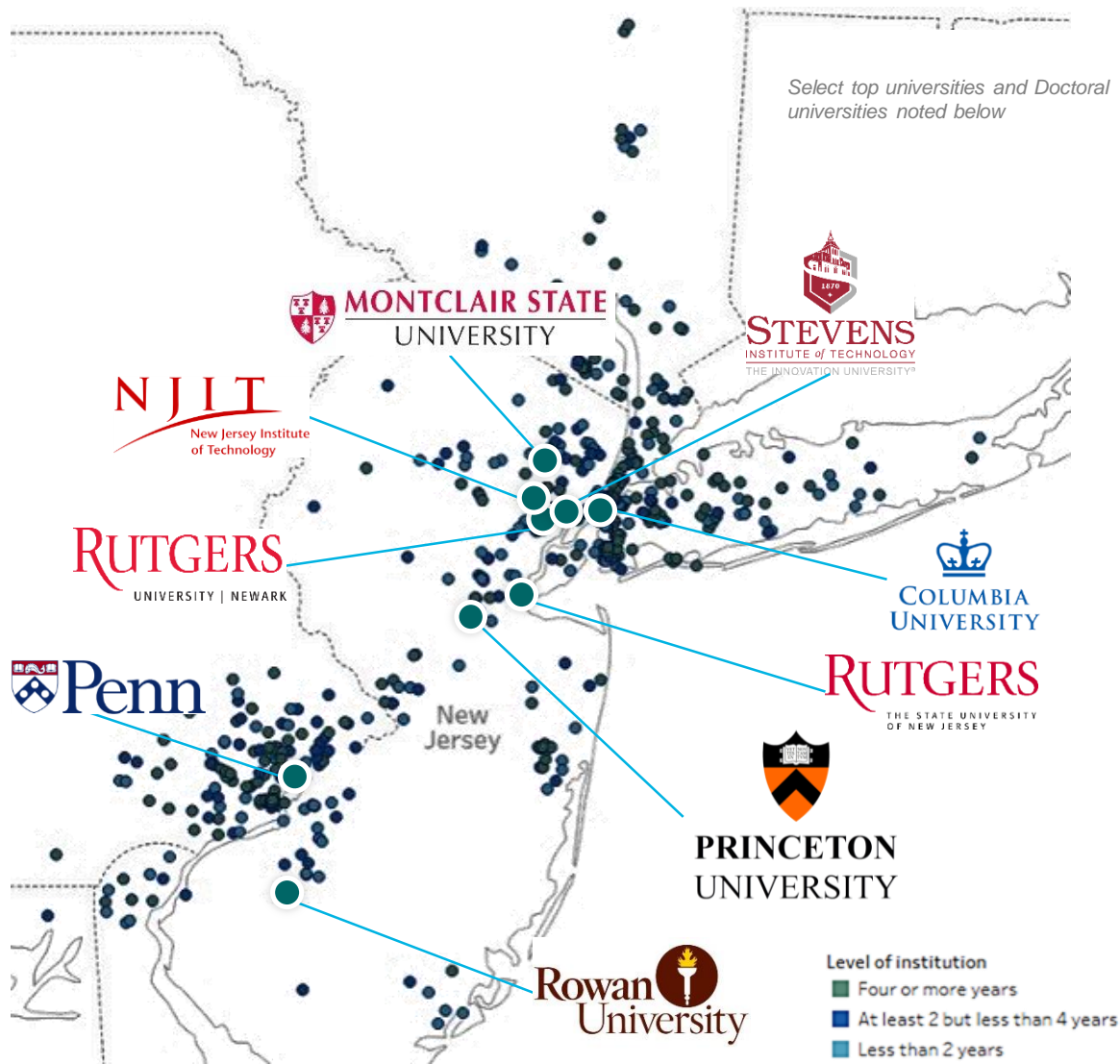


1<sup>st</sup>

in **scientists and  
engineers** per  
square mile

<sup>1</sup> 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

## Access to 150+ premier higher education institutions



**150+**

institutions in  
the region<sup>1</sup>

**\$6.6 billion**

R&D expenditures<sup>1</sup>

**25**

Doctoral  
universities<sup>1,2</sup>

**#1**

University in the  
country and  
**3 of top 10<sup>1,3</sup>**

<sup>1</sup> 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

<sup>2</sup> Includes universities under Carnegie classification: Doctoral Universities: Very High Research Activity, Doctoral Universities: High Research Activity

<sup>3</sup> Includes Princeton, Columbia University and University of Pennsylvania



## Diverse talent needed to compete in a globally diverse world



<sup>1</sup> United States average is 32%



# A PLACE FOR EVERY EMPLOYEE

TRANSIT-RICH, DIVERSE  
NEIGHBORHOODS

Newark

Jersey City

BUSTLING,  
GROWING CITIES

Montclair

Hoboken

Collingswood

Asbury Park

Princeton

ACCESSIBLE,  
SMALL TOWNS

Ocean City

COASTAL  
ENCLAVES



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



<sup>1</sup> 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



# The #1 Pre-K-12 education system in the country



1

ranked in  
Pre-K-12  
education<sup>1</sup>

Compared to...

9

PA

8

NY

41

TX

28

CA



2 of the top 30  
school districts



3 of the top 20 high  
schools in the US

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



## A short train ride from New York City but significantly more affordable

If your income in  
Manhattan is...

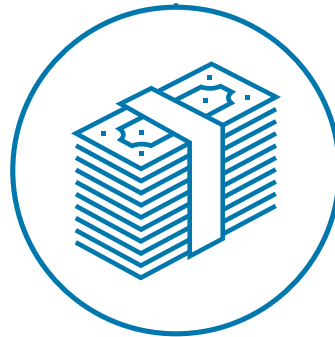
**~\$100,000**

after taxes

Moving to Newark  
would get you...

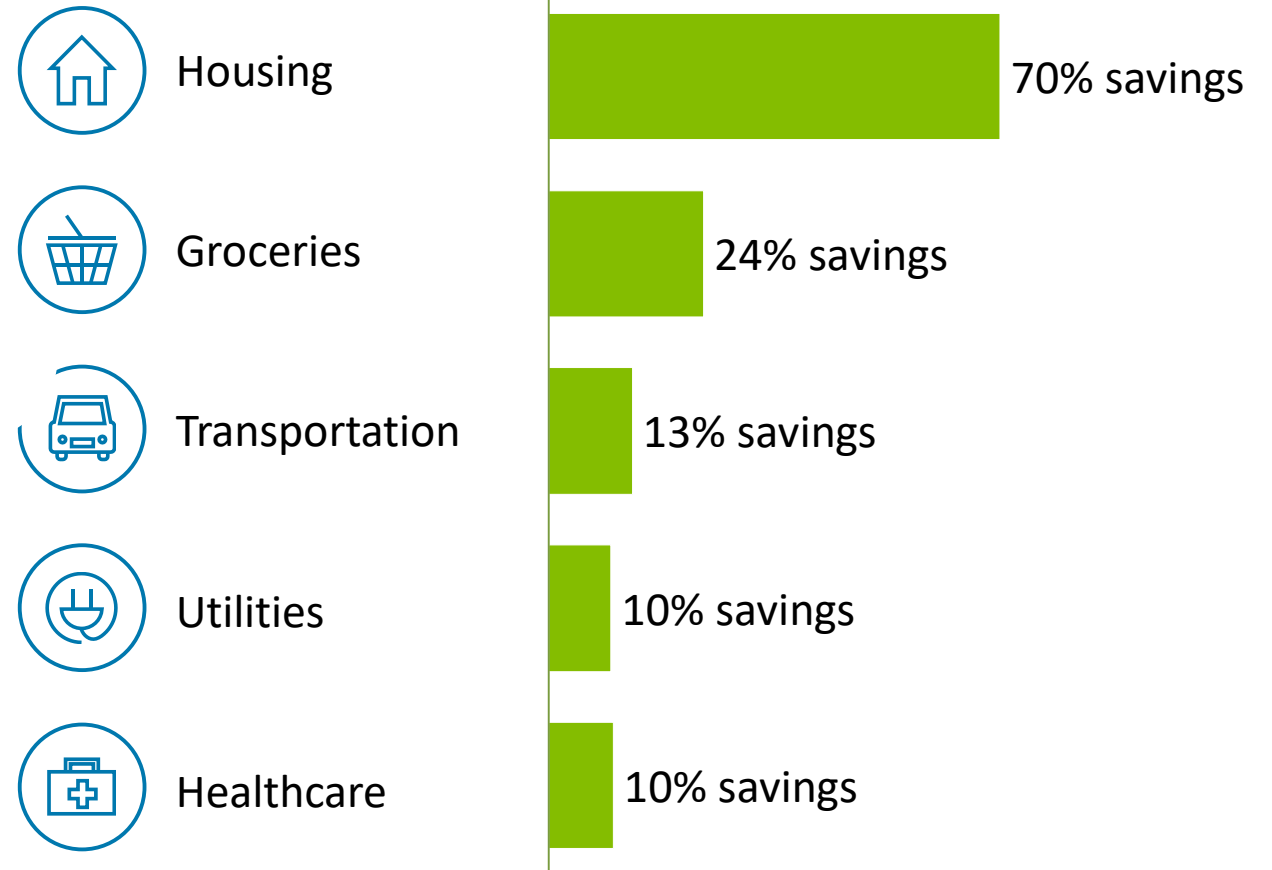
**~\$200,000**

of purchasing power



### Typical savings moving from Manhattan to Newark

% savings vs. original dollar spend



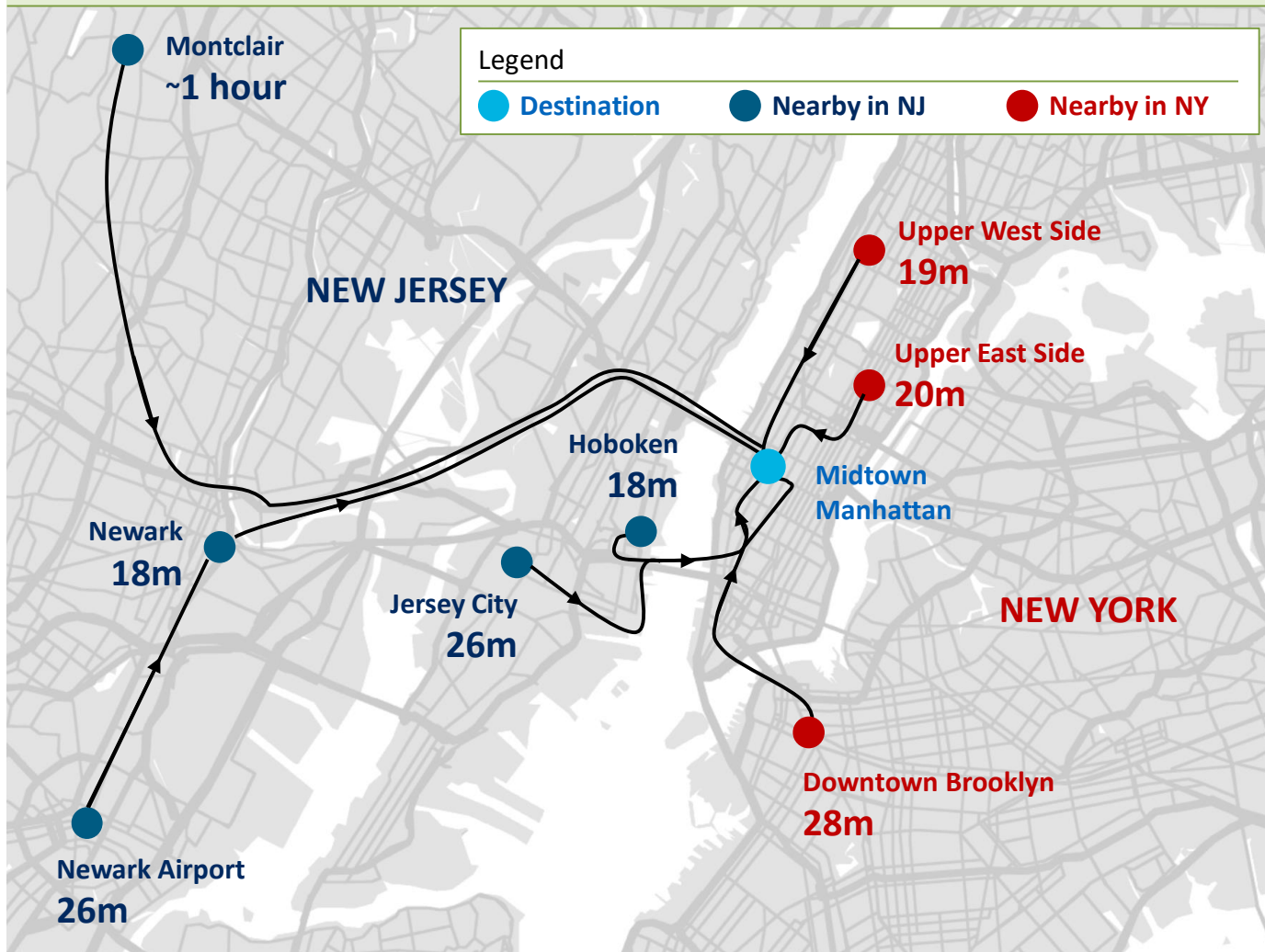




# Access to New York City and all of its amenities at a fraction of the cost

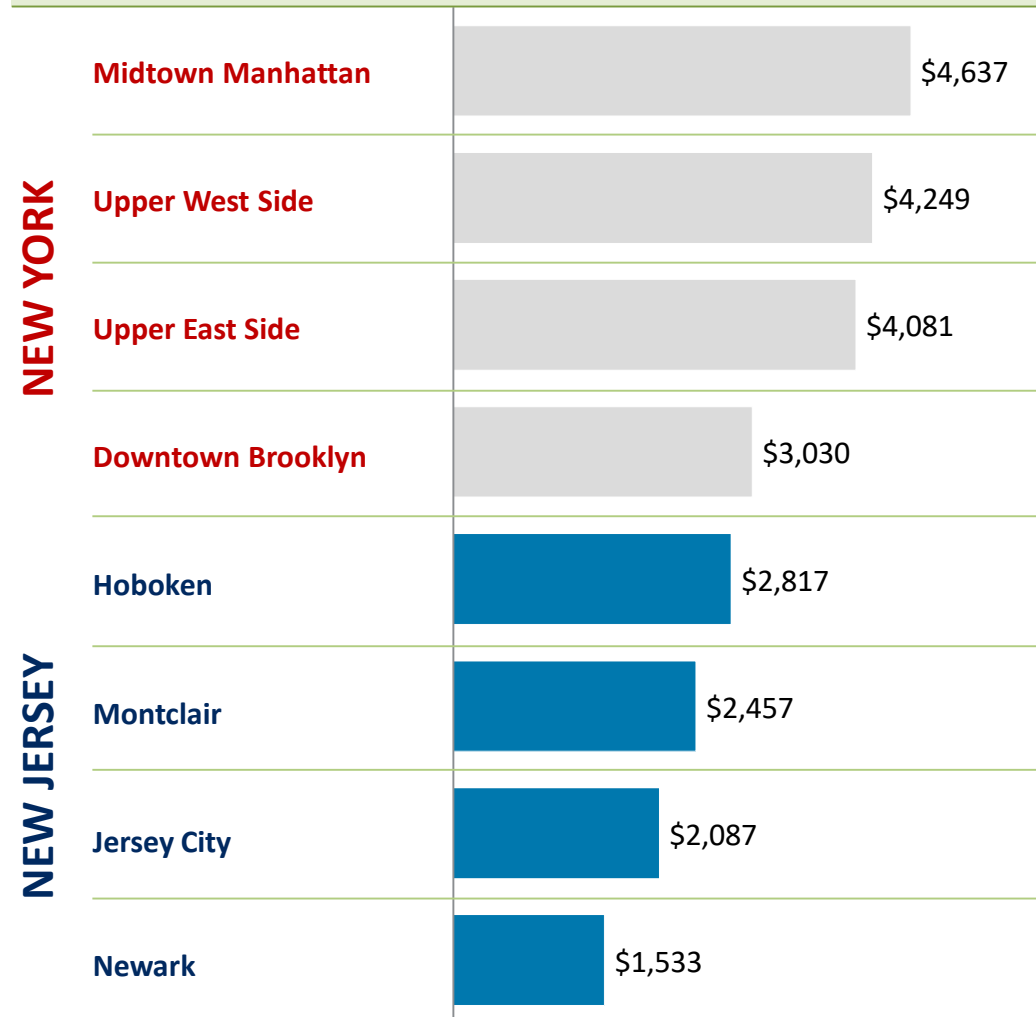
## Easy access to New York City...

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



## ...at New Jersey prices

Median market rent (\$ per month, 2019)



# Endless opportunities for leisure



**130**  
miles of  
coastline



**#1**  
beach town  
in America<sup>1</sup>



**9,000**  
farms



**55**  
Historical sites



**400+**  
Lakes, pond &  
reservoirs



**216**  
golf courses



**930**  
miles of hiking



**4**  
Zoos and  
botanical gardens



**28**  
State parks



**16**  
theme parks



**144**  
Museums



**3**  
ski mountains



**10**  
sports stadiums

<sup>1</sup> 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

### Free tuition expands to all of N.J.'s community colleges, Murphy says

Updated May 3, 2019; Posted May 3, 2019

### Governor Murphy Signs Historic, Sweeping Equal Pay Legislation

04/24/2018

*Equal Pay for Equal Work Now Law in New Jersey*

**Trenton** - Fulfilling his commitment to fight gender inequity and support equal pay for women in New Jersey, Governor Phil Murphy today signed into law the most sweeping equal pay legislation in America. The Diane B. Allen Equal Pay Act, named for former State Senator Diane Allen who herself was a victim of bias, strengthens protections against employment discrimination and promotes equal pay for all groups protected by the Law Against Discrimination (LAD).

### 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.

# 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<sup>1</sup>

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

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



## 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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