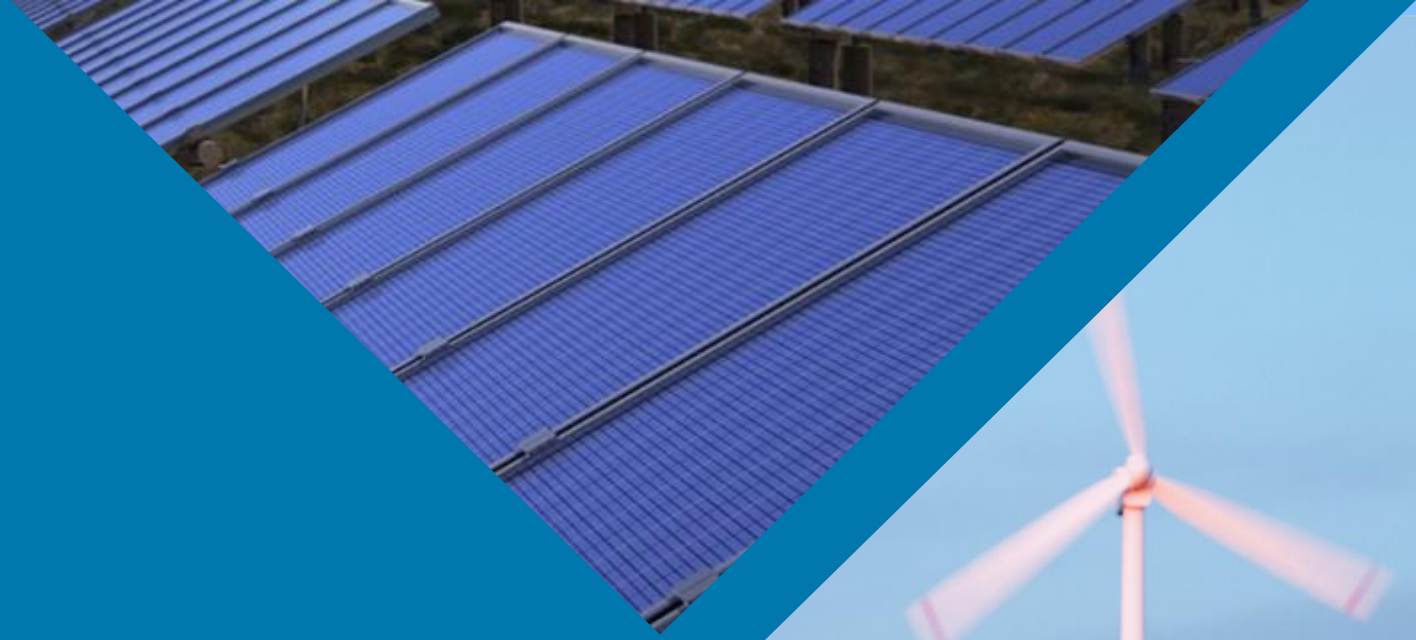
NEW JERSEY CLEAN ENERGY ECONOMY



NJEDA

choose: new jersey

Why choose New Jersey for CLEAN ENERGY?

> New Jersey is committed to growing our clean energy sector
>
> - **Phil Murphy**
> Governor of NJ

Unmatched location and infrastructure assets

- Be at the **center of the densely-populated, energy-dependent Northeast Corridor**
- **Enjoy unmatched regional and global connectivity** with next-door access to NYC and Philadelphia and ~600 nonstop flight destinations[1]
- Take advantage of the **largest port on the East Coast** and our **best-in-class digital infrastructure**

Committed to a world-class clean energy economy

- Be a part of our **bold political and financial commitment to 100% clean energy and a thriving clean energy economy**
- Locate in a State with **leading clean energy use and a robust pipeline of clean energy demand**
- **Join the growing ecosystem of clean energy companies** that call NJ home and are leveraging **world-class supports in order to grow**

Diverse talent to fuel the clean energy economy

- **Access the high-skilled and blue collar workers** needed across your entire business, tapping into one of the **largest clean energy talent pools in Northeast**
- Hire from a **truly diverse talent pool** and the **highest concentration of scientists and engineers in the US**
- **Tap into a robust talent pipeline,** supported by 150+ higher education institutions supporting leading energy R&D

A place for every employee

- Offer employees access to the **#2 ranked pre-K-12 education system** in the nation
- Provide employees with a choice of **commutable city, small town, country, and coastal living**
- **All this at 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

UNMATCHED LOCATION AND INFRASTRUCTURE ASSETS

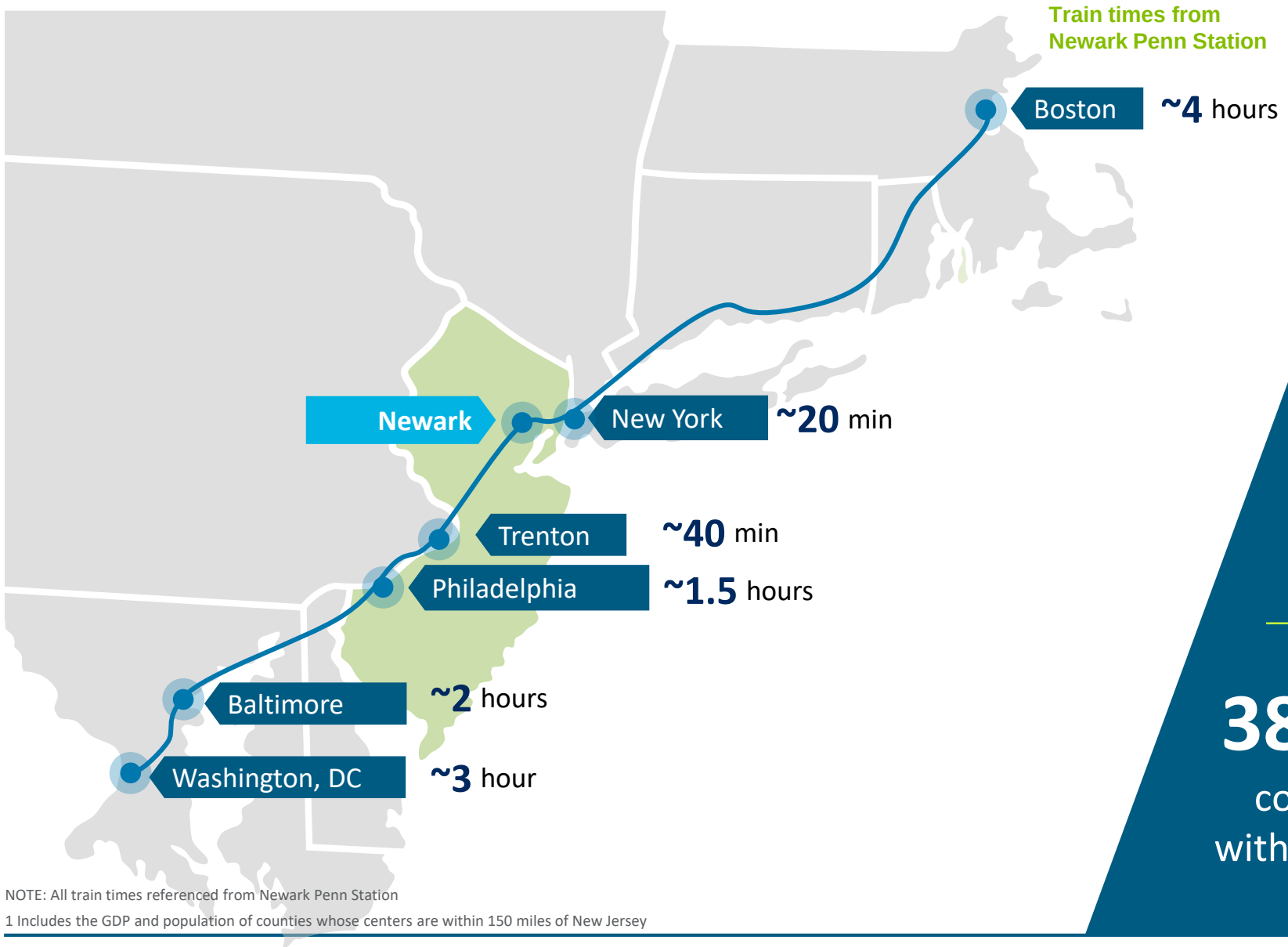
HEART OF THE NORTHEAST CORRIDOR

NEXT TO NYC AND PHILADELPHIA WITH EASY ACCESS TO THE GLOBE

THE #1 AIRPORT SYSTEM1 IN THE US AND THE #1 PORT ON THE EAST COAST IN THE #1 DIGITALLY-CONNECTED STATE

1 Includes Newark Liberty International Airport, Philadelphia International Airport, John F. Kennedy International Airport, and LaGuardia International Airport

The heart of the Northeast corridor



Day trips by train to Washington DC and Boston

$2.8 trillion

GDP within 150 miles[1] (15% of US)

38 million

consumers[1] 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

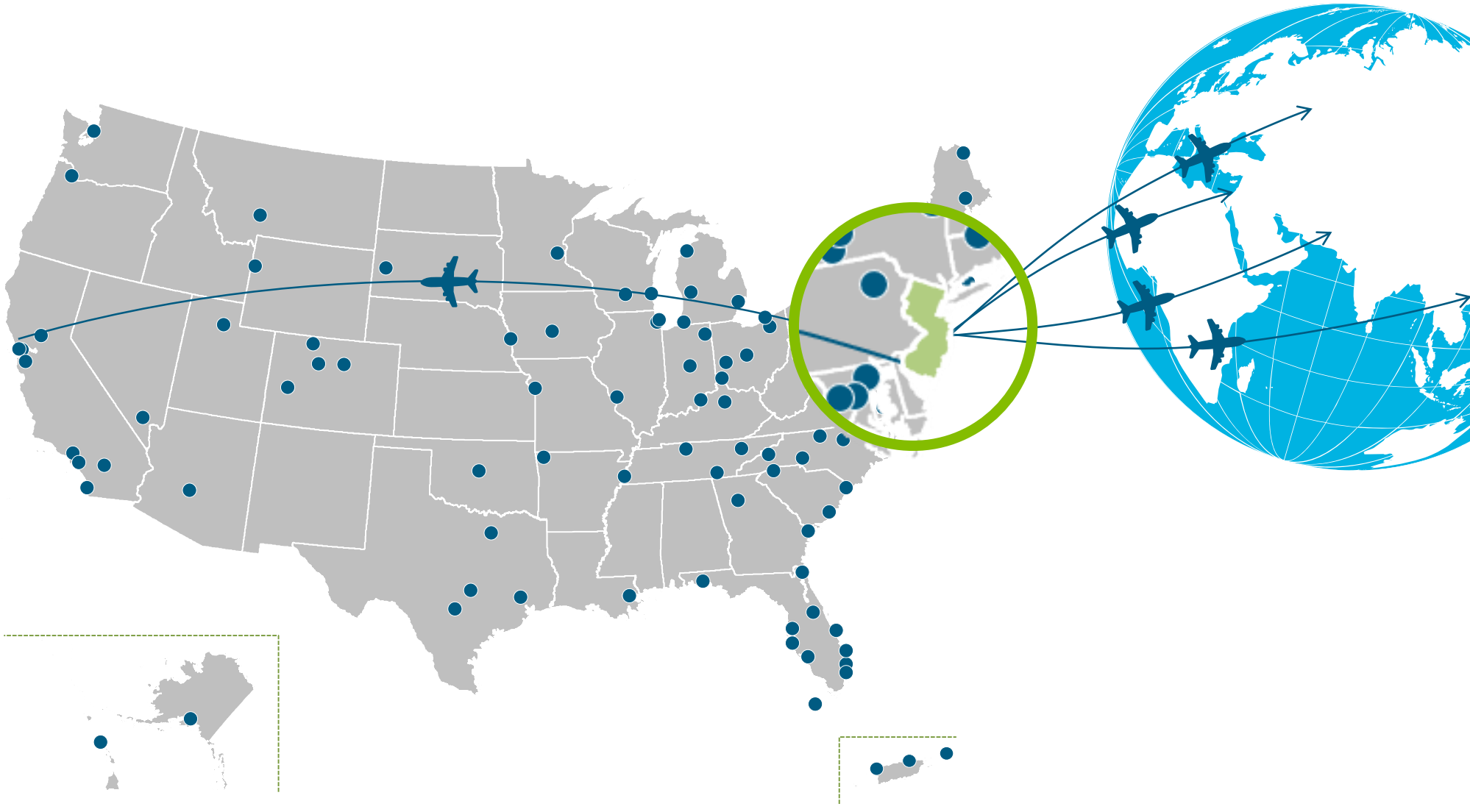
Easy access to employees, clients, and customers across the globe

340+

NONSTOP DOMESTIC DESTINATIONS

260+

NONSTOP INTERNATIONAL DESTINATIONS



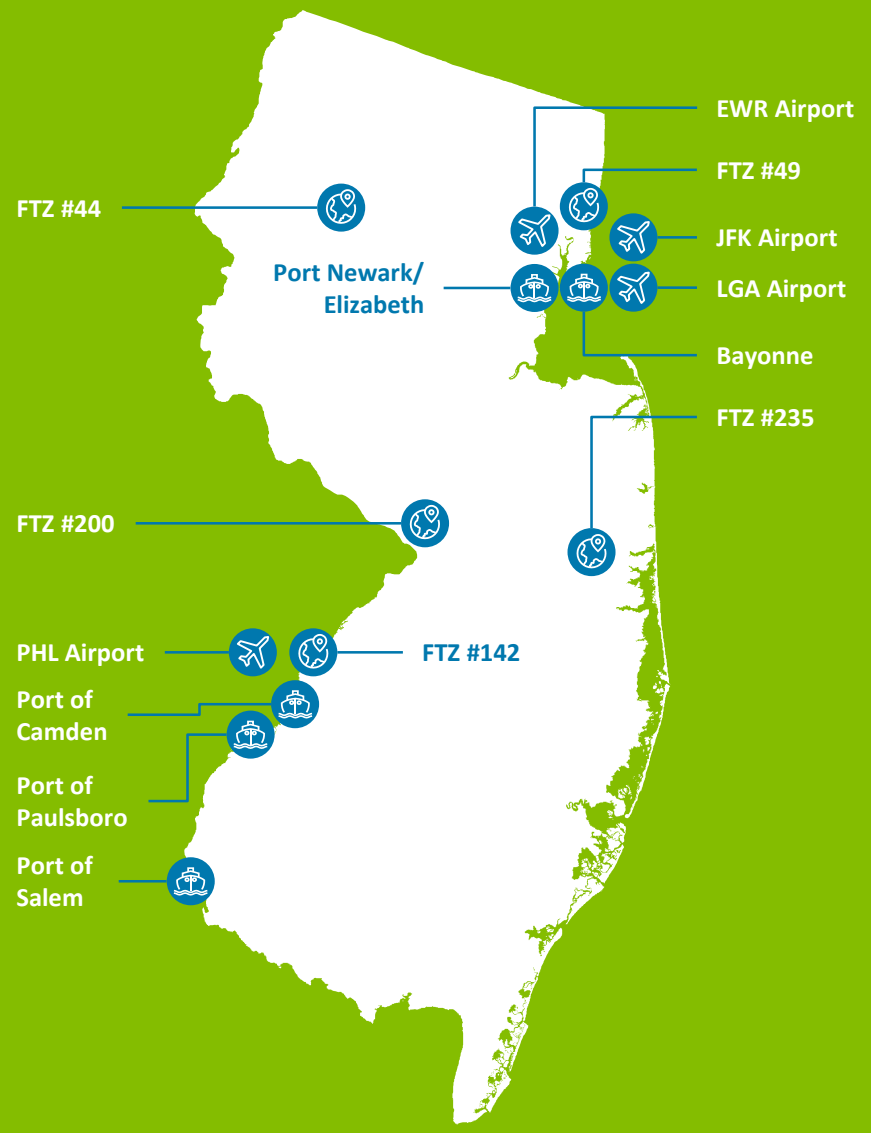
SOURCE: Diio Mi - Includes Newark Liberty International Airport, Philadelphia International Airport, John F. Kennedy International Airport, and LaGuardia International Airport

Importing and exporting goods could not be easier for your business

Busiest airport system[1] in the US

#1 largest port on the East Coast (Port of Newark)

5 strategically located Foreign Trade Zones throughout the State



1 Includes Newark Liberty International Airport, Atlantic City International Airport, JFK International Airport, LaGuardia Airport and Philadelphia International Airport

SOURCE: 2018 Port Performance Report, Department of Transportation; State of NJ Business Portal, Airports International Council (ACI)

Best-in-class Digital Infrastructure

#1

in % of population with access to wired broadband of 25 mbps or faster (99.1%)

#2

in average download speed (59.4 mbps)

#2

in % of population with access to fiber-optic internet (66.2%)

SOURCE: Broadbandnow.com, retrieved in June 2019; #1 average download speed in Maryland (~60.3 mbps) and #1 in % access to fiber is Rhode Island (~85%)

COMMITTED TO A WORLD-CLASS CLEAN ENERGY ECONOMY

A DEEP POLITICAL AND FINANCIAL COMMITMENT TO THE CLEAN ENERGY ECONOMY

UNMATCHED ACCESS TO A PIPELINE OF CURRENT AND FUTURE CLEAN ENERGY CONSUMERS

HOME TO ESTABLISHED AND GROWING CLEAN ENERGY COMPANIES AND A PERFECT ECOSYSTEM FOR INNOVATION

> To get New Jersey right, we must both grow our economy and make it fair. Investing in clean energy does both.
>
> - **Phil Murphy**
> Governor of NJ

NJ has made bold commitments to lead in clean energy …

100%

clean energy use by 2050

1 of 6

states with an energy storage target over the next decade (2,000 MW by 2030)

…and is making the financial investments needed to follow through

$7+ billion

in direct public expenditures via NJ Clean Energy Program since 2001

$9+ billion

in public and private solar investment in the State ($700+ million in 2018)

$70+ million

of additional annual funding through RGGI to support more innovative clean energy programs

SOURCE: Utility Dive, Environmental and Energy Study Institute, Environmental Defense Fund , Solar Energy Industry Association State of NJ DEP

NJ has long been a leader in clean energy

2012

23%+ clean energy by 2021

The Solar Act

2015

Energy Master Plan Update

2018

Promotes Offshore Wind Energy

Executive Order 8

NJ joins the US Climate Alliance
Upholding the Paris Climate Accord

sets100% clean energy commitment

Executive Order 28

Clean Energy Act

35% clean energy by 2025
50% clean energy by 2030

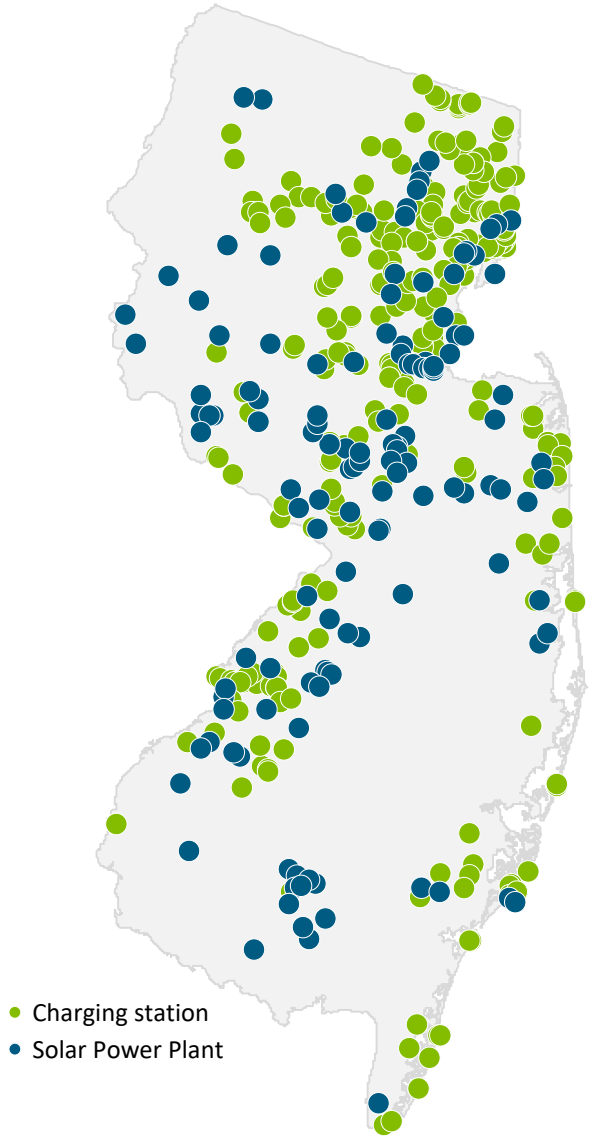
2019

Draft energy Master Plan

NJ announces Partnership to Plug-In, a first-of-its kind partnership to register 300,000 electric vehicles by 2025

SOURCE: New Jersey's Department of Environmental Protection, "New Jersey's Clean Energy Picture"

We are a clean energy State with the investments in place to show for it



310+ Electric Vehicle charging stations

840+ Electric Vehicle charging outlets

8 Operational energy storage projects

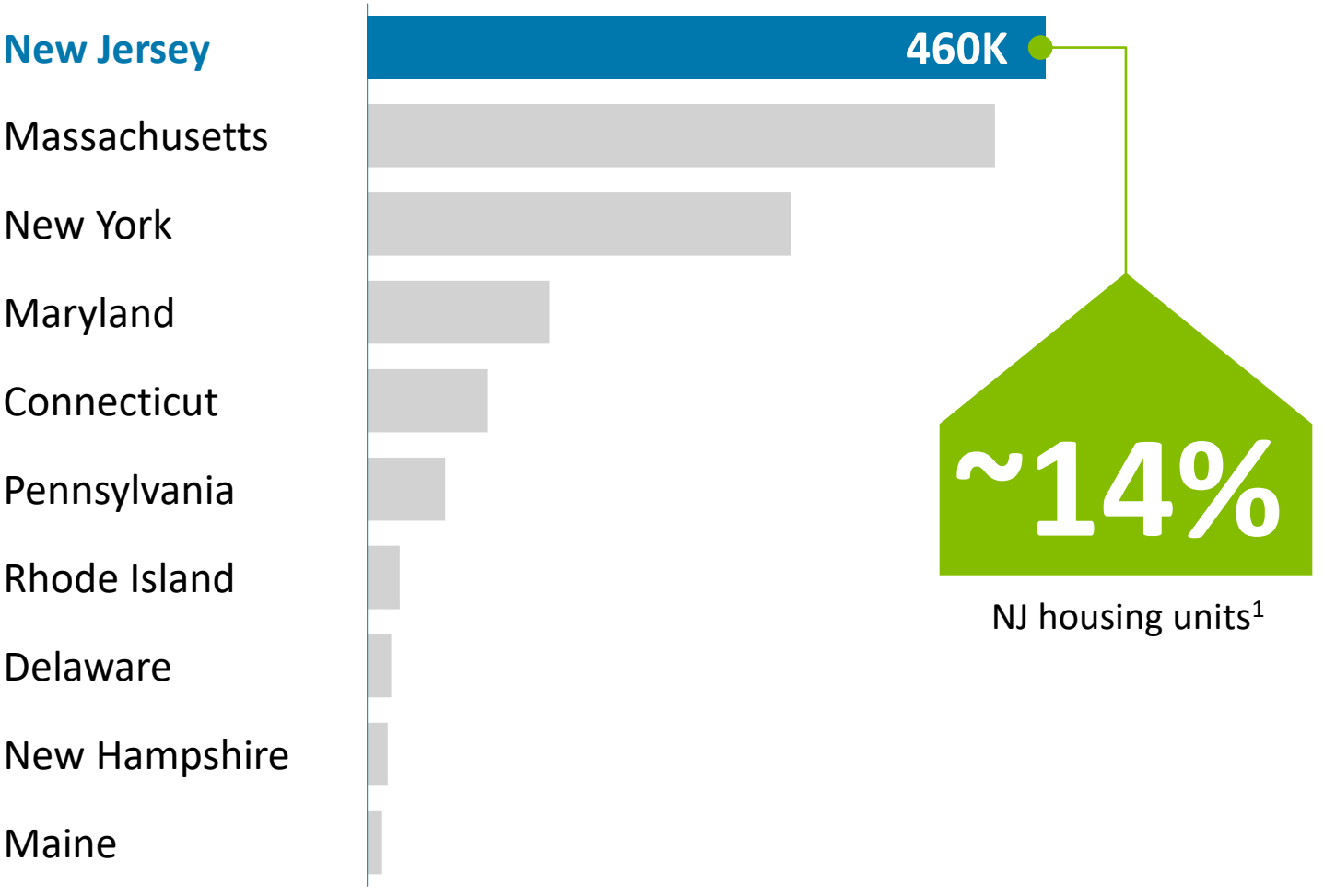
40% of existing large-scale battery storage power capacity lies in the PJM regional transmission organization

300+ Operating grid-level solar installations

SOURCE: Alternative Fuels Data Center, US Department of Energy; National Technology & Engineering Sciences of Sandia, US Energy Information Administration, ABB Energy Velocity

We have a well-established customer base and the #1 solar capacity in the Northeast

Number of homes that could be powered by installed solar capacity in the Northeast



#1 in Northeast for installed solar capacity (1,000 MW more than NY)

#2 in Northeast for number of solar panels installed (100,000+)

#2 ranking for solar-friendliness in the US

1 Includes all occupied housing units minus mobile homes

SOURCE: Solar Energy Industries Association, Solar Power Rocks

NJ has a strong pipeline of corporate clean energy demand

#3

ranking in ease with which companies can procure renewable energy in the US

DSM

January 2019 – Announces expansion of solar farm by 20.2 MW to provide energy for its manufacturing facilities, doubling its current capacity

Six Flags

June 2019 - Develops 23.5 MW for Six Flags NJ location, enabling the theme park to be nearly completely operated by solar power

ArdaghGroup

June 2019 – Develops 5.5 MW net-metered solar project to provide energy for its glass manufacturing operations

Nestlé

February 2018 – Leverages wind power in partnership with EDP Renewables in step toward 100% renewable electricity goal

QTS

May 2019 – Signs agreement to power data center with 100% wind power in Piscataway, NJ

BPU

February 2017 – State Board of Public Utilities approves plans to invest $8M to enhance energy efficiency on two state buildings

amazon

September 2018 - Installs rooftop solar panels at Edison location, aimed at producing 20% of energy needs

SunChemical

February 2017 - Signs a solar power purchase agreement (PPA) to cut electricity costs and improve efficiency at production facility in NJ

Cary

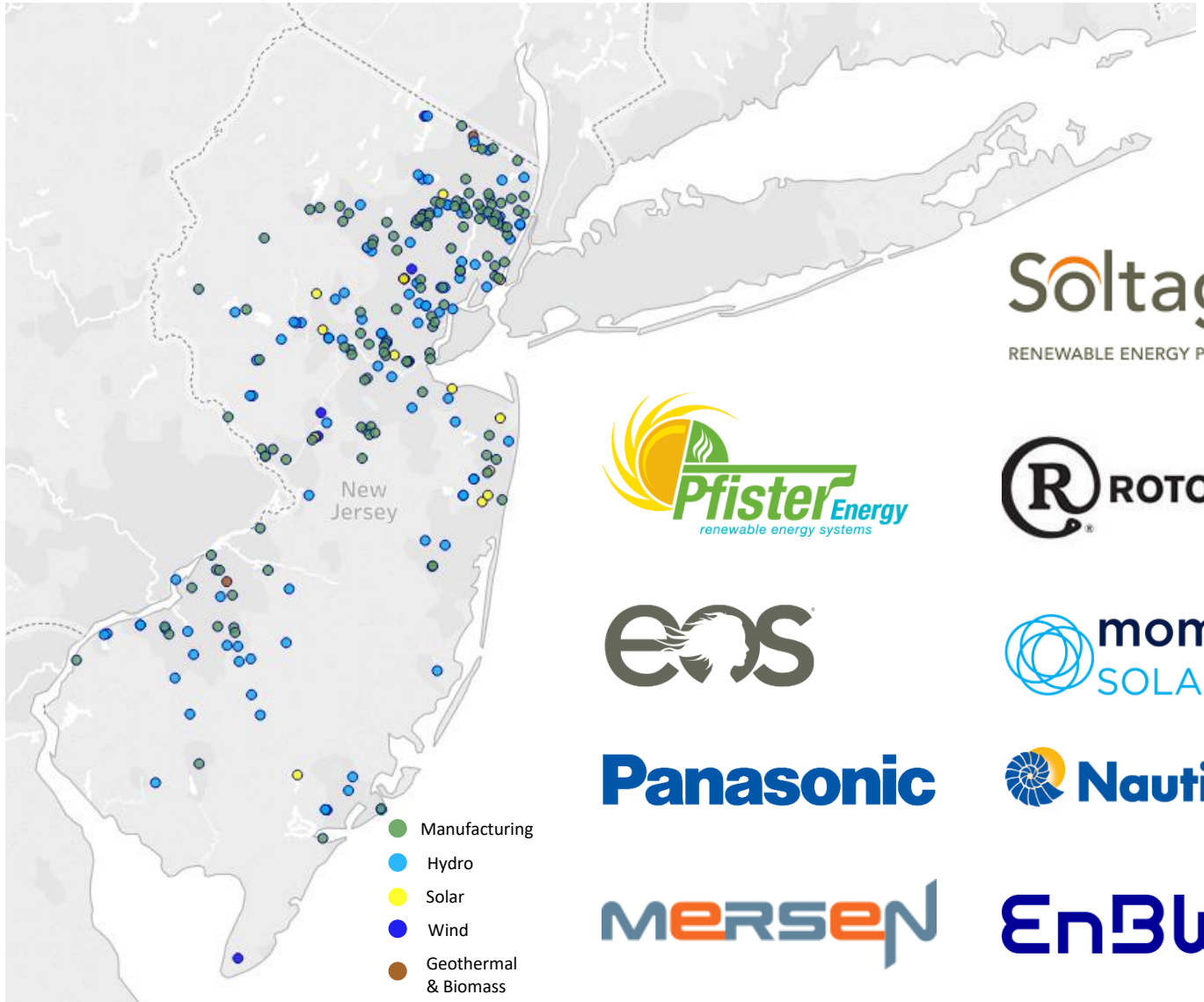
April 2019 – Adds a solar array at a shared manufacturing facility in Manalapan, NJ

> "After a landmark year of progress on policies that support jobs in solar, offshore wind, and energy efficiency, New Jersey's clean energy businesses are reaping the rewards of a stronger economy."
>
> **- Noah Dubin**
> Environmental Entrepreneurs

choose: new jersey NJEDA

SOURCE: Insider NJ, NJ Spotlight, Yahoo Finance, Corporate Clean Energy Index

Our bold vision has led to a growing clean energy economy in the State



Green Power Energy
nrg
Soltage RENEWABLE ENERGY PROVIDER
EDF renewables
Pfister Energy renewable energy systems
ROTOR CLIP
HUDSON SOLAR
eos
momentum SOLAR
Panasonic
NautilusSolar
apex solar
MERSEN
EnBW
PSEG
Ørsted

700+

Clean energy companies[1] in NJ

Note: Companies on map reflect a sample of companies HQ in New Jersey from Capital IQ | 1 Based on number of firms - defined as an organization consisting of one or more domestic establishments in the same state and industry that were specified under common ownership or control

SOURCE: Capital IQ, 2016 Statistics of U.S. Businesses (SUSB)

With many clean energy companies doubling down in NJ

2017

Opens 30,000 sq. foot facility in East Rutherford, NJ

Power generation company

ENER-G RUDOX

2018

Expands in South Plainfield, NJ to create 150 clean energy jobs

Solar energy equipment supplier

momentum SOLAR

2019

Establishes US office in Atlantic City, NJ

Global offshore wind company

Ørsted

Proposes a $1 billion utility-scale solar investment in NJ

Leading renewable energy company

Dakota Power Partners

Clean Energy Ventures

Natural gas and clean energy provider

Announces construction of 3 MW ground-mount solar project

PSEG

NJ's largest regulated gas and electric utility provider

Announces investment of $4 billion to improve NJ energy efficiency, electric vehicle infrastructure and energy storage

EnBW

Global offshore wind company

Opens its North American headquarters in Jersey City, NJ

SOURCE: Company press releases

We have the supports needed to help clean energy companies thrive

NJ'S CLEAN ENERGY ECOSYSTEM

ORCHESTRATED POLICIES

Draft 2050 Energy Masterplan

New Jersey's cleanenergy program™

INNOVATIVE FINANCING

Green Bank

Regional Greenhouse Gas Initiative

Infrastructure Bank

SUPPORTIVE INSTITUTIONS AND PROGRAMS

RUTGERS New Jersey Agricultural Experiment Station • EcoComplex "Clean Energy Innovation Center"

Clean energy innovation center

NJMEP Helping New Jersey Manufacture Success

PUBLIC AND PRIVATE COLLABORATIONS

Partnership to Plug-In

NJ Clean Energy Resource Network

PSEG

$4.1B investment in NJ clean energy infrastructure

Who's here: Eos Energy Storage LLC

- **Eos**, founded in 2008, **is headquartered in Edison, New Jersey**
- Eos Energy Storage LLC **develops and manufactures energy storage solutions**, offering DC battery systems designed for the grid-scale energy storage market, with **annual sales of $7.7 M**[1]
- As of 2016, Eos Energy Storage had created **partnerships** with energy companies, including **Toshiba and Siemens, NRG Energy, and Con Edison**
- Eos Energy Storage is **deploying its products in several markets outside of USA**, including Brazil
- Announced **two new projects deploying the company's Aurora 2.0 battery system** on both coasts of the United States
- Eos Energy Storage announced the **installation and commissioning of a 250 KW battery system** at the wastewater treatment plant **in Caldwell, New Jersey**

> "New Jersey represents a vibrant and growing market for energy technologies and renewable energy development. We decided to headquarter Eos in Edison because we wanted to be part of an ecosystem where utilities, energy technology companies, and state agencies are working together to improve grid resiliency, reduce greenhouse gas emissions, and lower electricity costs for end-users.
>
> **- Michael Oster**
> Eos Energy Storage CEO

1 Estimated by Factiva for year 2018

SOURCE: Eos Energy Storage company website, New Jersey Economic Development Authority website, Holtec International website, Factiva, Press articles

Who's here: Panasonic, solar energy solutions provider settled in Newark

Panasonic

Panasonic is active is several industries including **sustainable energy**, and has its principal **North American subsidiary** in **Newark, NJ**

Offers **battery storage** and **solar energy solutions** and is regarded as a market leader in the **solar panel industry**

Collaborated with **SolarEdge** to offer smart module for the **US residential market** in 2018

"The more I studied, the more I learned and the more I watched the development and the process that this city [Newark] was making, the more convinced I was that this would be the home for us to transform ourselves into the world's leading green global company.

- Joseph Taylor
Panasonic Chief Executive

SOURCE: Company websites, Press release, Web search

DIVERSE TALENT TO FUEL THE CLEAN ENERGY ECONOMY

LARGE AND ACCESSIBLE TALENT POOL

Among the largest

clean energy workforces in the Northeast

GLOBALLY AND RACIALLY DIVERSE POPULATION

7th

most racially and ethnically diverse state in US

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

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[1]

~1.7M middle-skilled population[2]

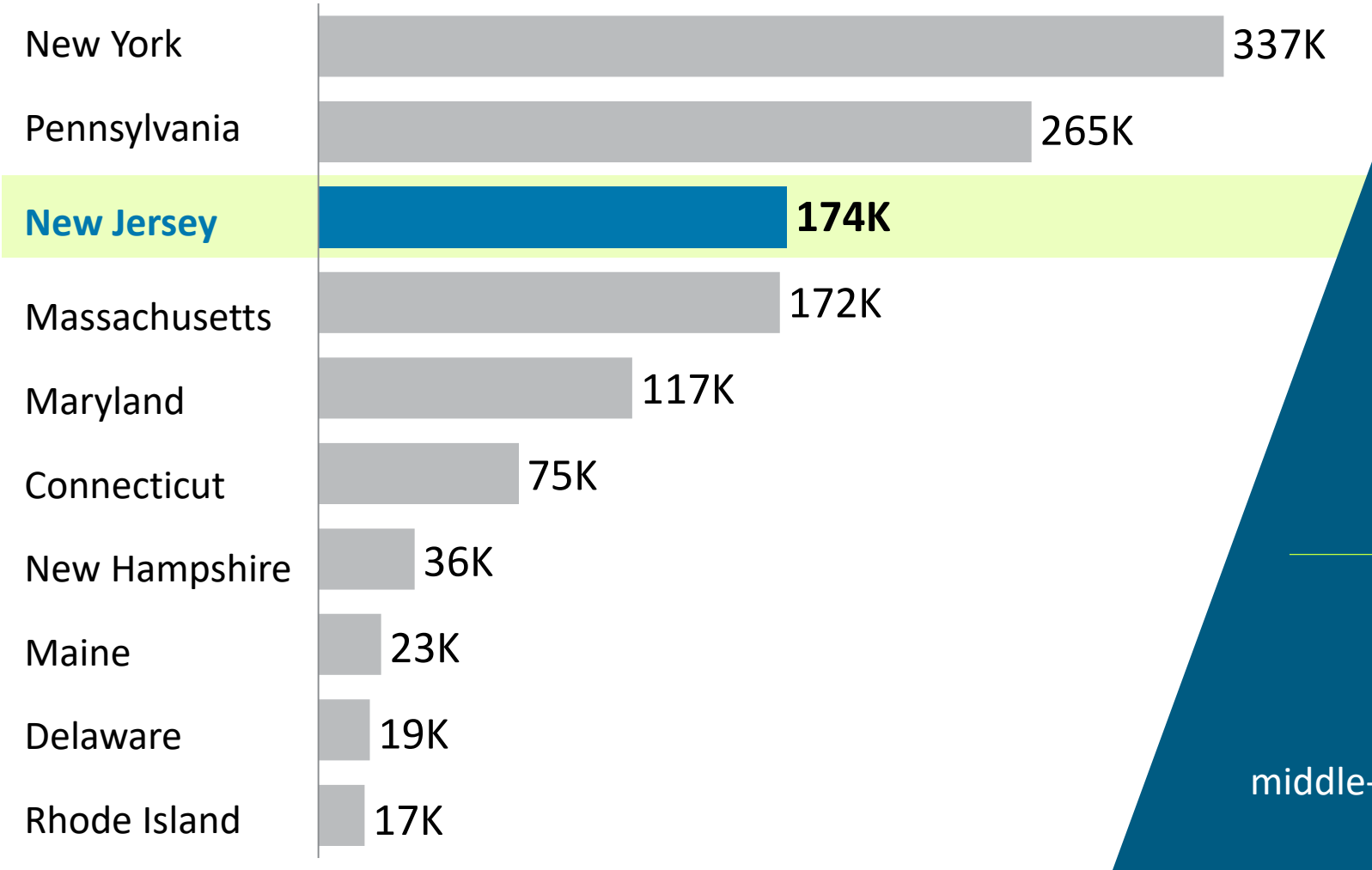
> We intend to combine our unique blend of German engineering expertise with our local team's know-how in energy policy and community engagements to advance [New Jersey's] goals for clean energy.
>
> - Holger Grubel
> Head of Offshore Wind Portfolio Development
> EnBW

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)

Ideal mix of high-skilled and middle-skilled talent available

Solar Power Compatible Occupations, Ths.



162%

growth in NJ solar panel installer jobs (2013-18); 3rd fastest growing job in the state

76K

high-skilled workers

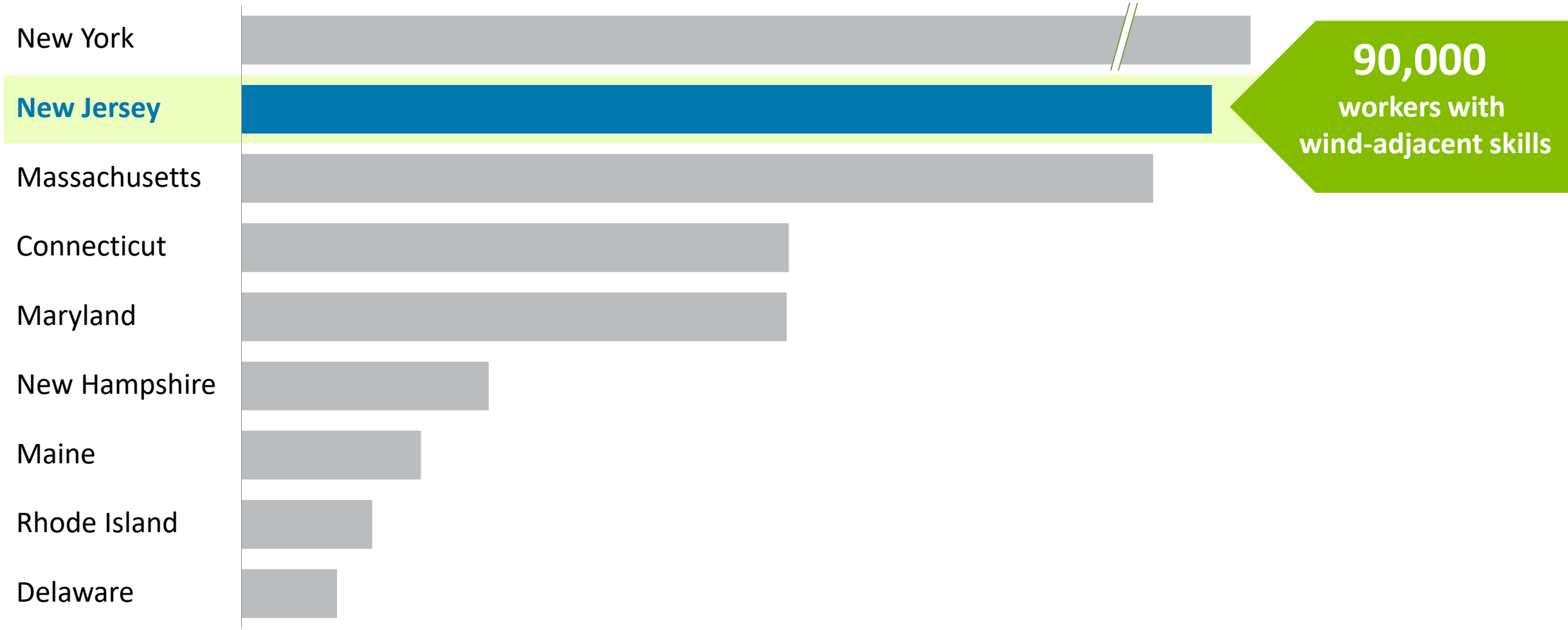
96K

middle-skilled workers

SOURCE: US Bureau of Labor Statistics, OES, "Careers in Solar Power" report

One of the largest offshore wind-ready workforces in the Northeast

Talent pool with skills directly relevant to offshore wind[1]



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.)

SOURCE: U.S. Department of Energy and Navigant, "U.S. Offshore Wind Manufacturing and Supply Chain Development", US Bureau of Labor Statistics

A workforce ready for the future

22%

of graduates are in **STEM[1]** disciplines

4th

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

9th	11th	12th	24th
PA	MA	CA	NY

1st

in **scientists and engineers** per square mile

1 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

Diverse talent needed to compete in a globally diverse world

WHERE DIVERSITY THRIVES…

#7

OVERALL RACIAL AND ETHNIC DIVERSITY

40%[1]

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

#1

MOST ETHNICALLY DIVERSE CITY IN THE US (JERSEY CITY)

#1

IN K-12 STUDENTS ENROLLED IN FOREIGN LANGUAGE CLASSES

31%

SPEAK A LANGUAGE OTHER THAN ENGLISH AT HOME

4th

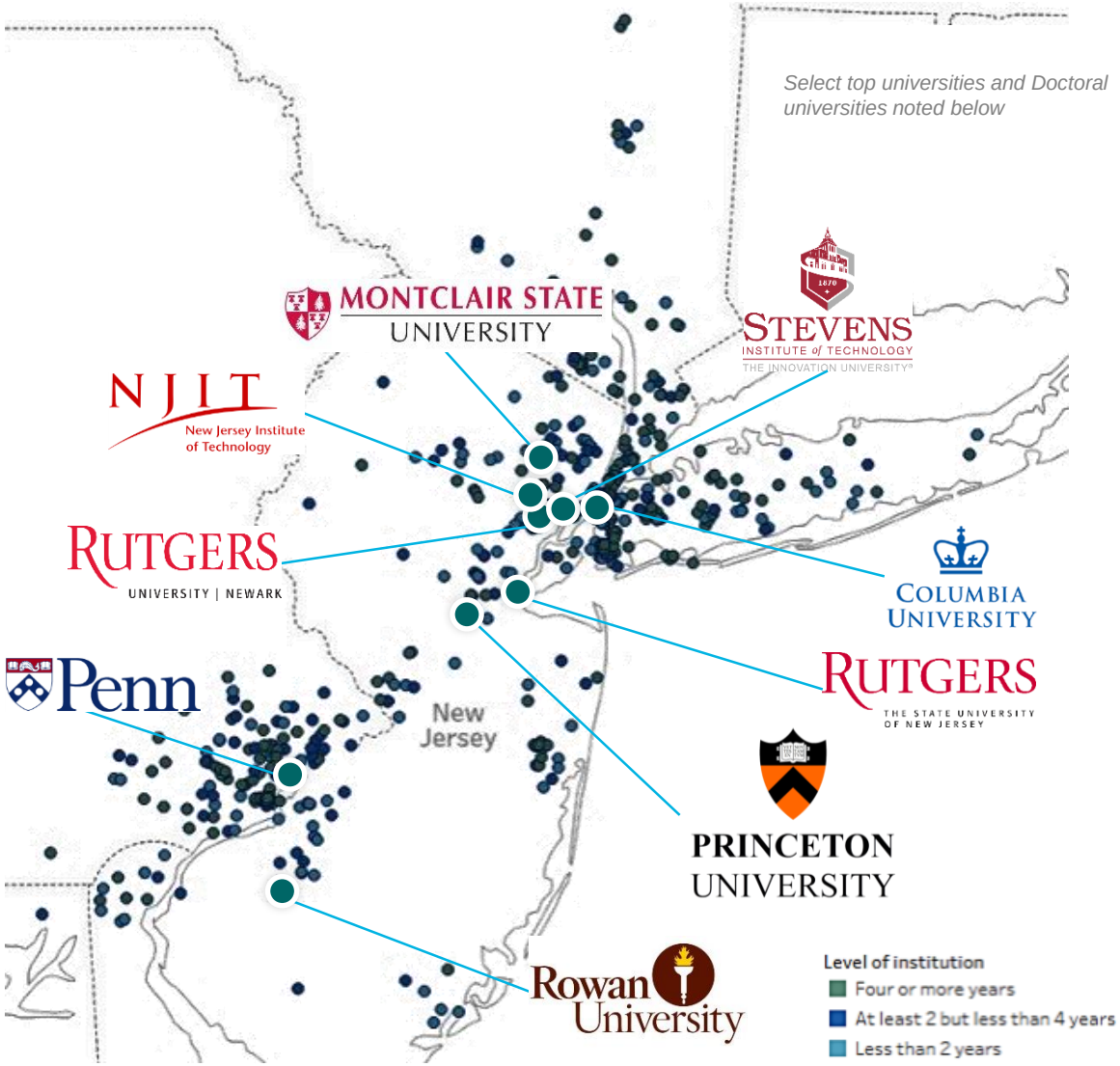
IN THE NATION FOR LINGUISTIC DIVERSITY

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

1 United States average is 32%

SOURCE: WalletHub, American Community Survey, IPUMS, American Councils

Access to 150+ premier higher education institutions



150+
institutions in the region[1]

$6.6 billion
R&D expenditures[1]

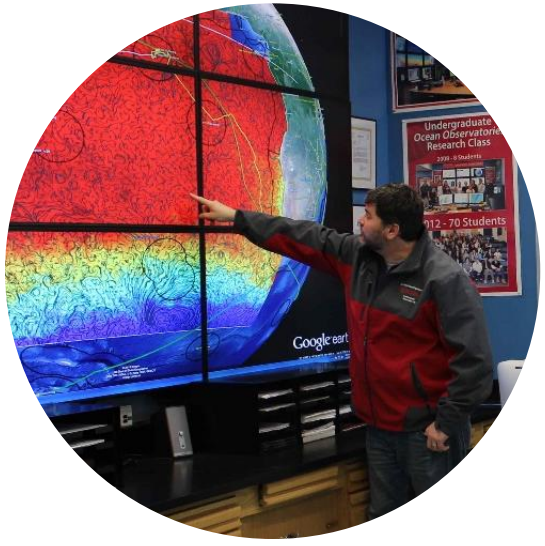
25
Doctoral universities[1,2]

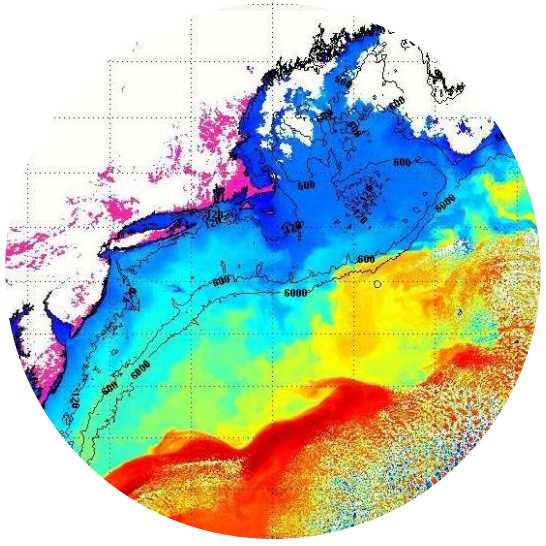
#1
University in the country and
3 of top 10[1,3]

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
2 Includes universities under Carnegie classification: Doctoral Universities: Very High Research Activity, Doctoral Universities: High Research Activity
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

We are leading clean energy research through efforts like 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 Brostrøm
CEO,
Ørsted North America

SOURCE: Rutgers University website

A PLACE FOR EVERY EMPLOYEE

TRANSIT-RICH, DIVERSE NEIGHBORHOODS

BUSTLING, GROWING CITIES

ACCESSIBLE, SMALL TOWNS

COASTAL ENCLAVES

choose: new jersey NJ EDA

Montclair

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

17
miles from
Midtown Manhattan

12.5
student-teacher ratios

A DISTINCTIVE COMMUNITY

86%
bachelor's degree
or higher

7
Parks and nature reserves[1]

Top 20 suburb
in America to raise a family

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 #2 Pre-K-12 education system in the country

2 ranked in Pre-K-12 education[1]

Compared to…

10	25	33	37
PA	NY	TX	CA

2 of the top 30 school districts

3 of the top 20 high schools in the US

1 Score based on pre-Kindergarten enrollment, NAEP scores, 8th grade English scores, pre-K quality score, and college readiness. Massachusetts is ranked #1.

SOURCE: US News, Niche

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

If your income in Manhattan is…

~$100,000

after taxes

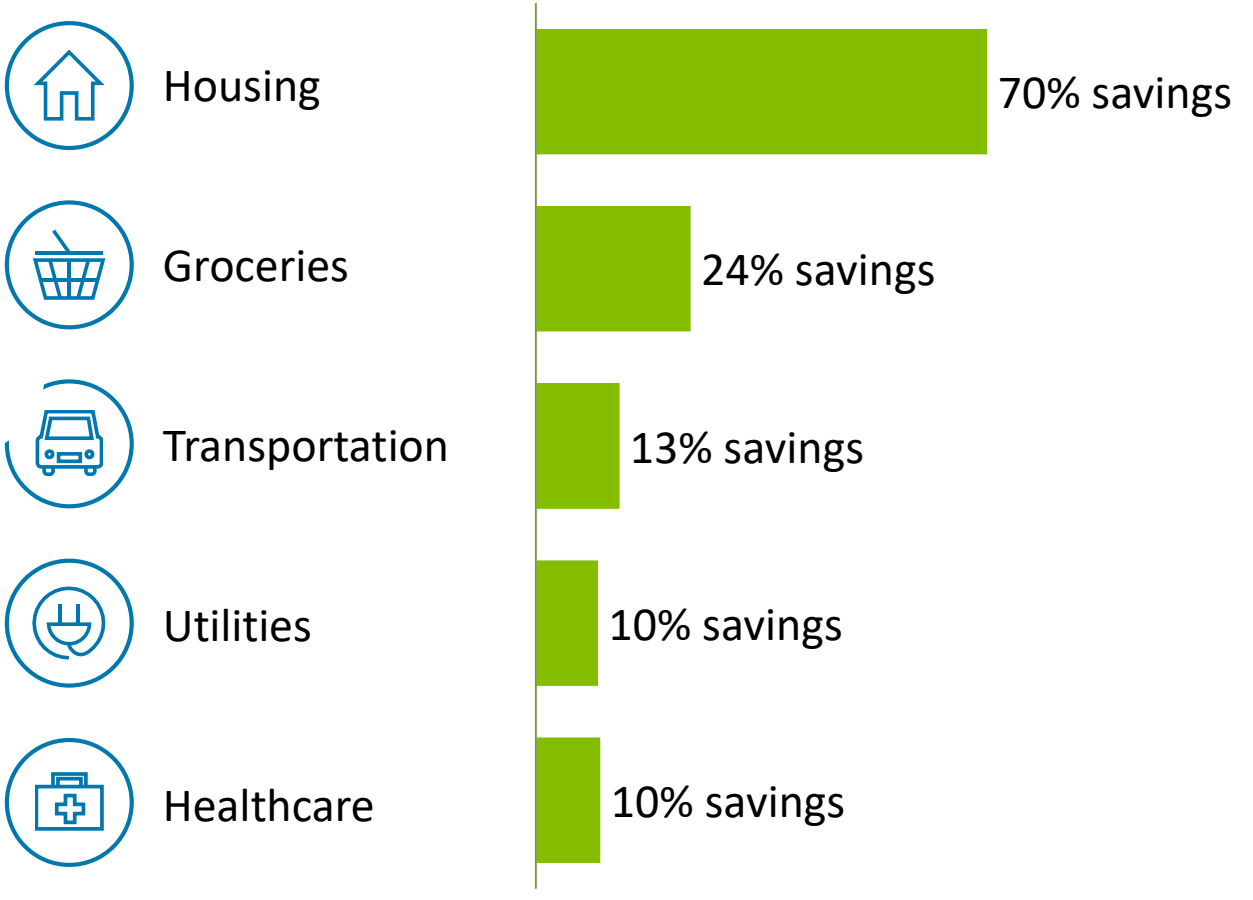
Moving to Newark would get you…

~$200,000

of purchasing power

Typical savings moving from Manhattan to Newark

% savings vs. original dollar spend

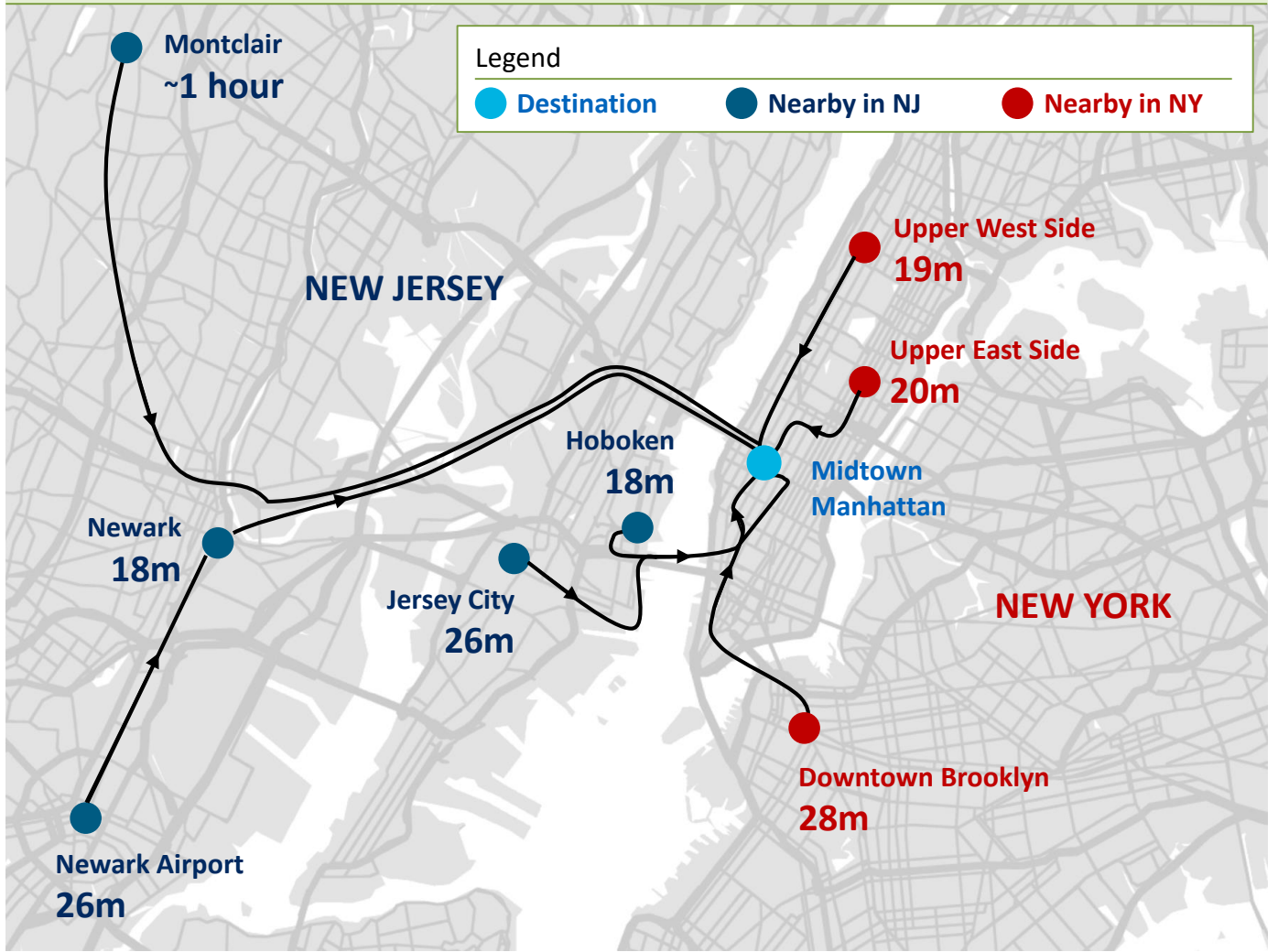


SOURCE: C2ER (Council for Community and Economic Research), "Cost of Living Index," January 2019

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

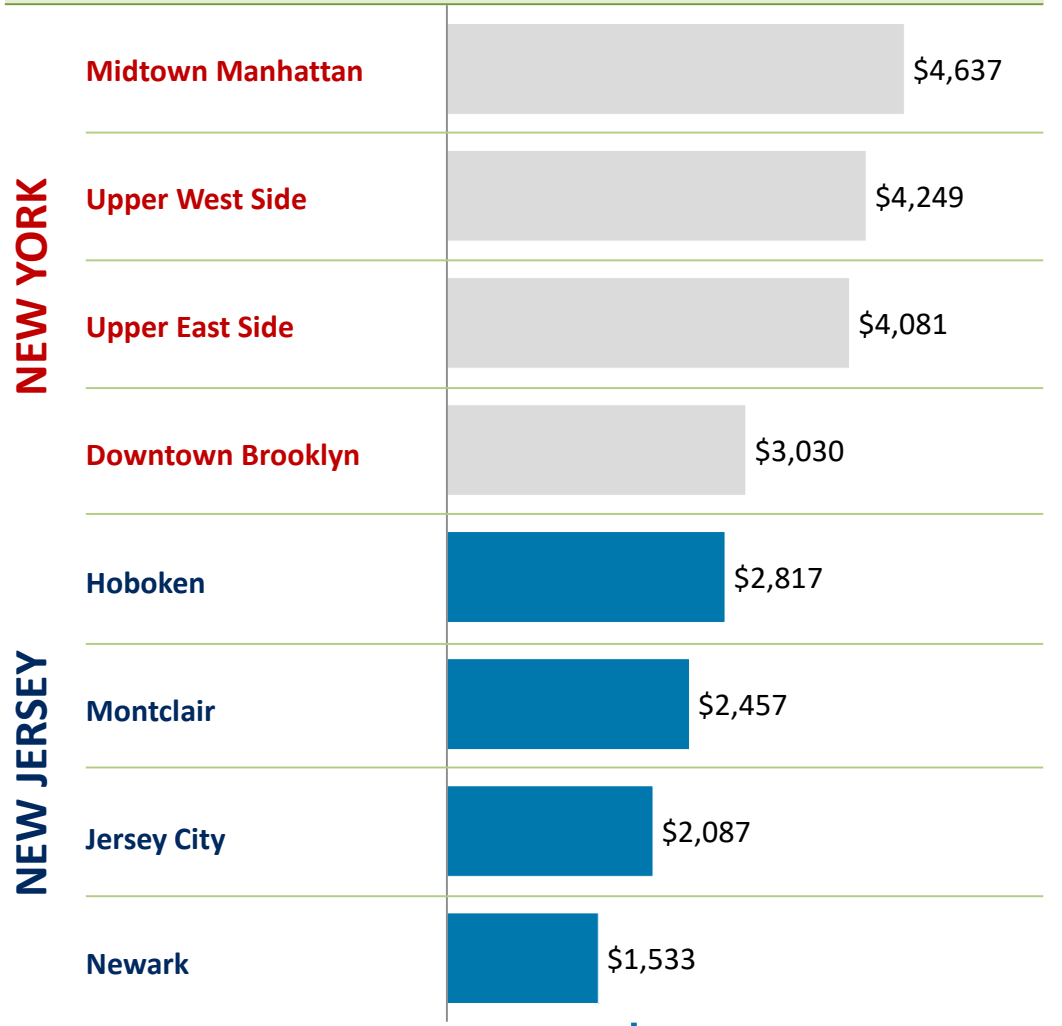
Easy access to New York City…

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



…at New Jersey prices

Median market rent ($ per month, 2019)



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

#1
beach town in America[1]

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

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

choose: new jersey NJEDA

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.

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).

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

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

Updated May 3, 2019; Posted May 3, 2019

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

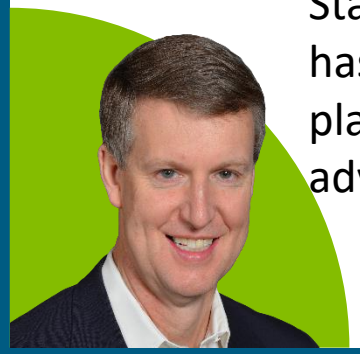
Targeted financing programs for young companies

GET ESTABLISHED

Innovative supports for growth companies

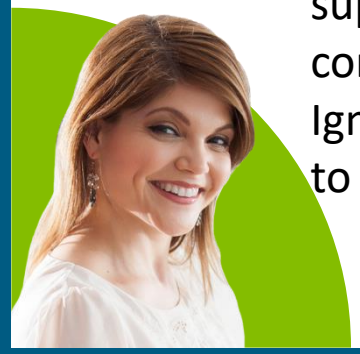
GROW

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

We'd love to connect with you!

NJEDA

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