

NORTH KINGSTOWN CHAMBER OF COMMERCE

# Building A Worker Pipeline:

RHODE ISLAND OFFSHORE WIND ENERGY  
CAREER PATHWAY SYSTEM



## MISSION

**To initiate, design and implement a career pathway training system** by establishing an on-going talent pipeline to meet the near-term and future employment and credential requirements within the fast emerging offshore wind energy technology industry in Rhode Island.

## STRATEGIC GOALS

- Develop a long-term training and workforce system for building an offshore wind energy employment skills pipeline within the state.
- Build capacity
- Utilize existing training and educational programs

## PARTNERS

- North Kingstown High School and the Rocky Hill School
- Community College of Rhode Island
- New England Institute for Technology
- University of Rhode Island
- Private Business
- Trades

# ADDRESSING WORKFORCE NEEDS & CHALLENGES

U.S. Department of Energy Analysis



- A U. S. Department of Energy Analysis of Offshore Wind Farm development and job creation along the Northeast Coastal Corridor released in October, 2017 projected “In the low scenario, wind energy economic activity will translate to 160,000 baseline full-time equivalent (FTE) job years over the lifetime of the wind farms, with a peak of 8,300 FTE jobs in 2028. In the high scenario there would be a total of 320,000 baseline FTE job years, with a peak of 16,700 FTE jobs in 2028.”

HISTORIC WIND ENERGY OCCUPATIONS - UNITED STATES (2012-2017)						
SOC (5-digit)	Description	Typical Entry Level Education	2012 Jobs	2017 Jobs	2012 - 2017 Change	2012 - 2017 % Change
11-1021	General and Operations Managers	Bachelor's degree	2,060,330	2,276,961	216,631	11%
47-2111	Electricians	High school diploma/equivalent	611,310	692,237	80,927	13%
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma/equivalent	498,609	528,560	29,951	6%
51-4121	Welders, Cutters, Solderers, and Brazers	High school diploma/equivalent	388,486	409,211	20,725	5%
51-4041	Machinists	High school diploma/equivalent	380,139	407,513	27,374	7%
47-2073	Operating Engineers and Other Construction Equipment Operators	High school diploma/equivalent	351,656	380,327	28,671	8%
17-2051	Civil Engineers	Bachelor's degree	276,814	296,358	19,544	7%
17-2141	Mechanical Engineers	Bachelor's degree	267,781	290,028	22,247	8%
17-2112	Industrial Engineers	Bachelor's degree	237,101	253,894	16,793	7%
51-2022	Electrical and Electronic Equipment Assemblers	High school diploma/equivalent	208,852	212,331	3,479	2%

- “A 2012 skills gap assessment found that 53 percent of the skilled trade workers in the U.S. were 45 years and older. Connecticut, Rhode Island and New Hampshire led the nation having more than 60 percent of the skilled workforce as age 45 years or older.”

— Economic Modeling Specialists International

# ADDRESSING WORKFORCE NEEDS & CHALLENGES

Our May 2017 Findings



## OCCUPATIONS DEMANDED



- Engineering services
- Electrical contracting
- Welding and construction equipment operators
- General operations

HISTORIC WIND ENERGY OCCUPATIONS - RHODE ISLAND (2012-2017)						
SOC (5-digit)	Description	Typical Entry Level Education	2012 Jobs	2017 Jobs	2012 - 2017 Change	2012 - 2017 % Change
11-1021	General and Operations Managers	Bachelor's degree	6,134	6,562	428	7%
47-2111	Electricians	High school diploma/equivalent	2,141	2,292	151	7%
51-4121	Welders, Cutters, Solderers, and Brazers	High school diploma/equivalent	1,323	1,484	161	12%
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma/equivalent	1,312	1,333	21	2%
51-4041	Machinists	High school diploma/equivalent	1,125	1,177	52	5%
17-2072	Electronics Engineers, Except Computer	Bachelor's degree	999	1,016	17	2%
17-2141	Mechanical Engineers	Bachelor's degree	905	1,014	109	12%
17-2051	Civil Engineers	Bachelor's degree	780	835	55	7%
47-2073	Operating Engineers and Other Construction Equipment Operators	High school diploma/equivalent	764	811	47	6%
17-2112	Industrial Engineers	Bachelor's degree	553	583	30	5%

\*A large share of the occupations are within the "Middle Skills" category.

## KEY FINDINGS FROM ANALYSIS

- 22 of the 31 occupations identified in our analysis require no previous work experience.
- The majority of occupations related to the Wind Energy industry are accessible for people who have no previous work experience.
- Eleven occupations, or 35%, require a Bachelor's degree, and sixteen occupations, or 52%, require either a high school diploma or equivalent or formal credential.
- Men dominate nearly all sectors requiring a targeted outreach to recruit more women.



# ADDRESSING WORKFORCE NEEDS & CHALLENGES

*Results of Focus Group Meetings*

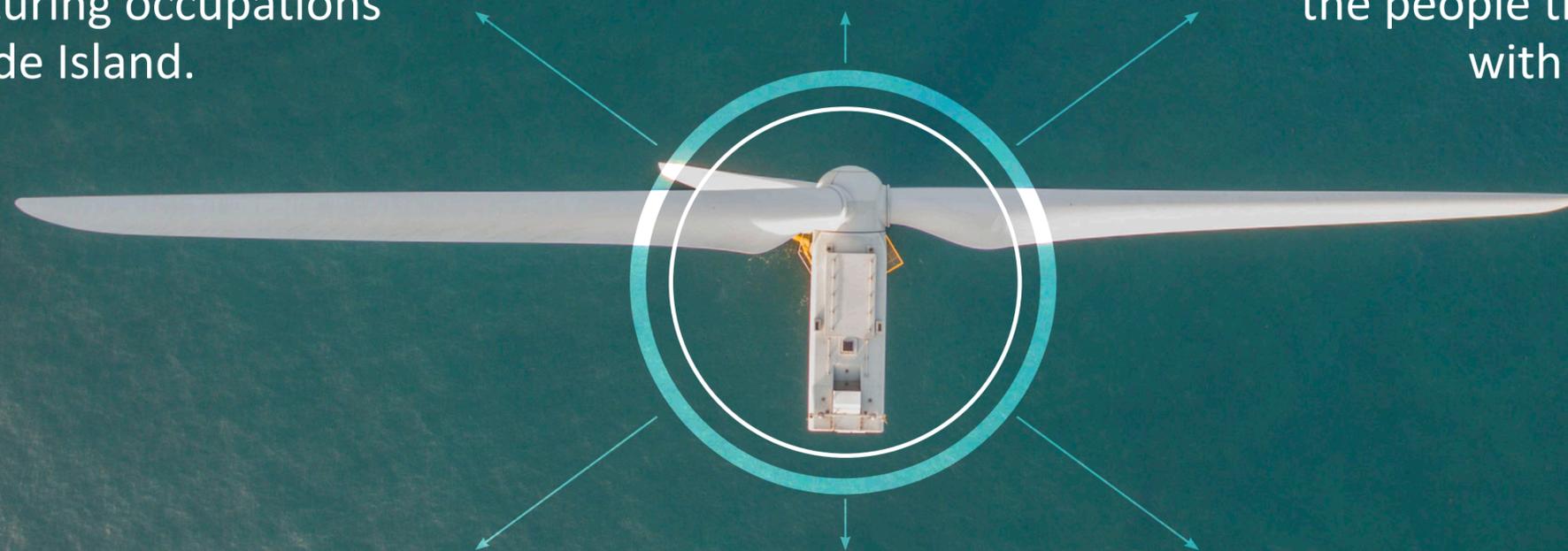


## PRELIMINARY FOCUS GROUP CONCLUSIONS

All the skills required in wind technology are transferable to the many manufacturing occupations in Rhode Island.

Basic Math – Teach it through applications.

Start early in middle schools to draw out the makers of things – the people that love to do things with their hands.



Determine what is included in the wind energy supply chain among RI and regional manufacturers (that do not specialize in wind technology).

Requires a technology certificate/credential or at least, an Associate's Degree.

Define the common traits in Workforce Readiness that are required by students & incumbent workers for competence in wind energy sector.

Rhode Island higher educational institutions need to integrate training and education programs as an easily definable offshore wind energy career pathway system to their existing wind energy & technology training programs.

## EXISTING PROGRAMS

- **New England Institute for Technology**  
Electrical Technology with Renewable Energy
- **Community College of Rhode Island**  
Energy Utility Technology Certificate Program
- **University of Rhode Island**  
Certificate in Energy Economics & Policy
- **University of Rhode Island**  
BS Environmental & Natural Resources Economics/  
Wind Energy Fellows Program



# STRATEGIC PARTNERSHIPS



- The North Kingstown Chamber of Commerce through a public bid process, secured the services of a professional curriculum design consultant, Dr. Joy McGuirl-Hadley, who has a background in career pathway and workforce development.
- The Chamber secured strategic partnerships with North Kingstown School Department, Rocky Hill School, Community College of Rhode Island, New England Institute of Technology, University of Rhode Island and Rhode Island Department of Education.
- The Chamber on April 5, 2018 hosted a partnership “Brainstorming” half-day retreat that included partners from RIDE, NEIT, CCRI, NKHS, RIDLT and private business to initiate the curriculum design and planning.
- Year one of the grant successfully initiated the necessary program planning, e.g., curriculum development, and educational approvals to build a High School Offshore Wind Energy Certificate for Rhode Island.
- Began conversation with trades, about necessary skills to update and prepare incumbent workforce.
- The Chamber compiled a database of nearly 600 Rhode Island small businesses who’s industry code matches one of the many identified wind energy sector supply chain businesses.
- Hosted a convening meeting for Governor Raimondo with education, businesses and community stakeholders on how best to build a wind energy career pathway pipeline in Rhode Island.



# BUILDING PARTNERSHIPS: OUTREACH & PARTICIPATION

*Hosted Rhode Island's 1st Supply Chain Offshore Wind Energy Summit 6.18*



**PARTNER:** Business Network for Offshore Wind

**CO-HOST:** Anvil International

**ATTENDEES:** 80 Small Manufacturers and Trade Businesses

**KEYNOTE SPEAKER:** Matthew A. Morrissey, Vice President, Deepwater Wind

## AGENDA:

- Career pathways system opportunities
- Offshore permitting & regulatory requirements
- Small businesses presentation of experience in the industry
- Introduction of our draft of an Offshore Wind Energy Career Pathways & Credentials Plan

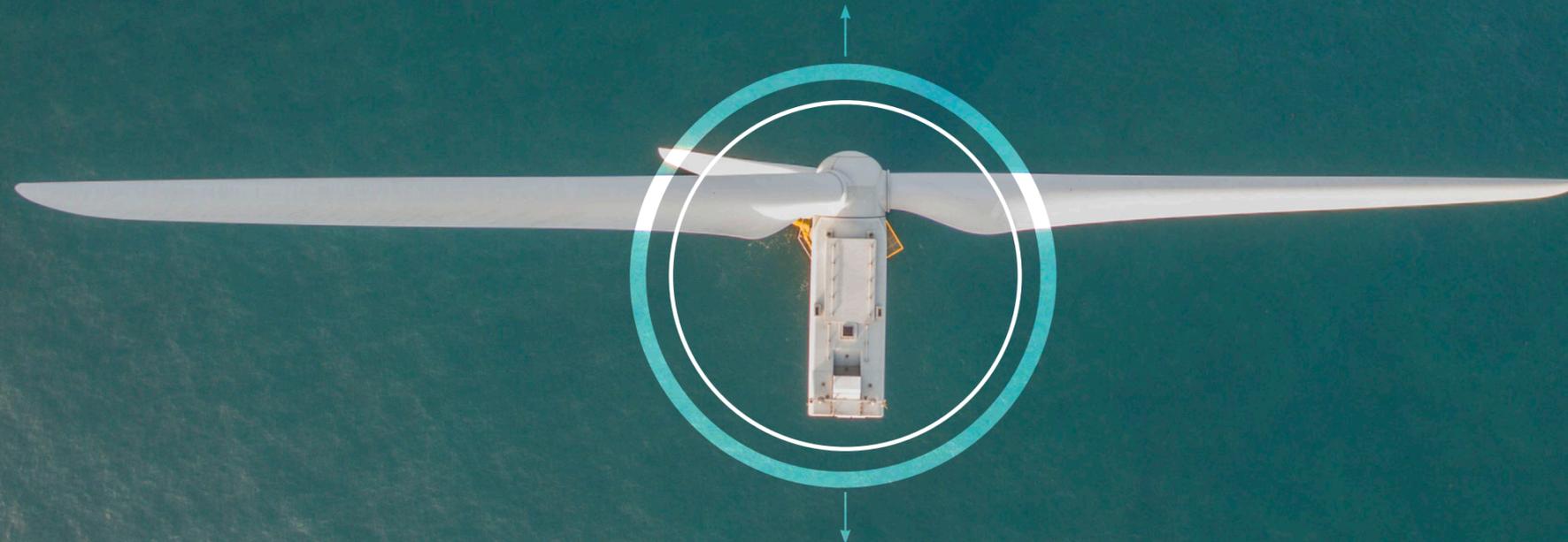
## SPEAKERS INCLUDED:

- Commerce RI
- URI Coastal Resources Center
- RI Coastal Resources Management Council
- RI Department of Labor and Training
- RI Office Of Energy Resources



## LESSONS LEARNED

Findings from research and comments received from experts within renewable energy, labor, and secondary/post-secondary education institutions emphasized the need for a well-integrated career pathway training system in Rhode Island for both students and incumbent workers.



## NEED FOR AN INTEGRATED CAREER PATHWAY AND WORKER CREDENTIAL SYSTEM

The objective of this system is to establish an on-going talent pipeline to meet the near-term and future employment and credential requirements within the fast-emerging wind energy industry in Rhode Island and region, with a focus on middle wage jobs.

# LESSONS LEARNED

## *The Opportunity*



**RHODE ISLAND HAS SEVERAL MARKET, GEOGRAPHICAL AND BUSINESS LEADERSHIP ADVANTAGES TO LEAD THE US OFFSHORE WIND SECTOR OVER THE NEXT DECADE INCLUDING:**



- RI based Deepwater Wind has been approved for the Revolution Wind Project, a next-generation 400-megawatt offshore wind farm with up to 50 offshore wind turbines serving Rhode Island.
- Deepwater Wind has initiated a 90-megawatt South Fork Wind Farm project 30 miles off Montauk, N.Y.
- Both projects will require the use of port facilities at Quonset and Port at Providence.
- Connecticut's Department of Energy and Environmental Protection has selected Deepwater Wind to build a 200 MW wind farm off the Connecticut coast.



## FY2019 PROGRAM OBJECTIVES

### 1. STUDENT COMPETITION

Implement Rhode Island KidWind Challenge:  
A wind turbine design competition  
[www.kidwindchallenge.org/](http://www.kidwindchallenge.org/)

### 2. FIELD TRIPS

- University of Rhode Island Coastal Resource Center
- Block Island Off-shore Wind Farm (boat trip)
- Visit Wind Turbine at New England Institute of Technology
- Visit Community College of Rhode Island wind tunnel to test wind turbines including wind generators and blades built by students

### 3. PROFESSIONAL DEVELOPMENT

- Implement Summer Offshore Wind Energy Institute for middle and high school teachers

**The Goal of the Off-Shore Wind Energy Career Pathway Initiative is to introduce wind energy to middle school and high school teachers and students and incorporate wind energy curriculum and experiences into Rhode Island Schools.**

**AN INTRODUCTION TO THE WIND ENERGY FIELD INCLUDES THE STUDY OF:**



**ENERGY SOURCES**  
electrical power generation and the nature of wind



**MARINE TRANSPORTATION**  
vessel operations, transport of people and materials



**ENGINEERING**  
generators, blades



**GOVERNMENTAL REGULATIONS**  
zoning, permitting and site selection



**ENVIRONMENTAL IMPACT**  
effect on wildlife - fish, whales, birds, bats



**COMMUNITY RESPONSE**  
positive and negative perceptions and the media, opinions and persuasion concepts

Wind Energy study would include curriculum from the Sciences: environmental, physical, earth, living environments; Social Studies; Mathematics; Technology/Engineering; Physics; Language Arts; and Economics.

# OFFSHORE WIND ENERGY PRIMARY-SECONDARY EDUCATION

## Pathway



### MIDDLE SCHOOL

- Generate Wind Energy Interest and Exposure

### HIGH SCHOOL OFFSHORE WIND ENERGY CERTIFICATION

- Certification is earned through accumulation of BADGES awarded after demonstrating mastery of wind energy knowledge embedded in curriculum.
  - Approved by Rhode Island Department of Education
  - Developed and endorsed by Industry
  - Recognized by partner Higher Education Institutions
- OSHA, Marine Safety - STCW-10 and Six-Pack/Launch Driver license.

#### DUAL/CONCURRENT ENROLLMENT:

This initiative will articulate agreement for college credit for wind energy course work.

1. College Engineering and Technology
2. Environmental Science
3. Marine Safety and Transportation **NEW**
4. Wind Energy **NEW**

### HIGH SCHOOL & MIDDLE SCHOOL RESOURCES

#### STUDENT COMPETITION

Implement Rhode Island KidWind Challenge:  
A wind turbine design competition

- Co-host: Community College of Rhode Island  
wind tunnel to test wind turbines: wind generators and blades built by students

#### FIELD TRIPS

- University of Rhode Island Coastal Resource Center
- Block Island Offshore Wind Farm (boat trip)
- Visit Wind Turbine at New England Institute of Technology

#### PROFESSIONAL DEVELOPMENT

Implement Summer Offshore Wind Energy Institute for Rhode Island Middle and High School Teachers.

# OFFSHORE WIND ENERGY POST-SECONDARY EDUCATION

## Pathway



### FY2019 PROGRAM OBJECTIVES

- Pathways will result in training, certifications (technical and professional), direct job placement into industry, and college degrees. Includes placement services.
- The High School Wind Energy Certificate will be recognized by the RI Department of Education and industry through articulation agreements will result in the recognition of 12-18 college credits at partner higher education institutions.
- Design and develop an Off-shore Wind Energy Maritime Transportation Pathway training component that will serve the fast growing marine related support services for the many offshore wind farm projects approved along the Atlantic Coast. Capabilities will include personnel transfers, towing, escort and offshore support vessels.

Pathways will result in training, certifications (technical and professional), college degrees and include placement services.

#### INITIAL PARTNER INSTITUTIONS:

	 COMMUNITY COLLEGE OF RHODE ISLAND	 NEW ENGLAND INSTITUTE OF TECHNOLOGY	 ILSR INSTITUTE FOR LABOR STUDIES & RESEARCH	 THE UNIVERSITY OF RHODE ISLAND
	Wind Energy Technicians Certificate	Associates Degree in Applied Technical Studies: Renewable Energy Concentration	Advanced Off-Shore Wind Energy Related Trade Certifications	RI Energy Fellows Certificate
Entry Requirements	HS Diploma/GED	HS Diploma/GED	HS Diploma/GED	Bachelor or Master Degree
Miscellaneous / Specifics	Program Content Under Development, Wind Tunnel on Site	30-60 hours of advanced renewable energy coursework, On-site Wind Turbine	On-site Training Center, Marine Safety, SPRAT, other	6 Academic Credits - in classroom, 400-600 hours of internships, mentoring, site visits and policy events
Example Job Categories	*Wind Energy Technicians, Power Plant Operators, Assembly and Fabrication Technicians, Transportation Workers, Construction Workers, Trade Workers: Welders, Electricians <small>*Job Categories come from US Dept of Energy</small>			*Engineering, Managers: Business, Project, Scientists

#### INITIAL PARTNER INDUSTRY:

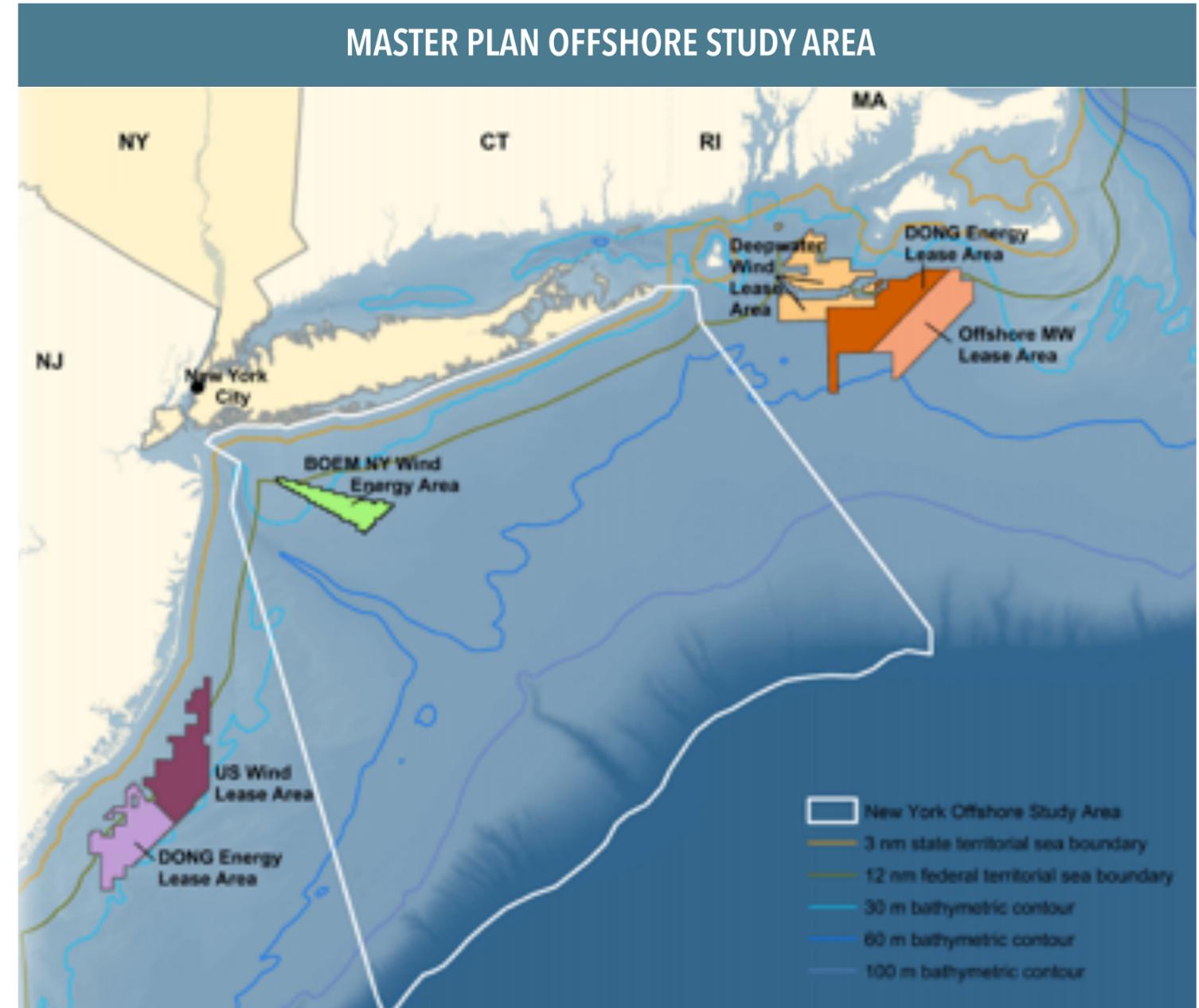
Marine Transportation High School Offshore Wind Energy Certificate holders qualify for immediate job entry. With 360 days of on-the-job experience eligible to sit for Boat Captain's License exam. Example Job Categories: Captain, Mate, Deckhand

# NEXT STEPS



**THE YEAR ONE IMPLEMENTATION GRANT** provided our team with the first, critical steps to determine workforce capacity and readiness. By defining the competencies for an emerging Rhode Island wind energy workforce and assembling a partnership of secondary, post secondary educational and trade institutions, we have a concrete opportunity to design a workforce training plan and class room instruction process that directly provides students and incumbent workers (including unemployed & underemployed) with the credentials to successfully enter and prosper within wind energy jobs that will become a near-term market reality over the next 5-10 years.

**THE YEAR TWO IMPLEMENTATION GRANT** will enable our team to enter into formal Memorandum of Understandings with secondary, post secondary and private sector training partners to initiate a career pathway system for high school and incumbent worker training programs. Our goal is to build a sustainable talent pipeline - offshore wind energy workforce in Rhode Island. Year Two will also enable the team to operate beta tests in the areas of secondary, post secondary education programs, student applied learning experiences and incumbent worker certification program.



# NEXT STEPS: YEAR TWO WORK PLAN

(September 2018 - August 2019)



## INPUTS

Data gathering, strategic inquiries & partnerships, research analysis

## TO INFORM & INTEGRATE

Career Pathway & Worker Credential System

### STRATEGIC DEVELOPMENT

1. Partnership Strategies
2. Curriculum & Credential Development
3. Outreach & Communications
4. Experiential Learning & Field Trips

### ORGANIZATIONAL WORK

- Secure MOU's with Education/ Training/Business Partners
- Preparation of Incumbent Worker Pathway model
- RIDE Approval of Wind Energy Pathway - Standards
- Field Trips
- *KidWind* Student Turbine Competition
- Onboard additional RI schools
- RI Supply Chain Match-Making Summit
- Plan and design 2020 professional development institute for teachers
- Design and establish an Offshore Wind Energy portal on the NK Chamber web site as a source for businesses to receive access to resources and current news.

### BETA TESTING & PROGRAM DEVELOPMENT

- Develop Marine Safety and Transportation Course for high school students
- Embed Offshore Wind Energy lessons into HS curriculum
- State of RI Wind Turbine Competition *Preparation & Mock Competition 2019*
- Collaborate with RI Businesses & Education Stakeholders, RIDE and DLT in development of Offshore Wind Energy high school student and incumbent, underemployed, and unemployed worker internship placements with identified wind-related businesses that would include a pilot with RI Fast Ferry Transportation for marine safety and transportation.
- Develop Offshore Wind Occupational Safety and Health Training program for incumbent workers

# RHODE ISLAND OFFSHORE WIND ENERGY

*Contact Information*



*Kristin Urbach*

**Executive Director**

**North Kingstown Chamber of Commerce**

**8045 Post Road, North Kingstown, RI 02852**

**401.295.5566**

**kurbach@northkingstown.com**

**#nkchamberri**

**#WindWinRI**