



Northeast Wind Resource Center Webinar

Training a Domestic Skilled Workforce to Support the Development of a US Offshore Wind Industry

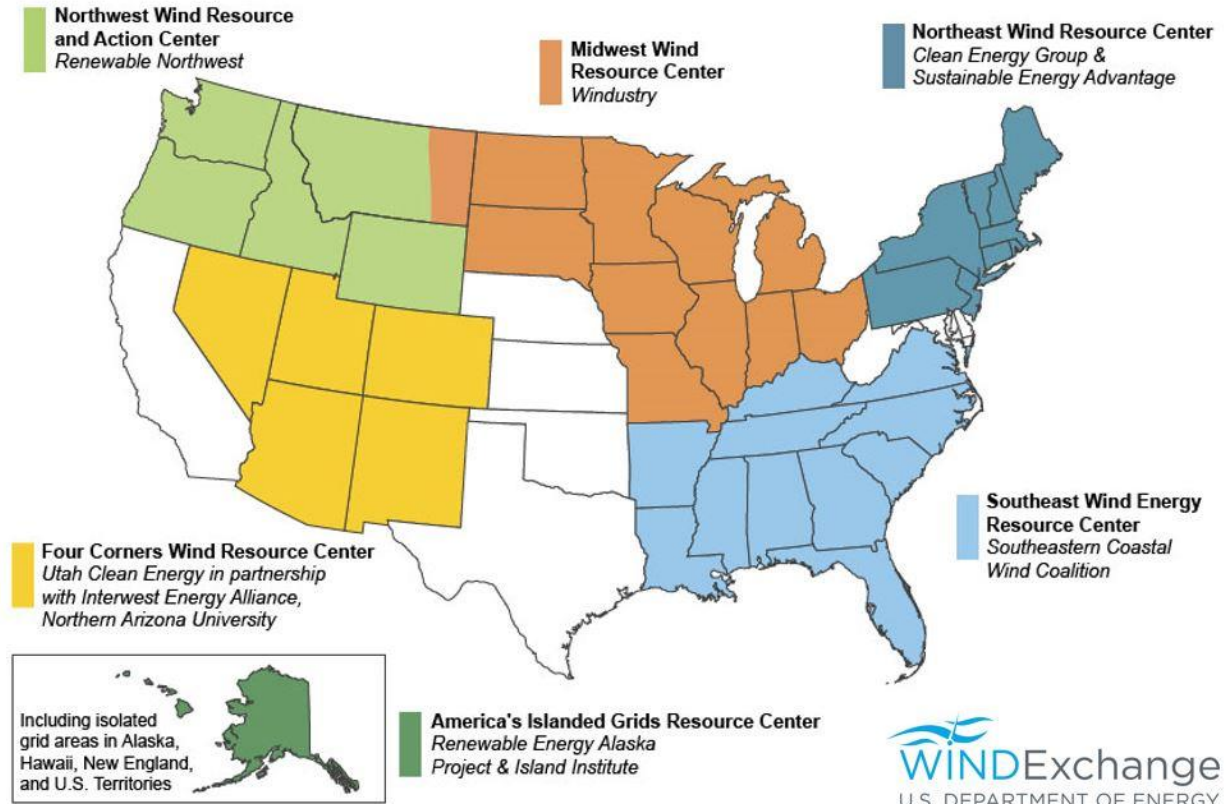
Hosted by
Val Stori, Clean Energy Group
Thursday, December 11, 2014



About WINDEXchange

WINDEXchange is the U.S. Department of Energy (DOE) Wind Program's platform for disseminating credible information about wind energy. The purpose of WINDEXchange is to help communities weigh the benefits and costs of wind energy, understand the deployment process, and make wind development decisions supported by the best available information.

On March 11, 2014, the U.S. Department of Energy (DOE) announced six Wind Energy Regional Resource Centers that were selected through a competitive process administered by the National Renewable Energy Laboratory (NREL).



The Northeast Wind Resource Center

The Northeast Wind Resource Center (NWRC) is the regional epicenter for salient, unbiased information on land-based and offshore wind energy in the Northeastern United States. Published research, studies, and analyses associated with the issues impacting public acceptance of wind deployment are available in the NWRC Resource Library.

The NWRC is supported in part by a grant from the US Department of Energy, and is managed by Clean Energy Group and Sustainable Energy Advantage. The Maine Ocean & Wind Industry Initiative serves as key liaison to the wind industry.

Visit the NWRC website at: www.northeastwindcenter.org



Today's Guest Speakers

- **Earl Walker**, Head of Training and Development, Siemens Energy
- **Megan Amsler**, Executive Director, Self-Reliance Corporation/ North Atlantic Offshore Training & Development Center



SIEMENS

Responsiveness

Partnership

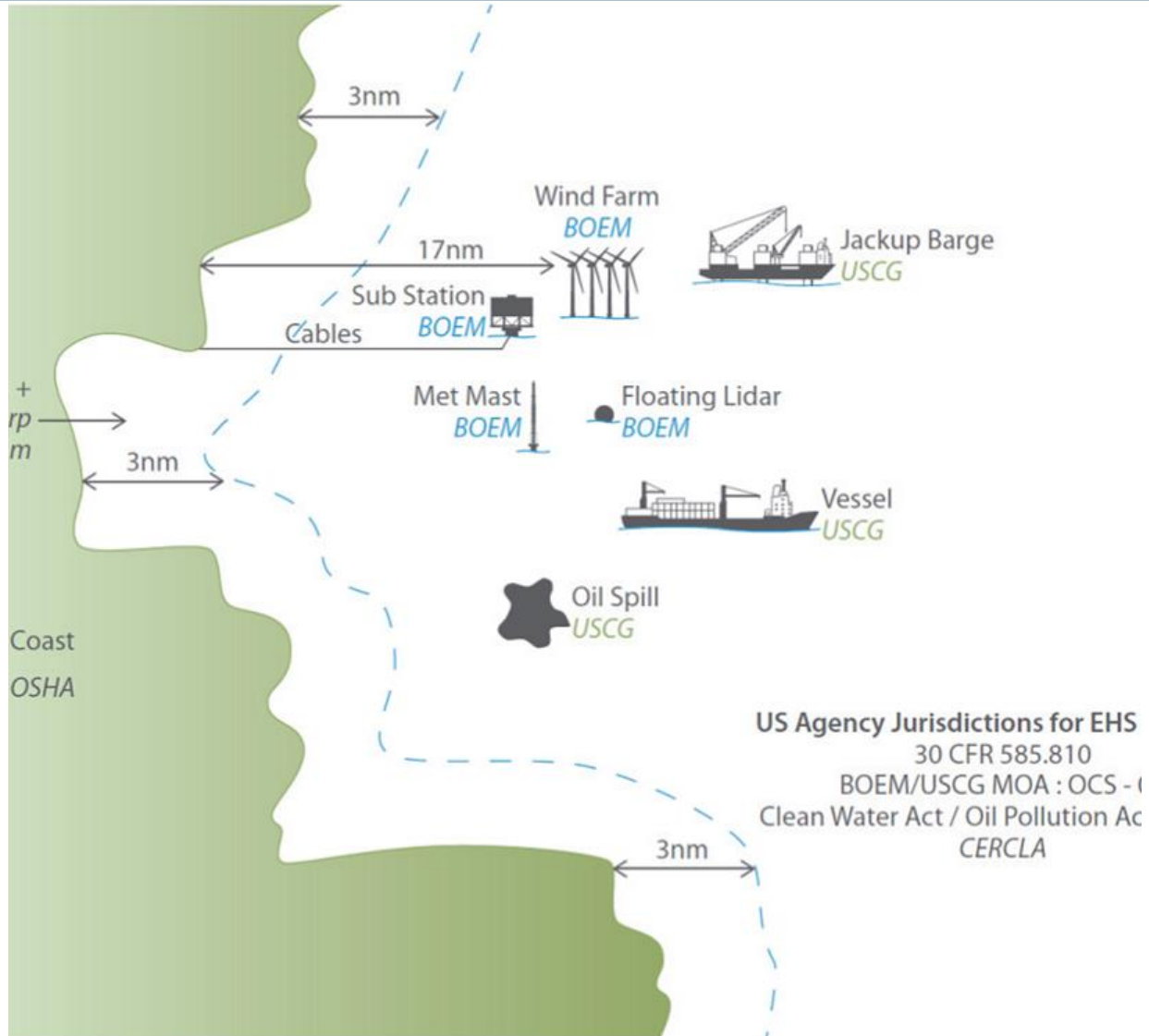
Alignment

Openness

Earl Walker – Head of Training and Development

Training for Turbine Erection and Service

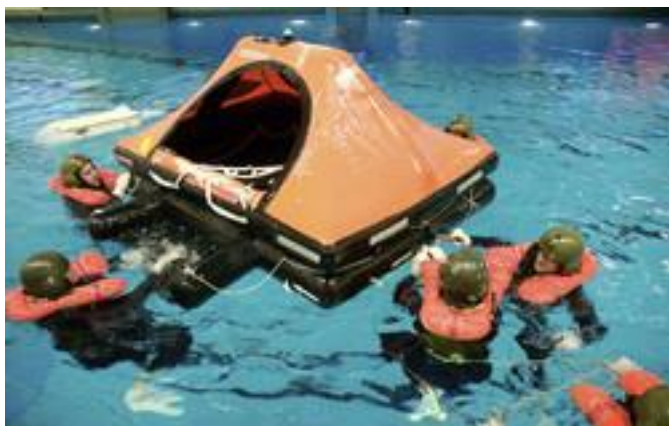
Jurisdictions



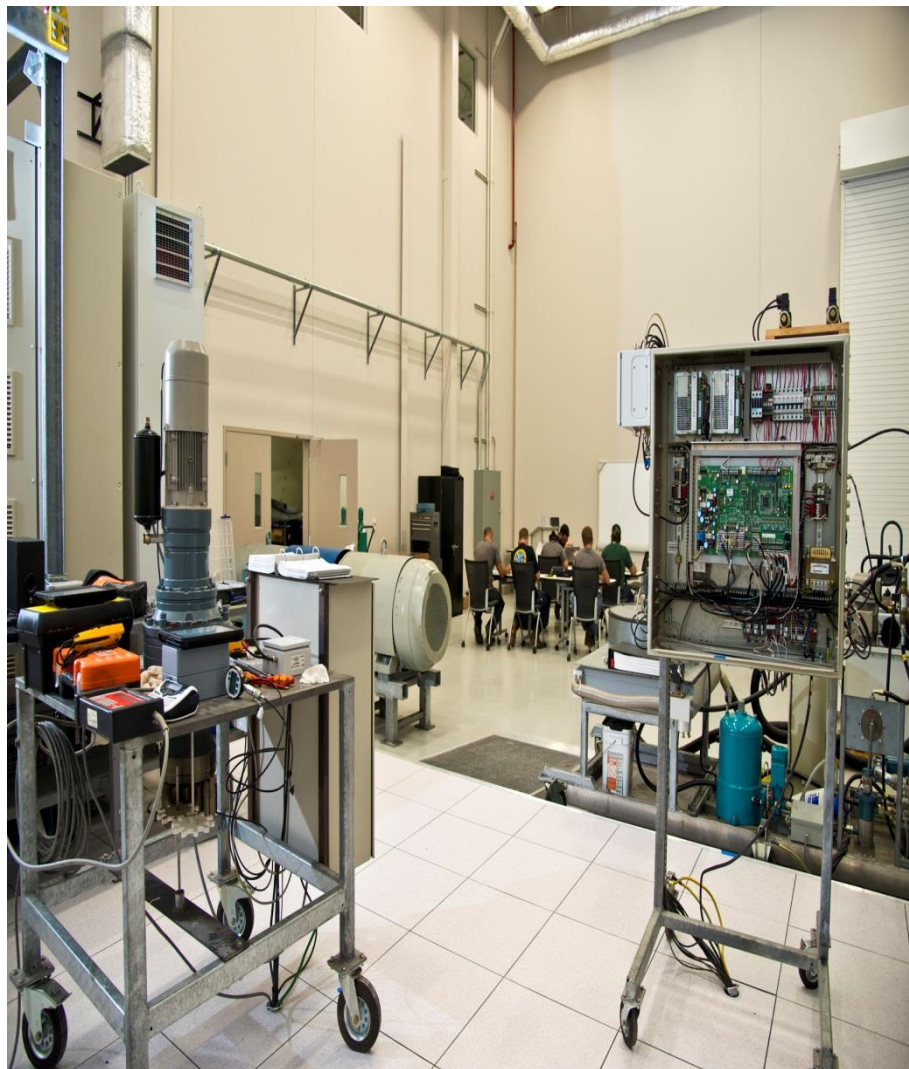


Safety Training

GWO Working at Heights
GWO First Aid
GWO Manual Handling
GWO Fire Awareness
GWO Sea Survival
Regional Compliance/OSHA 10
Technical Safety
Drivers Safety
Advanced Rescue
Blade and Hub Rescue (as needed)



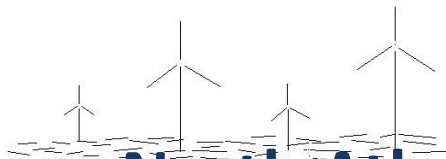
Technical Training



Bolt Torque and Tensioning
Cable make-up and repair
Electro-Hydraulics
Operations and Maintenance (Platform Specific)
Troubleshooting (Platform Specific)
Advanced Troubleshooting

Questions?





North Atlantic Offshore Training and Development



Preparing to Safely Build Offshore

The four founding members of the Ocean Readiness Partnership are:

North Atlantic Offshore Training and Development: *Megan Amsler, Principal*

Offshore Renewable Safety: *Ron Beck, Principal*

TÜV SÜD PMSS America: *Tanjia Maynard, Senior EHS Consultant*

Whitman Consulting Group: *Joel Whitman, Principal*

Presented by: Megan Amsler

OceanReadiness

Preparing to Safely Build Offshore

Expertise



Services

- Risk Identification
- Health & Safety Program Design
- Contracting Advisory Services
- Training & Development for both Health/Safety & Commercial applications
- Regulatory Review
- Compliance Verification
- Dispute Resolution/Expert Opinion
- Community Outreach
- General Advisory



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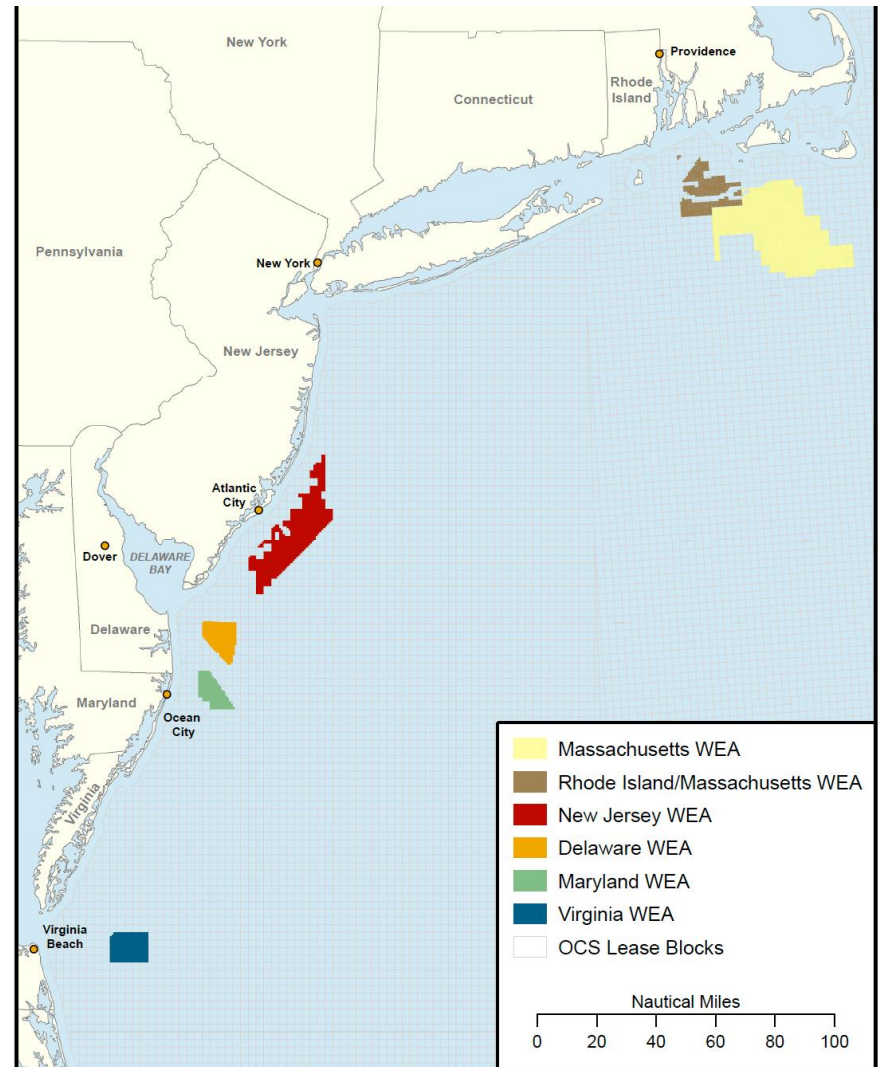


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Developing Projects in Need of a Trained Workforce

- UMaine Aqua Ventus
- Cape Wind
- Block Island Wind
- MA/RI Wind Energy Area
- MA Wind Energy Area
- NY/NJ Wind Energy Area
- DE Wind Energy Area
- MD Wind Energy Area
- VA Wind Energy Area
- Great Lakes
- Gulf of Mexico
- Pacific Northwest

BOEM Map of Eastern Offshore Wind Energy Areas

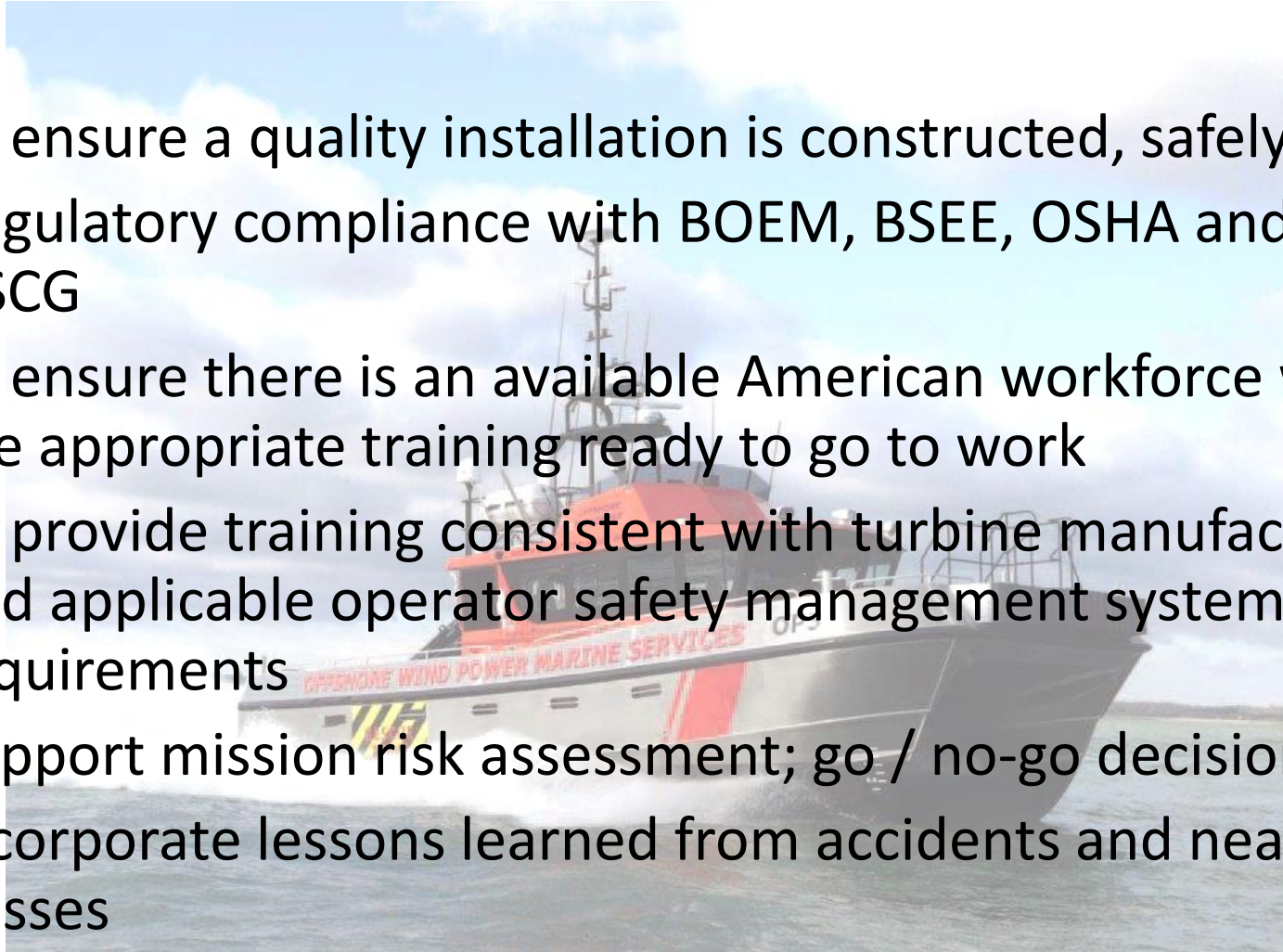




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Why Offshore Workforce Development is Needed

- To ensure a quality installation is constructed, safely
- Regulatory compliance with BOEM, BSEE, OSHA and the USCG
- To ensure there is an available American workforce with the appropriate training ready to go to work
- To provide training consistent with turbine manufacturer and applicable operator safety management system requirements
- Support mission risk assessment; go / no-go decisions
- Incorporate lessons learned from accidents and near misses





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Offshore Work Risk Assessment

The first step in reading the work force is understanding the commercial, health and safety risks specific to each work package on a typical offshore wind farm.

- Foundation Installation
- Turbine Installation
- Offshore Substation Installation
- Cable Installation (both Array and Export)
- Support Vessel Activity (including transfer vessel crews)

A risk assessment workshop is completed and the hazards are evaluated and mitigated on:

- Offshore Health & Safety Standards (minimum requirements vs. accepted best practices)
- Health, Safety and Commercial Workforce Training & Development Alternatives
- Applicable US Maritime Regulatory Environment
- European Offshore Wind Project Installation Lessons Learned

The results of the risk assessment mitigations flow into identifying the specific safety, development or commercial training needed to prepare the workforce.



The U.S. offshore wind industry is in its early stages of development and different authorities have jurisdiction over different parts of the industry. Prescriptive health and safety regulations, specific to the industry, do not currently exist.

The following regulatory agencies have some role in worker health and safety offshore:

- Bureau of Ocean Energy Management (BOEM) : Outer Continental Shelf
- Bureau of Safety and Environmental Enforcement (BSEE): Outer Continental Shelf
- Occupational Safety and Health Administration (OSHA): Land based activities and offshore out to 3 nautical miles
- U.S. Coast Guard (USCG): All vessels and vessel crews



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Commercial Training and Development



Back Deck and Below-the-Water commercial training and development is essential to this industry growing in the US.

- ROV operators
- Divers
- Cable installers

Many job opportunities exist here domestically and globally as there is a continued demand for skilled labor.

Certificate reciprocity can allow American workers the opportunity to participate in a [global](#) industry and [economy](#).





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North Atlantic Offshore Renewable Training & Development Center

Vision

To establish the premier center of excellence for offshore renewable energy training in the U.S. – meeting the growing need for offshore renewable energy workers with technical, health, safety, and environmental training.

Mission

To lead the U.S. offshore renewable energy industry in providing technical and safety training by combining industry-endorsed and certified training programs and lessons from the European experience to meet all U.S. requirements.

Goals

- Maintain the highest level of training for certification of offshore workers
- Conduct all training while following “Zero Harm” health and safety principles
- Develop sufficient training capacity in time to meet the needs of the emerging U.S. wind and hydrokinetic industries
- Provide industry leadership in the field of offshore renewable energy technical and safety training



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Partnering with Massachusetts Maritime Academy

- **Vessel crew training and certification – STCW**
- **Vessel to Turbine Transfer; space to install dockside transition piece on campus to train on**
- **Safe transfer training from vessels and ladders to platforms**
- **Training for all in rescue of person in water**
- **Confined space rescue, rescue from heights and depth in same unit.**
- **Partnering with Gardline**





OCEAN READINESS Issues to Overcome

- There is **NO** facility in the US to provide GWO Sea Survival training.
 - STCW 95 does not cover vessel to vessel transfer or vessel to structure transfer – ultimately this would be not compliant with Siemens or Fred. Olsen.
 - There currently is **NO** facility to conduct this training in the US.



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Training & Development Examples Offered by the Offshore Renewable Training and Development Center

Back Deck & Below the Water

Back Deck Workers

Cable Laying

Foundations/Jackets/Transition Piece

ROV Operations

Health & Safety

Above-the-Water

Turbine Installation Technicians

Turbine Operations & Maintenance
Technicians

Offshore Marine Safety

HUET

Turbine Transfer Vessel

STCW

Firefighting

GWO Basic Safety Training

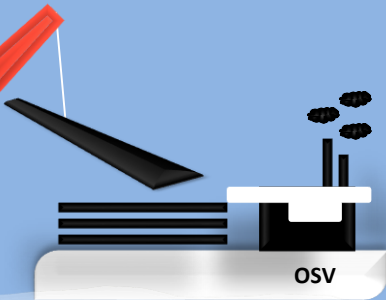
- Currently the best choice to ensure our workers are certified to work offshore
- Consists of:
 - GWO First Aid
 - GWO Manual Handling
 - GWO Fire Awareness
 - GWO Working at Heights
 - GWO Sea Survival – *Top Priority*



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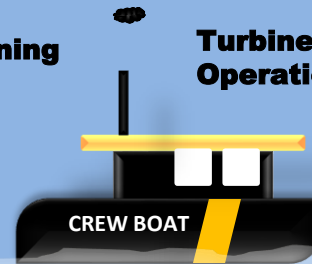
Offshore Wind Farm Training Opportunities

Supply Vessel Operations



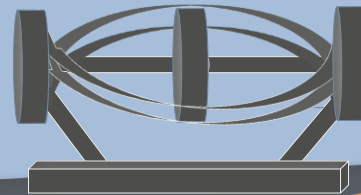
Sea Survival Training

**“Back Deck”
Operations**



**Turbine Transfer Vessel
Operations**

**Submarine Cable
Installation**



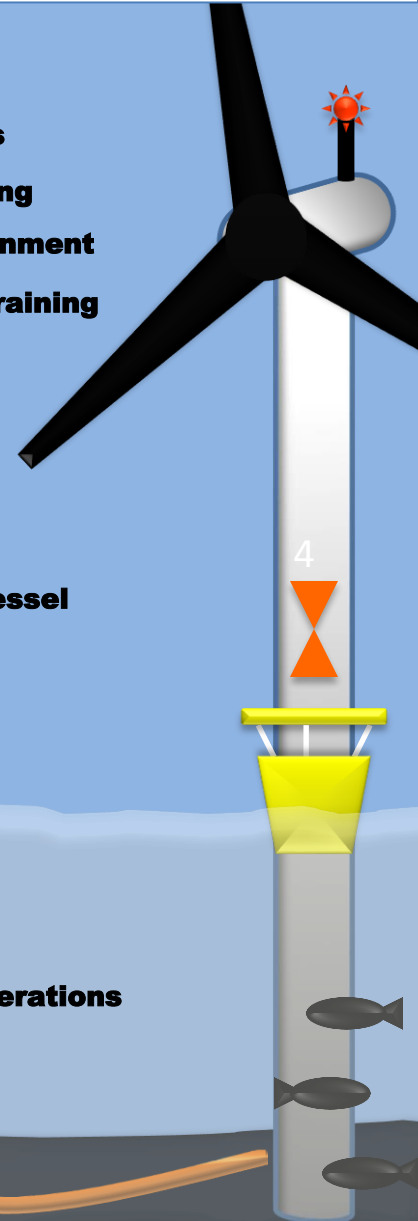
ROV Operations

BZEE Training Modules

Turbine Technician Training

Health, Safety, and Environment

Short-Service Employee Training





Transfer Vessel Training

- Essential element of safety training for the offshore workforce
- Creating a viable location for conducting turbine transfer vessel training in real conditions
- Vessel crew training and certification – STCW
- Vessel to Turbine Transfer; space to install dockside transition piece to train on
- Safe transfer training from vessels and ladders to platforms as well as vessel to vessel
- Training for all in rescue of person in water
- Confined space rescue, rescue from heights and depth in same unit
- Partnering with Gardline



- Siemens and Fred. Olsen require conformance to GWO Basic Training (The requirement to GWO and how it isn't wholly applicable to the US is also something we are working on harmonizing)
- There are only 2 facilities in the US that offer 4 out of the 5 GWO modules – Siemens in Orlando and Grand Rapids, MI.



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BZEE Curriculum Provides Training in:

- Service Technician for wind turbines
- Assembly technician for wind turbines
- Teacher training for BZEE programs
- Customized programs for work force such as climb training, rescue at heights, rotor blade inspection, repair
- Modules for short-service workers
- Full O&M course
- Practical internships (240 hr) are also required before
- Issuance of the BZEE certificate.
- This is a hands-on program, not just classroom learning.



Image: Siemens



Image: Maeresk



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Let's make it happen, safely.

<http://oceanreadiness.com/>





Thank you for attending our webinar

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Northeast Wind Resource Center: www.northeastwindcenter.org

DOE Wind Exchange: <http://energy.gov/eere/wind/windexchange>

