

VOCATIONAL EDUCATION FOR SUSTAINABLE DEVELOPMENT (BBNE)

OFFSHORE WIND EDUCATIONS IN DENMARK

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MSc. Enterprise Development



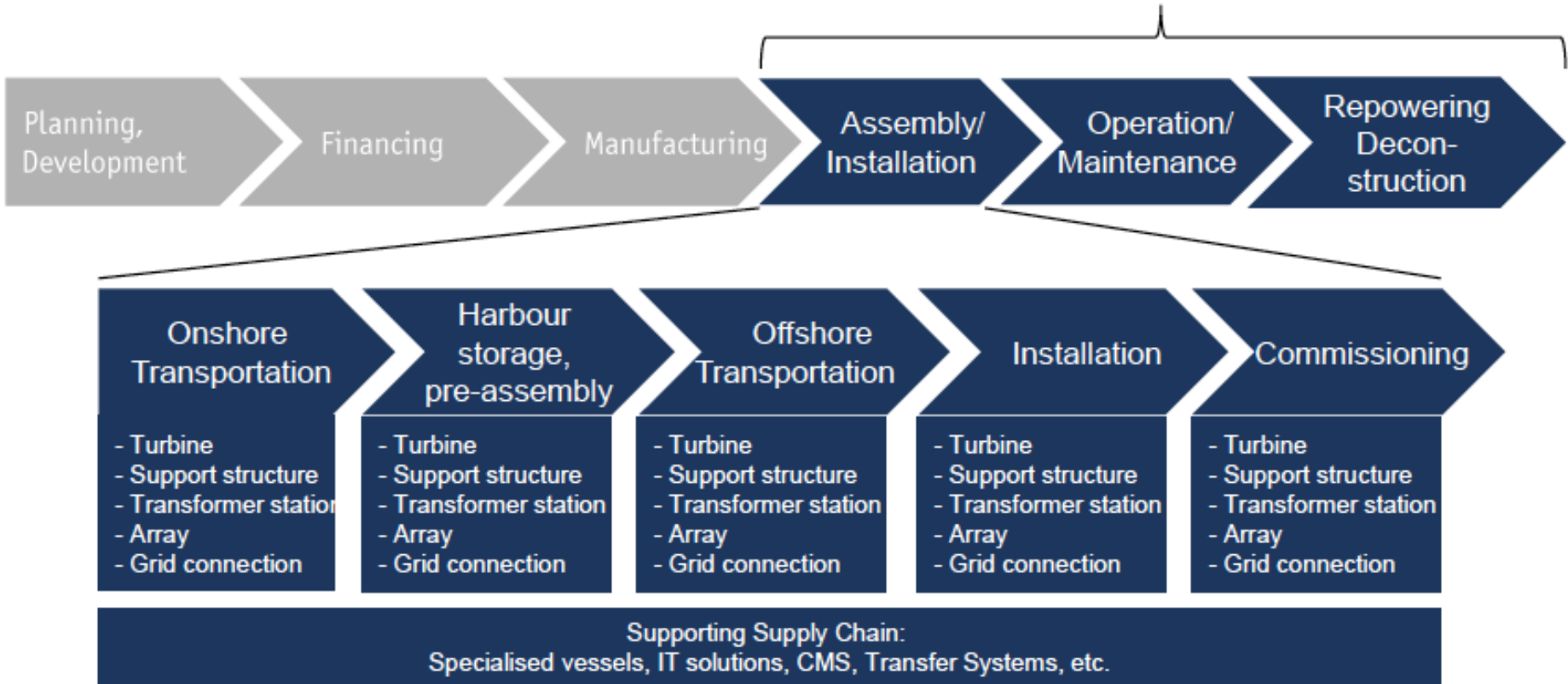
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The Offshore Value Chain

Offshore Wind Servicing (OWS)

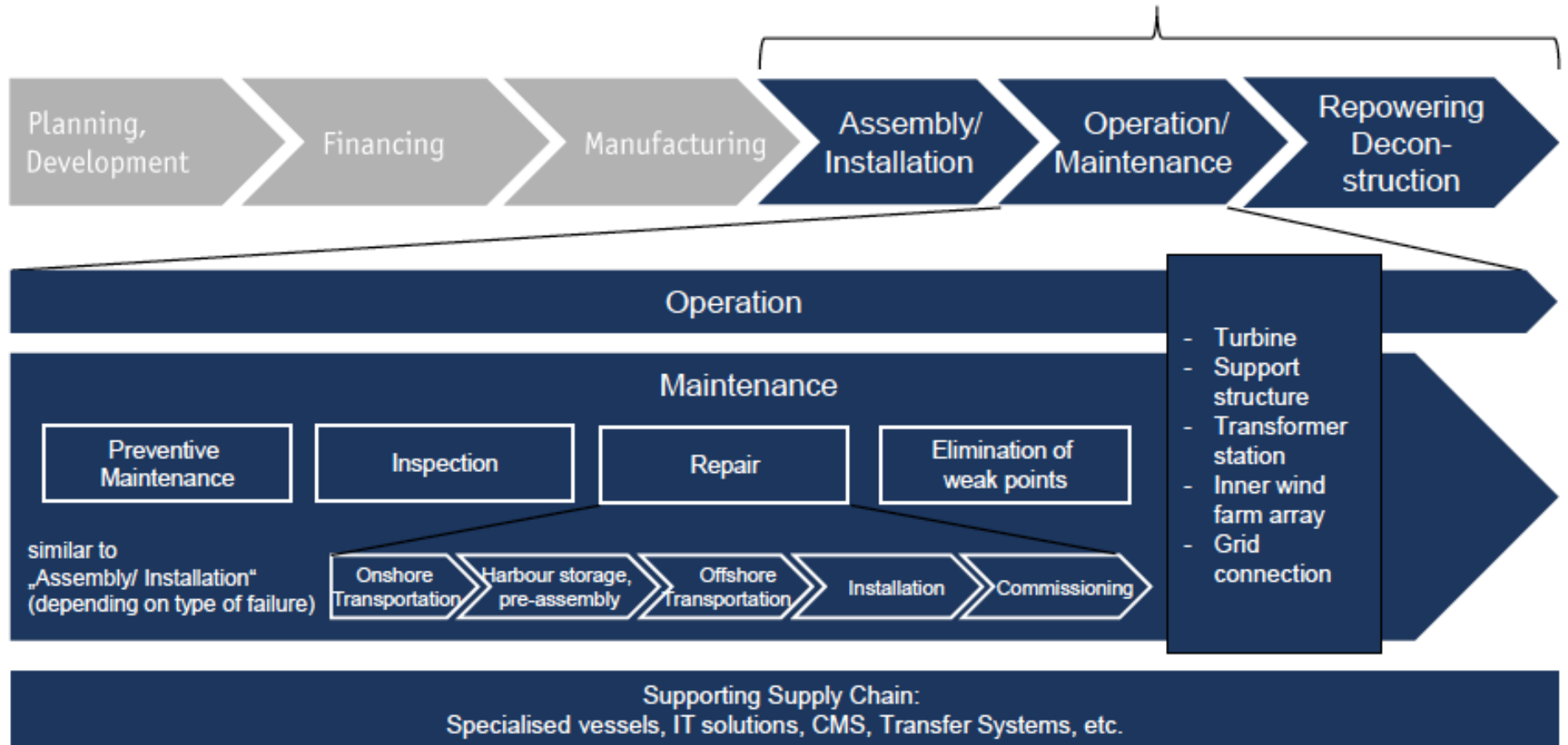


Source: germanwind GmbH
Definition bases on PWC and project SystOpt, University of Applied Sciences, Bremen



The Offshore Value Chain

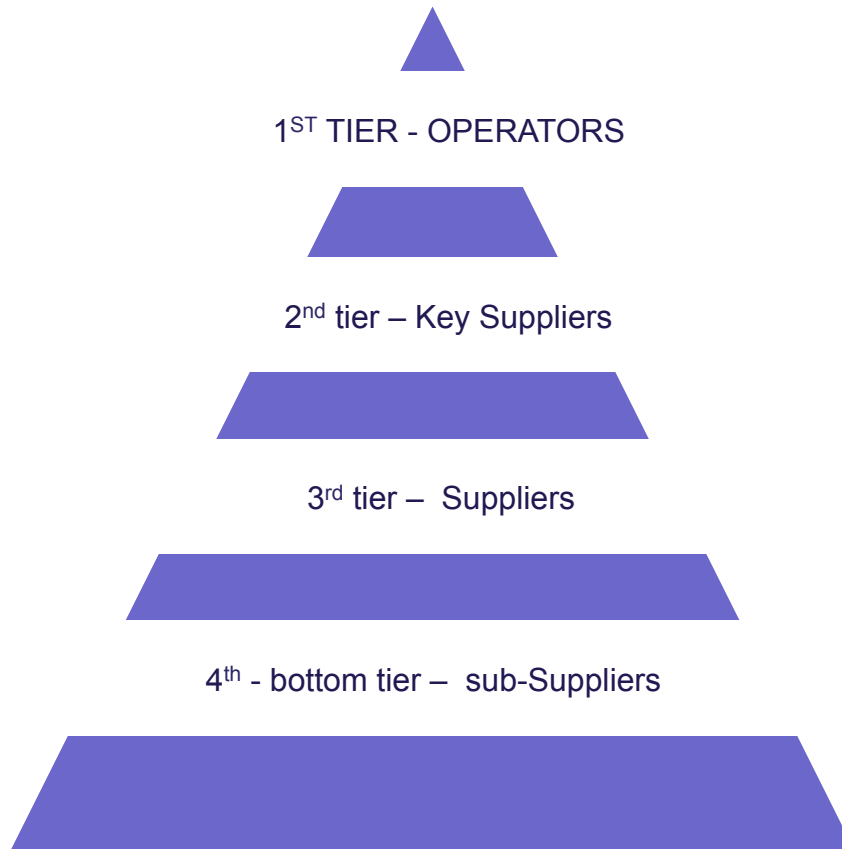
Offshore Wind Servicing (OWS)



Source: germanwind GmbH
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The Offshore Supply Chain



Operators

- ❖ DONG Wind Power
- ❖ Vattenfall Vindkraft

Key Suppliers

- ❖ Siemens Wind Power
- ❖ Vestas Offshore
- ❖ Bladt
- ❖ A2SEA

Suppliers

- ❖ Rambøll
- ❖ COWI
- ❖ DNV
- ❖ Force Technology
- ❖ Viking
- ❖ Esvagt
- ❖ Semco Maritime
- ❖ Falck Safety Service
- ❖ Maersk Training
- ❖ Skilled training providers

Sub-Suppliers

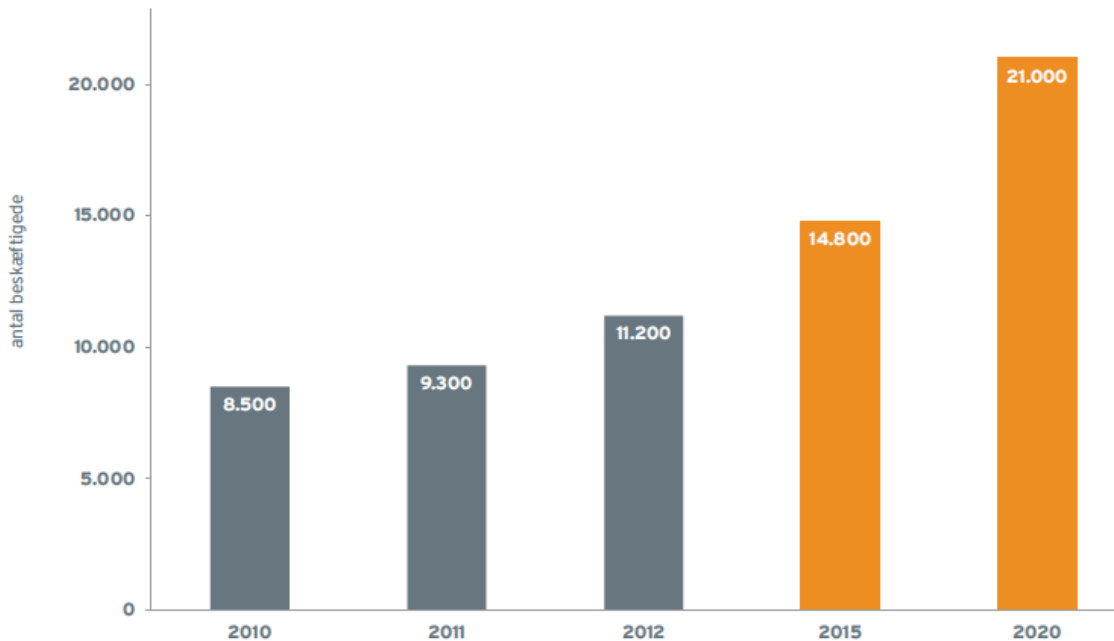
- ❖ Support organisations
- ❖ Financial and banking
- ❖ Catering and alike
- ❖ etc., etc.



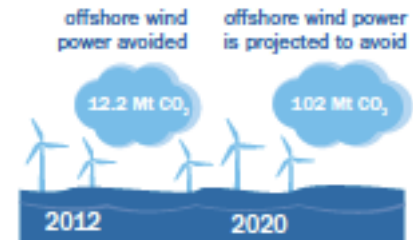
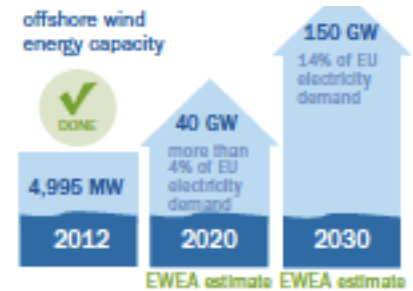
Offshore Wind Workforce Development

Offshore Vind & Bølge i 2015 og 2020

– forventninger til beskæftigelse (orange søjler)

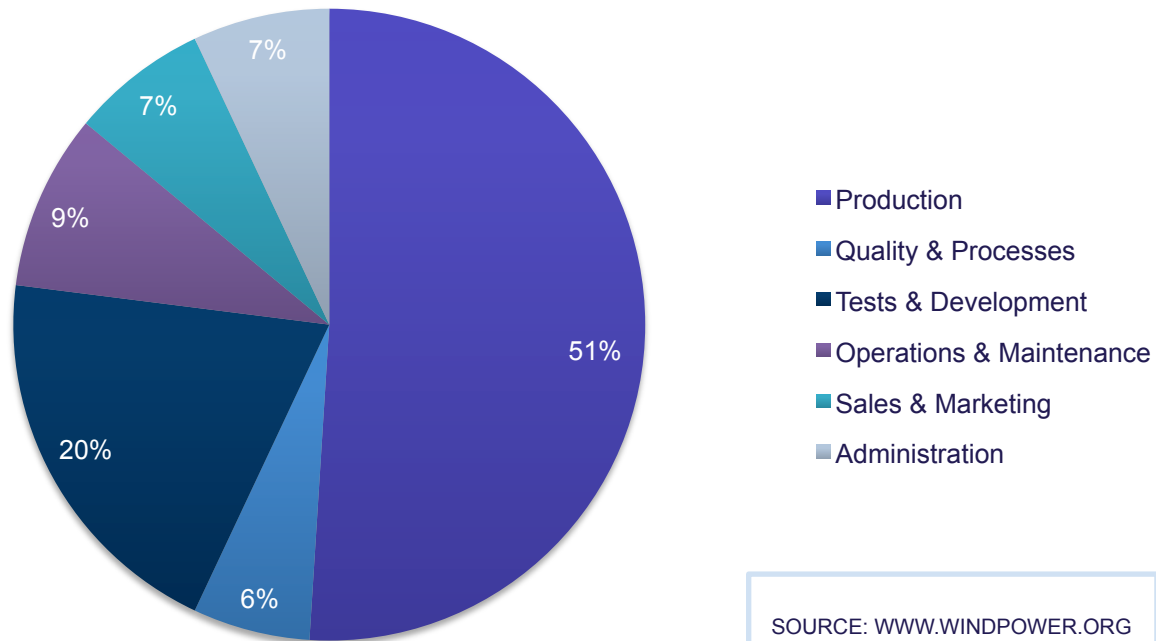


Kilde: Region Syddanmark – "Kortlægning af offshorebranchen"





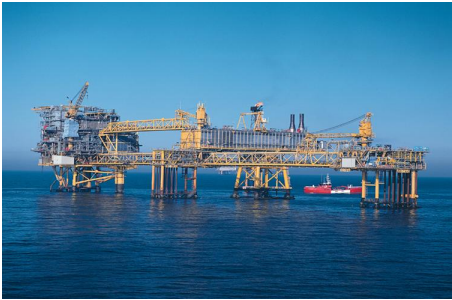
Distribution of occupations in The Danish Wind Industry – in 2012



SOURCE: WWW.WINDPOWER.ORG



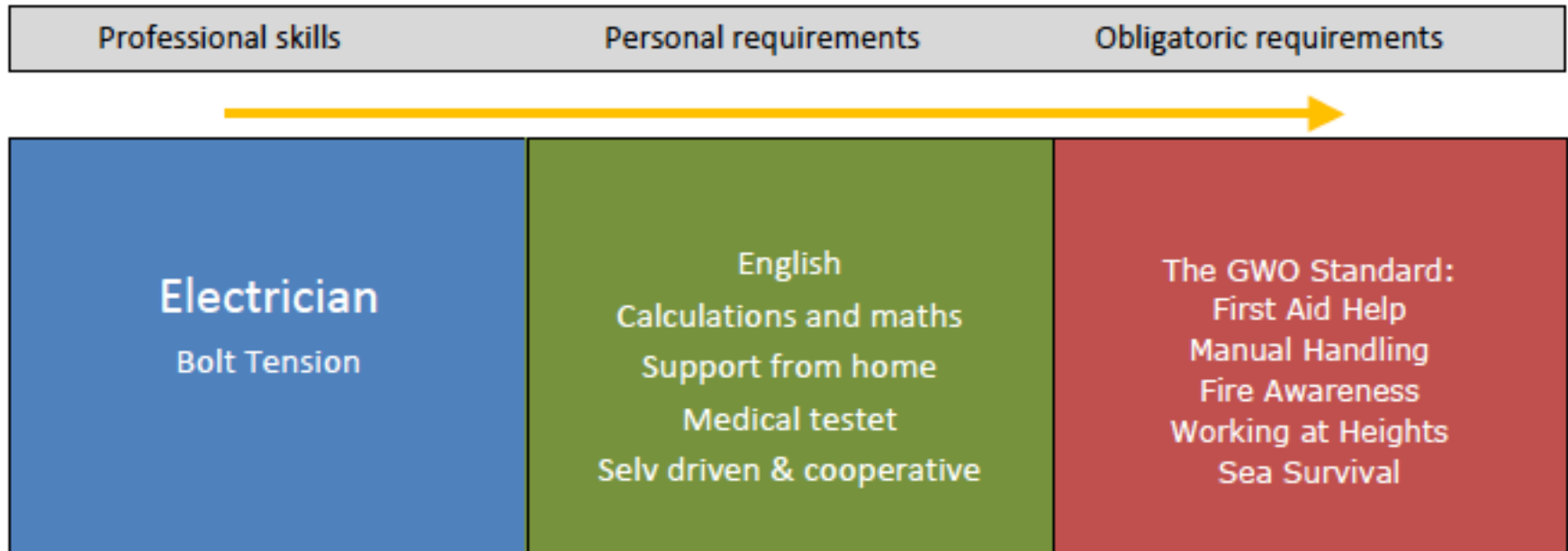
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Job profile - example



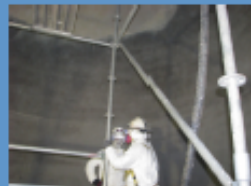


Offshore Wind Competence Profiles – Skilled professionals or equivalent

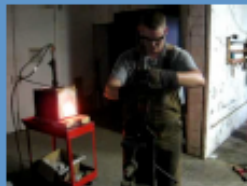
Plastic maker



Surface treatment specialist



Blacksmith



Electrician



Mechanic



Other vocational professions



Personal and behavioural competences

Safety Awareness, language (English), self-motivated, cultural understanding, support from home, health certificate, phobias clarification, industry & business understanding

Additional skills

Scaffolding, rigging, gripping, lifting, bolts tension, surface treatment, automation techniques, Hydraulics, IT, project management, Robe Access

Safety

GWO (Global Wind Organisation) package, plus additional relevant ones, like HUET & L-AUS

Equivalent skills

Equivalent skills

Equivalent skills

Equivalent skills

Equivalent skills

Equivalent skills



Offshore Energy Courses

Provider	Falck Safety Services	Maersk Training Esbjerg	AMU-Vest	Rescue Center Denmark	AMU-Syd, Ribe	Kursuscenter Vest	Rybners	SAT Training
Basic Offshore Safety Induction and Emergency Training (BOSIET)		X						
Offshore Basic Safety Training incl. Huet (OBST ell. BOSC)	X	X						X
Working at heights	X	X	X	X				
Manual Handling	X	X	X	X				
First Aid	X	X	X	X				
Fire Awareness	X	X	X	X				
Sea Survival	X	X		X				
Surface treatment of steel constructions			X					
Scaffolding			X					
Slinging			X					
Rigging			X					
Lifting certificates			X					
Offshore welding			X			X		
Freight transport			X			X		
Bolt tension						X		
Control and regulation						X		
Reading of Isometric drawings						X		
Plumbing of instrumental piping						X		
Plastic reparations					X			
Electronic security						X		
Hydraulic						X		
IT - courses			X			X	X	
Mercantile							X	



Offshore Energy Educations

		Vocational Educations / Secondary level				Further Educations / Tertiary level		
Provider	Duration in years	AMU-Vest	EUC Vest	AMU Syd, Ribe	Rybners	Business Academy South West	Aalborg University	University of Southern Denmark
Surface Treatment technician	2 - 3	X						
Ship fitter	2.5 - 4		X					
Technical designer	2.5 - 3		X					
HVAC Energy Program	3.5 - 4		X					
Electrician	2.5 - 4.5		X					
Blacksmith	2 - 4		X					
Plastic maker	2.5			X				
Wind Turbine Wing Operator	2			X				
Shipping	2				X			
Freight Forwarder	2				X			
Mangement Technology	2					X		
Installation Technology	2					X		
Production Technology	2					X		
Laboratory technician	2.5					X		
Technical Manager Offshore	+ 2					X		
Civil Engineering - Constructions & components	5						X	
Diplom Engineering - Construction & Indudstry	3						X	
Diplom Engineering - Electronics and Computer Engineering	3						X	
Civil Engineering - Electronics & Computer Engineering	+ 2						X	
Civil Engineering - Energy	5						X	



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Civil Engineering - Machine Construction	5						X	
MSc. Environment and Resource Management (AAUE & SDUE)	3 + 2						X	X
MSc. - Risk & Safety Management (AAUE & SDUE)	+ 2						X	X
MSc. Marketing & Innovation (Offshore development)	5							X
MSc. Maritime Archaeology	+ 2							X



Offshore Wind Workforce Challenges for Development

Lack of skilled workers:

Power electronics - Electrician

Test Engineers BScee

Mechanical Engineers BScme

Maritime competences

Foreseen challenges:

Personal competences when offshore, e.g. when you are not able to conduct your assignment because of weather conditions and need the ability to handle the idle.

The physical ability to cope with the sea conditions.

Source: Megavind "The Danish Wind Power Hub – Strategy for Research, Development, and Demonstration and OEDK.

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AUFMERKSAMKEIT!**



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