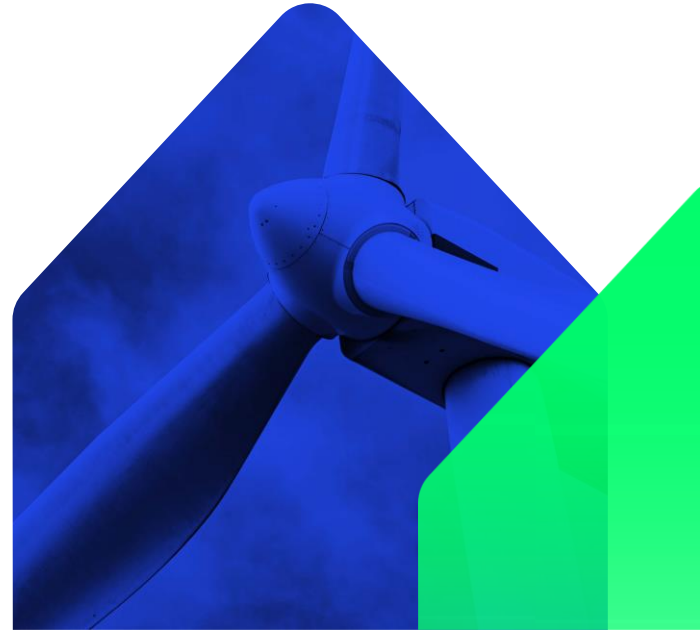


UNLEASHING JAPAN'S SIGNIFICANT OFFSHORE WIND POTENTIAL

Recommendations to support skills development for Offshore Wind in Japan

Rosanna Jackson, The Carbon Trust

20 June 2023



Our mission is to accelerate the move to a decarbonised future.



5

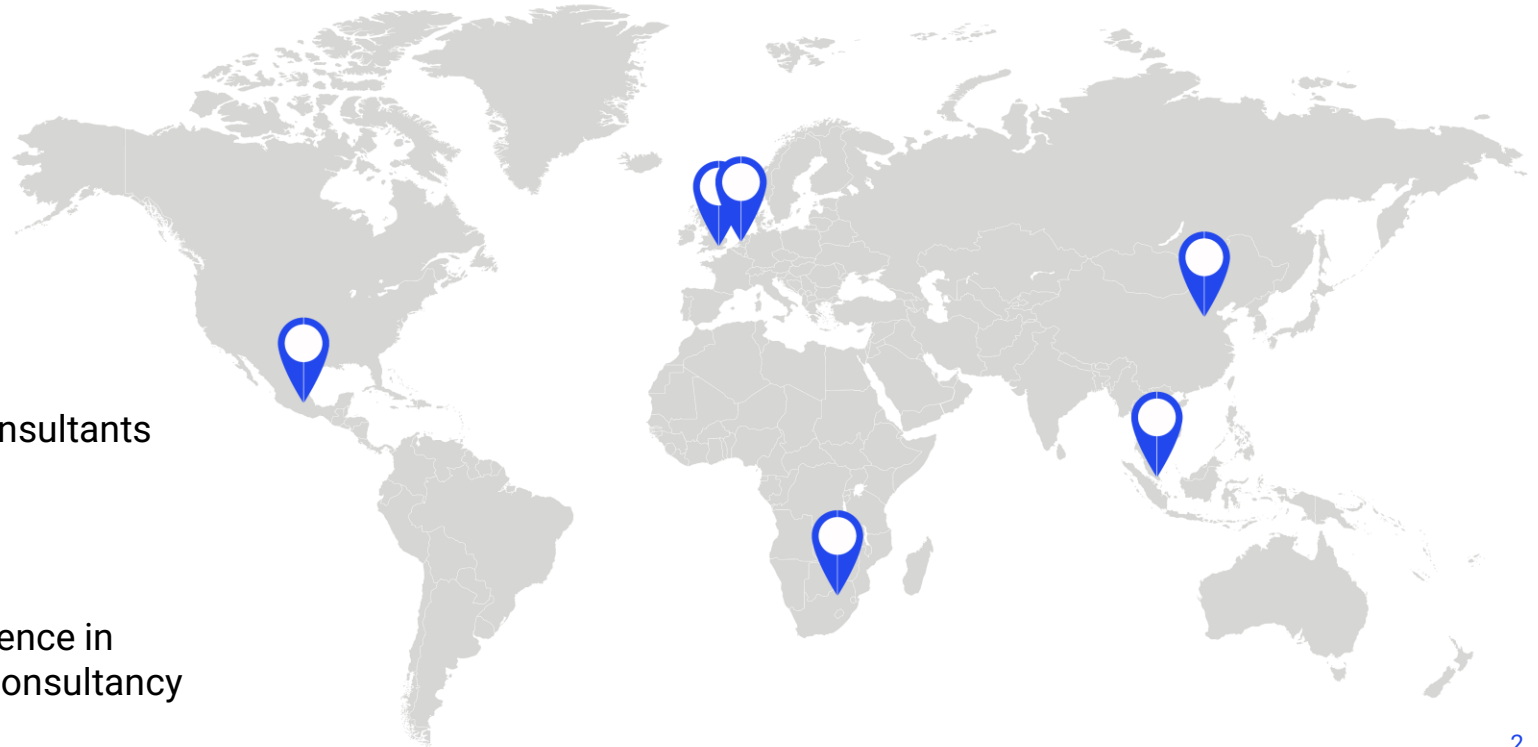
continents

400+

experts and consultants

20

years of experience in
sustainability consultancy



Overview of the report on skills development



The Carbon Trust have collaborated with the Renewable Energy Institute in Japan to deliver a report that assesses the skills need for the planned large-scale Offshore Wind deployment, with international case studies and recommendations for decision-makers in Japan.

Content coverage:

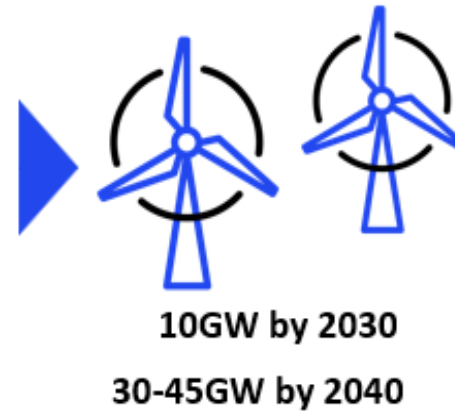
- Contextualising offshore wind in Japan
- The need for offshore wind-related skills in Japan
- Key international market case studies
- Analysis on how Japan can meet its skills need
- Conclusion and **5 recommendations** for Japan

To what extent is there a need for action on skills development for Japan to meet its large-scale offshore wind deployment ambitions?

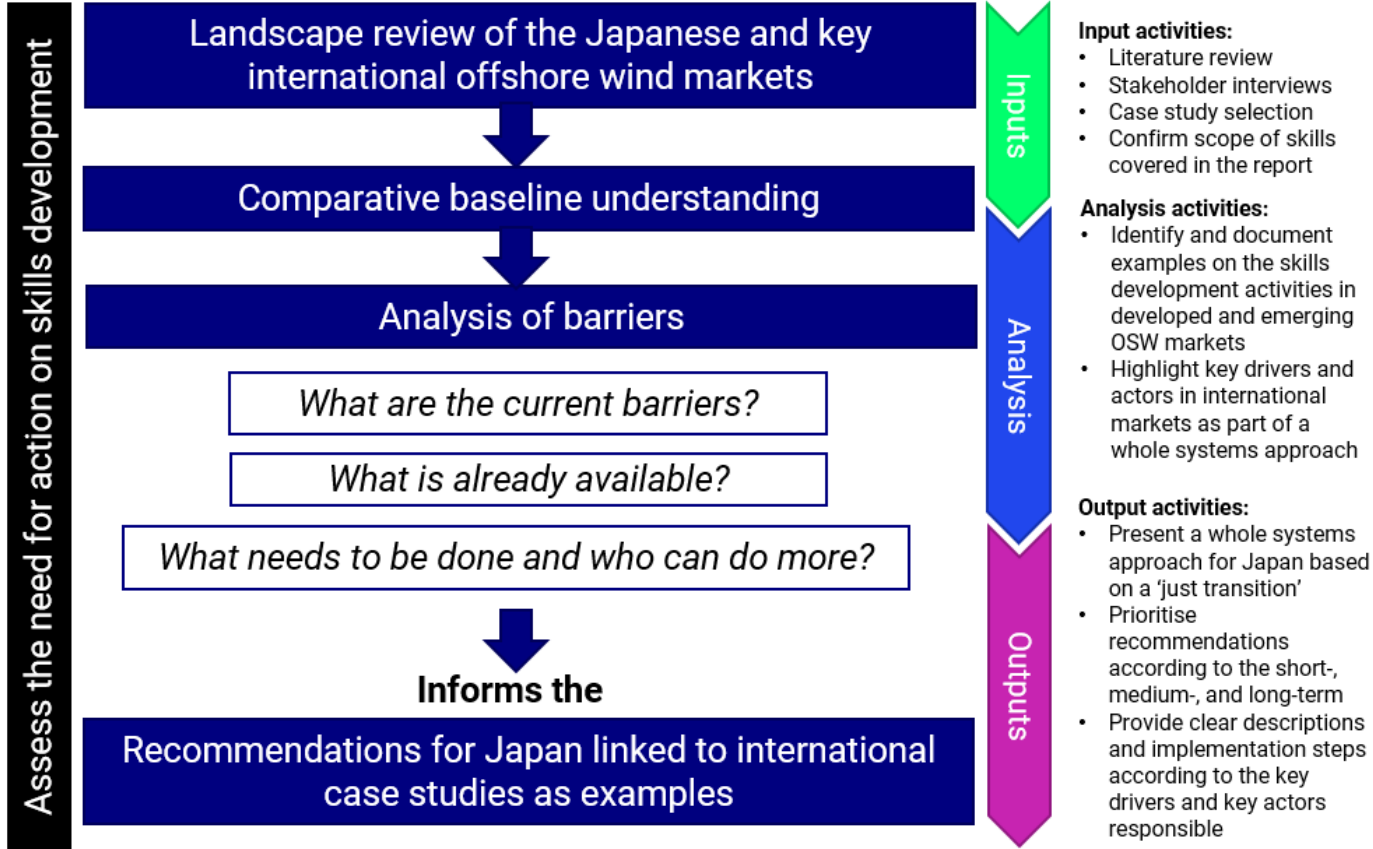
Skills and training needs



Offshore wind power targets



Report methodology



The need for offshore wind-related skills in Japan

Key government policies/actions	Education/research activities	Industry/private sector facilities/actions	Collaboration examples
<p>Green Innovation Fund</p> <ul style="list-style-type: none"> New Energy and Industrial Technology Development Organization (NEDO) provided 2 trillion yen to support green R&D projects including offshore wind. <p>METI Human Talent Programme</p> <ul style="list-style-type: none"> METI provided 650 million yen to support talent growth under the '2022 Subsidy for Offshore Wind Power Human Resource Development (HRD) Project'. <p>Public-Private Council on Enhancement of Industrial Competitiveness for Offshore Wind Power Generation</p> <ul style="list-style-type: none"> Japan's offshore wind public-private council was formed between METI, MLIT, and industry players. 	<p>Fukushima O&M Association (FOM) Academy</p> <ul style="list-style-type: none"> A training facility responsible for the maintenance of wind power generation facilities, located in Fukushima City. <p>Kyushu University, Research and Education Centre for Offshore Wind</p> <ul style="list-style-type: none"> The research centre aims to contribute to the formation of a world-class research and education base for offshore wind power in Japan. Kyushu University is one of the awardees of METI's 2022 offshore wind HRD subsidy. <p>Nagasaki Ocean Academy</p> <ul style="list-style-type: none"> The Nagasaki Ocean Academy introduced various courses aimed at professionals. The academy aims to train 1,600 people over the next five years. Nagasaki University is one of the awardees of METI's 2022 offshore wind HRD subsidy. 	<p>Certification services for training providers by ClassNK</p> <ul style="list-style-type: none"> ClassNK provides certification services for training providers based on the international Global Wind Organisation (GWO) training standards. <p>Japan Wind Power Association (JWPA)</p> <ul style="list-style-type: none"> JWPA introduced various training and industry guides aimed at professionals. <p>Nagasaki Marine Industry Cluster Promotion Association (NaMICPA)</p> <ul style="list-style-type: none"> NaMICPA introduced various training aimed at professionals. <p>Nippon Survival Training Center (NSTC)</p> <ul style="list-style-type: none"> NSTC is a GWO-certified offshore survival training centre providing safety training to professionals. <p>O&M training by Hokutaku Corporation</p> <ul style="list-style-type: none"> As METI's 2022 offshore wind HRD subsidy awardee, Hokutaku Corporation is due to provide O&M training services. <p>Respective ship crews training by MOL Marine & Engineering Co., Ltd and Japan Yusen Line Corporation</p> <ul style="list-style-type: none"> Automatic positioning systems and small workboat training are to be provided by MOL Marine & Engineering Co., Ltd and Japan Yusen Line Corporation, under METI's 2022 offshore wind HRD subsidy. <p>Wind power generator maintenance and emergency first aid training by Eos Engineering & Service Co., Ltd</p> <ul style="list-style-type: none"> Located in Akita, Eos Engineering & Service Co., Ltd. is GWO-certified and provides wind power generator maintenance and emergency first aid training. <p>Other international bodies' certifications</p> <ul style="list-style-type: none"> GWO Basic safety training, Offshore Petroleum Industry Training Organization (OPITO) certification training, and International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) Convention Basic Training are also individually available in Japan. 	<p>Consortium between the offshore wind Industry-Academia-Government, through Kyushu University</p> <ul style="list-style-type: none"> Brings together the experience of Japanese industry, academia, and government, in realising offshore wind energy in Japan. <p>Industry collaboration across international markets by Wind Power Group Co., Ltd. and Taiwan Wind Power Training Co., Ltd.</p> <ul style="list-style-type: none"> METI's 2022 offshore wind HRD subsidy awardee, Wind Power Group Co., Ltd. is partnering with Taiwan Wind Power Training Co., Ltd. to develop a training facility, with a target to train 1,000 people starting in 2024. <p>Education for wind farm operators and fuel ship crews by ClassNK and Maersk</p> <ul style="list-style-type: none"> A Memorandum of Understanding (MoU) regarding training for offshore wind farm operators and education for alternative fuel ship crews was signed between ClassNK and Maersk. <p>The Nippon Foundation Ocean Innovation Consortium</p> <ul style="list-style-type: none"> The Nippon Foundation Ocean Innovation Consortium is dedicated to training future generations of ocean engineers and to expanding awareness about marine energy resources. <p>Public-private partnership: Formation of a training centre by NYK, Nippon Marine Enterprises, and local governments of Akita Prefecture and Oga City</p> <ul style="list-style-type: none"> METI's 2022 offshore wind HRD subsidy awardee, with a target of training 1,000 people in the industry per year starting in 2024.

A whole systems approach

Possible tools to analyse the skills challenge

Questions to consider:

What existing industry vs new industry?

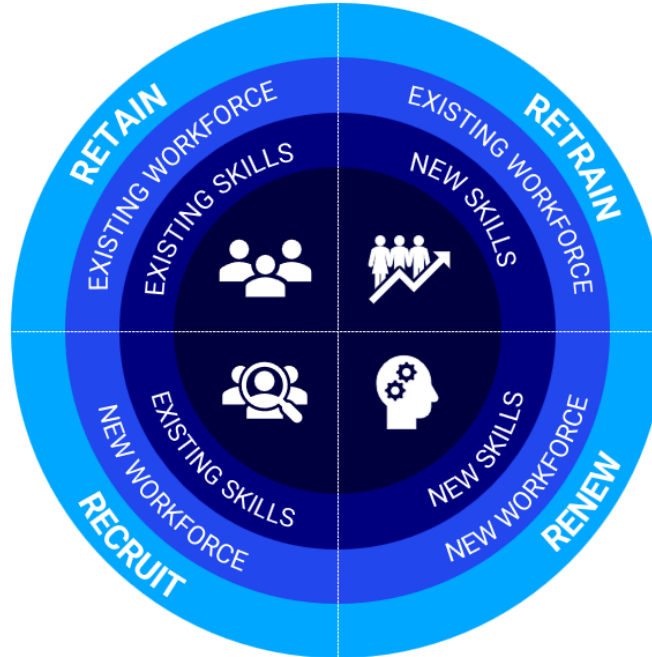
Are there specific geographical shifts especially urban/rural?

What does the local demographics for employability look like?

How to achieve gender balance?

How will training be made accessible to all?

Are there supportive policies incentives for all the 4Rs?



Communication



Education and research



Collaboration

Adapted framework from OPITO UKCS 'The Skills landscape 2019-2025' report

Baselining

Planning

Implementing

Evaluating

Overview and approach to the case studies

The case studies identify the key actors and drivers that have influenced skills-related plans, processes or outcomes.

The main drivers for change that facilitate the development of skills as part of a whole systems approach are:

- **Communication:** How have decision-makers communicated the current situation and set out plans to address skills?
- **Education and research:** How have actors facilitated education and research to drive skills development?
- **Collaboration:** How have decision-makers collaborated to facilitate skills development?

4.3. The United Kingdom

The UK government has taken a comprehensive approach to skills development by clearly communicating its support to address the skills need in the industry through policies such as the Offshore Wind Sector Deal. Skills are also increasingly addressed in relation to the UK government's plans to reach Net Zero and transition justly through 'levelling up' strategies that address those who are at risk of being left behind.

The clear signalling from the government has created clarity for actors such as educational institutions, the private sector, and the offshore wind industry. Through a whole systems approach, which focuses on communication, collaboration and education, skills development in the UK for offshore wind is strategically tied to overcoming barriers. For example, the UK government has published on the lack of technical skills and the mismatch between what the skills system provides and what employers need. This problem scales up to industry-level challenges, e.g., the UK offshore wind industry struggling to build up the skills for a strong domestic supply chain. To address these skills development challenges, the UK government has committed to transforming further education, with better alignment of technical education and training through the rollout of T Levels. One of the sector deal initiatives will also invest up to £250 million to build a stronger UK supply chain through the establishment of the Offshore Wind Growth Partnership (OWGP).⁵⁶ The OWGP supports businesses with the development of the offshore wind supply chain through grant funding and business transformation support. This in turn upskills companies.

To this end, there is strong evidence of collaborative networks between the government, industry, and the education sector, which are mobilising to address skills in offshore wind as part of a future Net Zero economy. To highlight the important role certain actors play, the table below presents a selection of key measures according to a whole systems approach. The table considers the drivers (communication, education, and collaboration) that have created a positive effect on skills development for the offshore wind industry in the UK.

Table 6: Overview of key steps taken by actors in the UK according to the drivers of communication, education and research, and collaboration.⁵⁷

Communication <i>How have decision-makers communicated the current situation and set out plans to address skills?</i>	Education and research <i>How have actors facilitated education and research to drive skills development?</i>	Collaboration <i>How have decision-makers collaborated to facilitate skills development?</i>
Offshore Wind Sector Deal <ul style="list-style-type: none"> The 2019 deal outlines how the offshore wind industry will work with the government, existing institutions, universities, and industry programmes to develop curricula, increase job mobility across and between sectors, increase apprenticeships and coordinate local efforts for the introduction of T Levels. 	Supergen ORE Hub <ul style="list-style-type: none"> Programme set up by the Engineering and Physical Sciences Research Council (EPSRC) in 2001 to provide leadership for academic research on key offshore renewable energy (ORE) areas such as wind power. The Hub connects academia, industry, policy and public stakeholders to inspire innovation, with resources such as funding, facilities, web-based tools, and online engagement platforms. 	Government <ul style="list-style-type: none"> BEIS signed an agreement between the UK and the North Seas Energy Cooperation, which sets a framework for greater cooperation with North Sea neighbours (nine countries and the European Commission). Part of the intention is to support the growth of offshore wind. Such cooperation agreements may foster more collaborative approaches to skills development for offshore wind.
North Sea Transition Deal <ul style="list-style-type: none"> Sector Deal for the UK Continental Shelf, which is a region of waters that provides numerous 		

Key takeaways for a just transition for offshore wind in Japan

The risks and opportunities of the energy transition and offshore wind development vary by region within Japan.

A just transition framework identifies risks and opportunities, focusing on the high proportion of fossil-fuel workers and how this maps across to regions with offshore wind potential, and where there are opportunities for skills transferability.

A crucial risk in many regions is the ageing workforce which will limit the number of workers who can transition from fossil fuel industries to the offshore wind sector.

To better understand regional factors, government and industry must carry out baseline industry and skills assessments to understand the gaps between the existing and future workforce to inform offshore wind sector planning.

Barriers preventing skills development in Japan

Through a causal mapping exercise using stakeholder interviews and public data, we identified four key barriers preventing skills development

Barrier 1: Japan's labour shortage

Japan is facing a labour shortage across sectors which is primarily driven by an ageing population.

Barrier 2: Lack of industry specific knowledge and expertise of offshore wind in Japan

There is a lack of understanding of offshore wind and the skills required to develop the industry at a commercial level.

Barrier 3: Lack of clarity on Japan's future offshore wind industry and decarbonisation trajectory

Further clarity on the direction and scale of Japan's offshore wind industry will support organisations to invest in developing new skills.

Barrier 4: Work-based cultural barriers

Workplaces with conservative company cultures can struggle to adopt modern skills development practices.



The figure shows a word cloud generated from keywords noted in stakeholder interviews.

Five recommendations and steps to a just transition

<p>Take steps to clarify the current situation on skills development for the offshore wind industry within Japan.</p> <p>Baselining</p>	<p>Short-term, 1-2 years</p> <p>Short-term, 1-2 years</p> <p>Short-term, 1-2 years</p>
<p>Communicate plans by decisions makers on the direction of skills development for offshore wind in Japan.</p> <p>Planning</p>	
<p>Take steps to align with the international offshore wind market on skills.</p> <p>Implementing</p>	
<p>Take steps to modernise and futureproof skills for the offshore wind industry in Japan.</p> <p>Planning</p>	<p>Medium-term, 3-4 years</p>
<p>Evaluate skills development measures in Japan and scale up.</p> <p>Evaluating</p>	<p>Long-term, >5 years</p>

Thanks for listening



ご清聴ありがとうございました

Rosanna Jackson
Rosanna.Jackson@carbontrust.com