Tackling skills shortage in the renewable energy sector by 2020

December 2017
Executive summary

Jobs, education & training

Now that climate change has been widely recognised as a global issue to tackle, renewable energy projects are multiplying rapidly across the world. In this report, we highlight the exponential growth of job creation in the green sector for the period of 2017 to 2020.

The countries who will experience the major growth are China, the USA, UK, Netherlands, Taiwan and Spain with several thousands of jobs to be created annually.

As the number of jobs is increasing in this relatively new sector, skills shortage appears as the main growing challenge for human resources. It has already been recognised as an issue for renewable energy companies and could continue to grow if not addressed.

Taylor Hopkinson provides recommendations which will have effects in the long-term and require initial investment. Training and technical specialisation programmes initiated in higher education institutions or in the company itself could decrease skills shortage. Another option to make the challenge less critical is to invest in learning processes and retain them in the company so even if a company loses its workforce, the know-how is kept. Lastly a partnership between companies and the academic sector is highly recommended to raise graduates’ awareness and train them accordingly.

Taylor Hopkinson also provides insights into how individuals in the sector look for jobs and invites employers to maximise their visibility accordingly when advertising a role.
Introduction

Find the opportunities

Numerous policies to fight against climate change are being implemented across the world. The Europe 2020 Climate Change and Energy Strategy aims include reducing greenhouse gas emissions to 20% lower than 1990 levels, 20% of energy coming from renewables and 20% increase in energy efficiency. This European directive implies an increasing amount of MW in the pipeline in Europe. Other countries outside the European Union have similar policies. For instance, Taiwan aims at generating 20% of the nation’s electricity from renewable sources by 2025. The renewable energy sector in China is also booming; the country has already surpassed some of its 2020 clean-energy targets.

One of the major implications behind booming renewable energy projects is the increasing demand of workforce globally. In this report, we aim to understand how job creation trends are evolving, and which countries have the most work needed to ensure compliance with policy requirements.

The objective is to give employers and individuals working in renewable energy the tools to seize the best opportunities in the market, plan accordingly and therefore avoid one of today’s main challenges in the renewable energy sector, namely skill shortages.

2 http://taiwantoday.tw/news.php?unit=2,6,10,15,18&post=102440
3 http://www.windpowerengineering.com/blog/china-already-surpassing-2020-clean-energy-targets/
Taylor Hopkinson conducted an employment forecast which focuses on the number of vacancies for the main countries operating in the global renewable energy industry. The vacancies are the total number of jobs that will be created, and the number of vacancies based on turnover. It has been calculated annually and is segmented per technology (onshore wind, offshore wind, solar PV).

Methodology

Sources
In order to consolidate the report, most of the information comes from global databases, industry specialist consultancies, industry publications and official news articles. The empirical data has been collected from a survey with hiring managers and individuals working in the renewable energy sector.

Process
Our findings are based on the main factors driving job creation in the renewable energy sector. The government, finance and technology are three major variables leading to project implementation and therefore job creation.

The government is key in developing initiatives and policies to foster renewable energy growth. They are responsible for implementing the right policies and strategies to promote and attract investment in renewable energy. For optimal results, companies need to utilise all government initiatives.

Financial mechanisms are necessary to develop renewable energy projects, and especially in the pre-investment phase to help them take off. The mechanisms may take several forms such as credits exclusively for the renewable energy sector, loans, grants and fiscal incentives to help the entities afford the investment in renewable projects.

A project cannot be built without technology know-how. Countries that were pioneers in certain technologies, such as Denmark in offshore wind, have an experienced workforce which makes the country attractive for future investment. Contrary to this, countries who have only recently invested in renewable energy technology development still need time to build and develop an experienced workforce.

In order to build our employment forecast, we decided to use the installed capacity (MW) forecast annually per country and per technology. This forecast is implicitly based on the political landscape, financial variables and technology advancements of a country.

Taylor Hopkinson based its forecast on reverse engineering using past and present installed capacity and employment data. Other inputs used in addition to installed capacity included an average refresh rate in the renewable energy sector. The methodology has been verified by industry specialists BVG Associates.
Findings

The charts indicate the top 3 countries in terms of vacancies for 2017-2020 in offshore wind, onshore wind and solar PV.

In the figures, we can see that China made it to the top 3 countries hiring in offshore wind, onshore wind and solar PV, whereas the USA made it in 2 of the technologies (onshore wind & solar PV).

Other main countries hiring in the renewable energy sector are the UK, the Netherlands, Spain and Taiwan.

Figure 1. Evolution of vacancies in offshore wind from 2017 to 2020*
Figure 2. Evolution of vacancies in onshore wind from 2017 to 2020*
Figure 3. Evolution of vacancies in solar PV 2017 to 2020*

*Source: Taylor Hopkinson
Skills shortage, one of the main challenges by 2020

One of the key challenges associated with massive job creation is to find the right talent in this niche and relatively recent market, which is leading to a skills shortage. According to the Global Energy Talent Index published in 2017, 80% of hiring managers highlight skills shortage as a key challenge in the renewable energy industry.

The problem is not recent. For example, in 2013, a report published by European Wind Energy Technology Platform, stated that the shortage of qualified personnel was up to 7,000 for the European wind energy sector. They also warned that the number could more than double by 2030 if graduates from the relevant industry does not increase.

In addition to the skills shortage in renewable energy, the types of jobs required in the sector are diversifying into digital and IT jobs. McKinsey published in 2016 that “digital optimization can boost profitability by 20 to 30%” for utilities. This can be done through smart meters and smart grid, digital productivity tools for employees, and automation of back-office processes. This also implies creation of IT jobs.

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Recommendations:
How can employers prepare for skills shortage?

Solutions and long-term impact

Training and technical specialisation programmes

Training and technical specialisation programmes may be carried out in either higher education institutions or in the company itself to empower employees. It is recommended to improve education to develop knowledge, technical and research skills. These training programmes need to be conducted at all levels from the exploration phase through to resource exploitation. According to the Global Energy Talent Index (2017), 59% of employers in the renewable energy believe they can overcome the skills gap with additional training and development; and 45% with graduates/apprenticeships.

Learning processes

In addition, it is recommended to value learning processes by including them in the corporate values. It is recognised that at each stage of product development, it is an opportunity for the employees to learn. The concept of accumulated experience is important as employees will be able to reuse the excess knowledge generated in a process in a new context. The training programmes must train employees to assess energy resources as a whole, design installations while considering the technological, environmental and economic angles; and encourage them to stay up to date with the most recent knowledge and technologies in the sector. By maintaining accumulated know-how in-house, it will limit the issue of skills shortage in case of turnover.

Partnering with the academic sector

Another way to compensate for human resource shortages is combining academic and private expertise and start building relationships between the two. The companies need to encourage more students to specialise in engineering. They can for example promote their activities to the academic sphere by organising sponsored projects, or offer internship placements which a few companies are already doing. According to the Global Energy Talent Index (2017), 45% of employers in the renewable energy believe they can overcome the skills gap through partnering with colleges / education.

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The purpose of this section is to guide employers on the best ways to attract candidates depending on the type and the seniority of the role.

Based on our survey sent in October 2017 to more than 1100 professionals working in the renewable energy sector, we obtained different results to the question “Where did you find your current job?”.

Regardless of whether it is a permanent or a contract role, most professionals in the renewable energy sector have found their current roles through referrals, recruitment agencies and LinkedIn.

We also note that there is a higher percentage of contractors who use referrals (38%) and recruitment agencies (36%) compared to permanent professionals (respectively 29% and 24%).

For C-level & Directors and VP, we obtained similar results. Referrals and recruitment agencies are their two top sources used to find a job. It should also be noted that C-level and Directors are those who utilise networking the most (8% compared to 0% for entry-level professionals).

For Senior: referrals and recruitment agencies also rank first. Senior professionals use LinkedIn and Company websites twice as much as C-level & Directors and VP.

For owners: Most professionals listed as owners are contractors. The majority of these individuals found their current role through referrals, recruitment consultancies or LinkedIn. The section “Other” mostly corresponds to professionals who created their own company and occupy a top management position.

Most managers and intermediates used referrals and recruitment agencies to find their current role. Company websites rank 3rd, and LinkedIn ranks 4th.

Juniors resort to a variety of sources to find their jobs. Referrals, recruitment consultancies, LinkedIn and company websites are being used almost equally (% ranging from 20 to 26% each).

On the contrary, permanent professionals use more LinkedIn (18%) than contractors (13%).

*Source: Taylor Hopkinson

Solutions and short-term impact

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Job creation is increasing very fast in this relatively new market, making skills shortage an inevitable challenge to tackle.

The challenge is global, and could particularly affect the top countries with the highest installed capacity forecast, namely China, the USA, the UK, Taiwan, Netherlands and Spain.

Skills shortage can be curbed with upstream investments. It is recommended to raise young professionals’ and students’ awareness either by providing training or technical specialisation programmes. Another way is to tap into learning processes within the company and maintaining them, so the know-how is not lost with turnover. Finally, partnering with the academic sector could ensure that companies’ and schools’ objectives are aligned. These solutions require an initial investment as it involves organisational change.

As an additional solution, employers in the renewable energy sector can also maximise their visibility by sourcing candidates where they are most likely to look for a job. Referrals and recruitment consultancies are widely used by professionals in the renewable energy sector, followed by LinkedIn and company websites.

Conclusion
Taylor Hopkinson is a private equity-backed recruitment partner to clean energy infrastructure leaders in international markets. We provide a refreshingly informed consultancy service in today’s crowded recruitment marketplace.

In 2017, we secured a seven-figure investment from London-based private equity firm, SEA Equity, to back our ambitious international growth plans.

Established in February 2009, our business operates from headquarters in the Innovation and Technology Renewable Energy Zone at Strathclyde University, and centrally located offices in London, Madrid, Houston, Mexico City and Singapore.

Our combined experience providing services to the global renewable and clean energy infrastructure markets is vast. We have successfully completed assignments in 13 countries and 5 continents through our multilingual team of experts.