SPOT ON

Winds of Change: A Review of the Energy Labor Market Transition

The global energy transition presents threats and opportunities for both renewable companies and 'Big Oil', but the energy sector labor markets and (technical) skill-sets required will drastically change globally.

U.S. President Donald Trump may want to recall the US – federal – signature from the 2015 Paris Accord, but the 'renewable energy train' – with overwhelming support globally – has long left the proverbial station.

Falling costs and supportive government policies are driving deployment of renewables and associated jobs at record pace, while fossil energy's portion decreases.

These Winds of Change have far reaching consequences for the global energy sector and its job market, presenting both obstacles and opportunities.

The Paris Climate Agreement of 2015 showed a global consensus on the need to restrain greenhouse gas emissions by decreasing use of fossil fuels. Meanwhile, renewable energy has become more competitive as costs plunged.

The Oil & Gas ("O&G") industry, including so called Big Oil, such as BP, Chevron, ExxonMobil, Royal Dutch Shell and Total are facing a critical choice. Should they diversify into solar and wind power to compete in a world of restrictive greenhouse emissions and increasingly affordable renewable energy? The answer seems to be "yes" and while some are just now turning their attention to the new reality, the diversification to renewables has long started in some of these companies.

This fundamental strategy change in Big Oil is hastening the pace of changes in the new job market landscape of the entire energy sector. While the growth rate in renewable energy jobs has been steadily increasing for the last three years, this upward trend contrasts sharply with fossil energy companies that have had to execute significant layoffs. So what engineering and commercial skills align with the future energy market?

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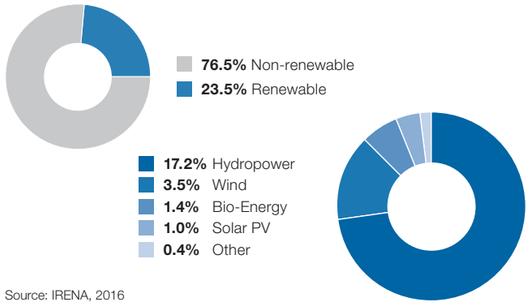
Scoping the Energy Supply

According to the International Renewable Energy Agency, IRENA, renewable sources accounted for 23.5% of the total global electricity produced in 2015 (Figure 1). Most recent additions were in wind, solar photovoltaic (PV) and hydropower. The shift from fossil towards green energy is undeniable and the International Energy Agency, IEA, predicts a 42% increase of global renewable electricity capacity between 2016 and 2021.[1]

There are several components influencing these so-called Winds of Change. Governments being the most important, especially when they act in concert – as demonstrated by the Paris Climate Agreement. It testifies how willing authorities are to significantly invest and subsidize climate change mitigation. Countries invest in renewables not only to help the environment or address the demands of their constituents, they also invest to benefit from the industries and economies being created by renewables, while taking part in the sustainable future that renewables promise.



Source: IRENA, 2016

Figure 1: Global electricity generation by source, 2015

Government investments and subsidies are propelling innovation in the booming clean technology industry which have led to plunging prices of renewable energy. Indeed, the Clean Energy Canada program predicted this year that generation costs for large-scale solar power plants are expected to drop a massive 57% by 2025, with onshore and offshore wind expected to become 26% and 35% cheaper respectively.[2]

Furthermore, the slump in oil prices is also driving the energy shift. With two major price declines in the past decade – in 2008 when the price of WTI crude dipped below $35/barrel and in 2016 when it crashed to $27/barrel – even the most traditional oil producing regions have begun to follow the global trend towards renewables. Countries in the Middle East are focusing on solar. A Saudi conglomerate recently purchased a major Spanish solar developer. Egypt plans to increase renewables to 20% of its capacity by 2020. Dubai's state utility signed a deal late last year with a Saudi solar company for what could be the cheapest solar in the world – less than six cents per kilowatt-hour.[3]

While the costs of conventional fuels will continue to swing up and down as they have in the past decade, renewables are headed in one direction only: falling steeply. This is an important consideration for governments and companies wanting to create a resilient energy portfolio which ensures future revenue streams over the long term. Moreover, fossil fuel executives are warming up to the renewable energy business as forecasts emerge that renewables will increasingly eat into their market. In light of this, Big Oil companies are exploring new opportunities within the renewables industry as never before.

In December 2016 Europe's largest oil supplier Royal Dutch Shell Plc won a bid to build two colossal wind farms with a combined capacity of 680 megawatts near the Dutch coast.[4] According to Shell U.K. chair Sinead Lynch, offshore wind meets Shell's criteria for new technology investments of having scale, and being an expertise where the company can compete and win. Eni SpA and Statoil ASA are following the same path, moving into multi-billion-dollar offshore wind farms in the North Sea and other locations.

A step ahead of its competitors, Denmark's Dong Energy has gradually turned its back on oil, gas and coal to become a leader in green energy. Dong already has the world's largest offshore wind farm and this year surprised the market by announcing to sell all O&G assets from its portfolio.[5]

Scoping the Energy Labor Market

The effects of this "green shift" significantly impacts the employment landscape within the renewables industry. The sector employed 9.8 million people in 2016, a jump of more than 2 million jobs since 2012 (Figure 3). The countries that lead in renewable jobs are China, Brazil, the United States, India, Japan and Germany. China currently dominates this list with 3.6 million jobs, while Germany is the European leader with 334 thousand jobs. The rest of Europe counts for an additional 667 thousand renewable jobs (Figure 2).[6] It is important to keep in mind that these numbers are skewed by geographical differences in terms of fewer oil rich nations and larger number of countries where, at least, one renewable source can be used.

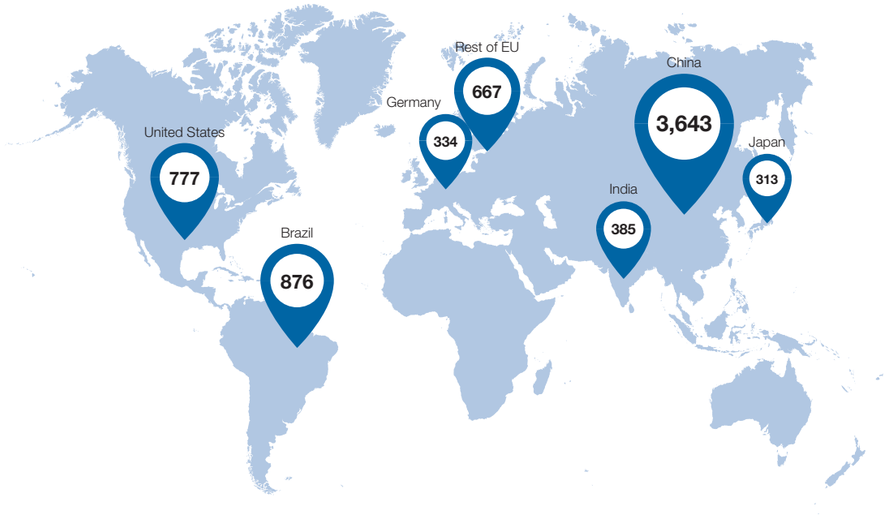


Figure 2: Renewable energy employment in selected countries, 2016 (in million jobs)

The continued job growth in the global renewable energy sector stands in stark contrast to trends in the O&G industry sector, which has laid-off over 440,000 people in 2015-16. This included 196,000 jobs in support services, 91,000 in exploration & production ("E&P"), and 45,000 in drilling. The United States alone accounted for 40% of the job loss (Figure 4), the British North Sea offshore sector for 28%, and Canada for 10%.

Moreover, in the U.K, the British Energy Research Center reports that the average employment creation in the electricity sector from fossil fuels is just 0.14 jobs per Gigawatt hour, while the average across all renewable energy is 0.65 jobs/GWH.[6]

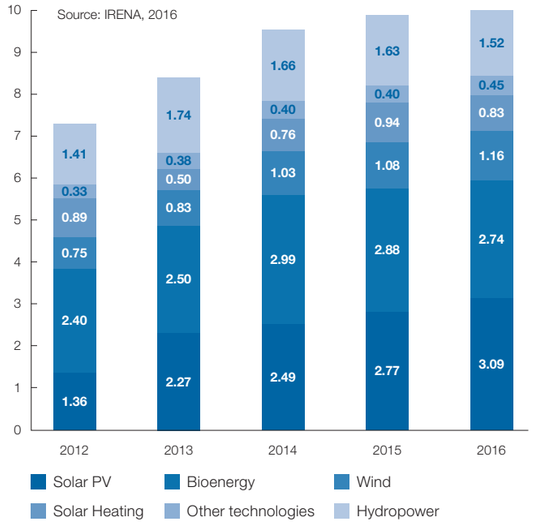


Figure 3: Global renewable energy employment, 2012-2016 (in million jobs)

Expected Labor Market Changes

As the world moves towards renewable energy, its labor force requirements will increase. IRENA's analysis suggests that jobs in the sector could rise from 9.8 millions in 2016 to 24 millions in 2030. New job opportunities are being created in all segments of the renewables value chain, with increasing demand for individuals possessing diverse skill-sets and talents.

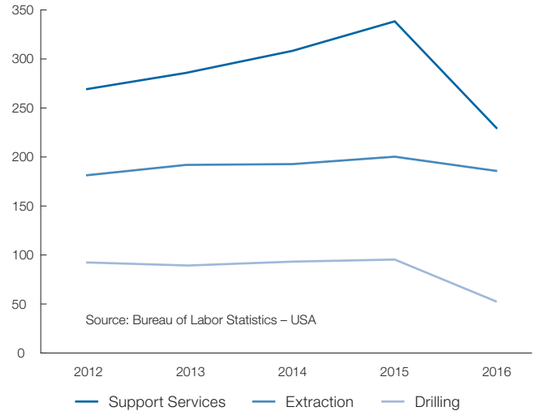


Figure 4: USA annual employment in the Oil & Gas industry (in thousand jobs)

These new vacancies are also being filled by former O&G professionals. hkp/// RemuNet conducted research on the current labor market shift and identified that many of the skills between both industries are highly transferable (Figure 5). As an example, over a third of the marine engineers working in UK's offshore wind projects have made the move from oil platforms to wind farms. RemuNet's assessment points out that not only engineering roles (e.g. maintenance and electrical) offer great synergy between these two job markets, so do supply and project management, manufacturing, installation, construction and geoscience analysis. Furthermore, with O&G being a mature industry and – like renewables – a capital-intensive business, there are many opportunities to share expertise and work: best practices, project design and management, business modeling, HSE standards, training, quality standards and controls – to name a few. Yet, the O&G "expertise overlap" for skills adaptation does have its limits.

Transitioning from fossil to renewables can be difficult for professionals who have specific, niche skill sets, for instance in production, well engineering and petroleum engineering. Staff within these functional groups do not fit most green energy roles. The graph below shows which functions fit renewables.

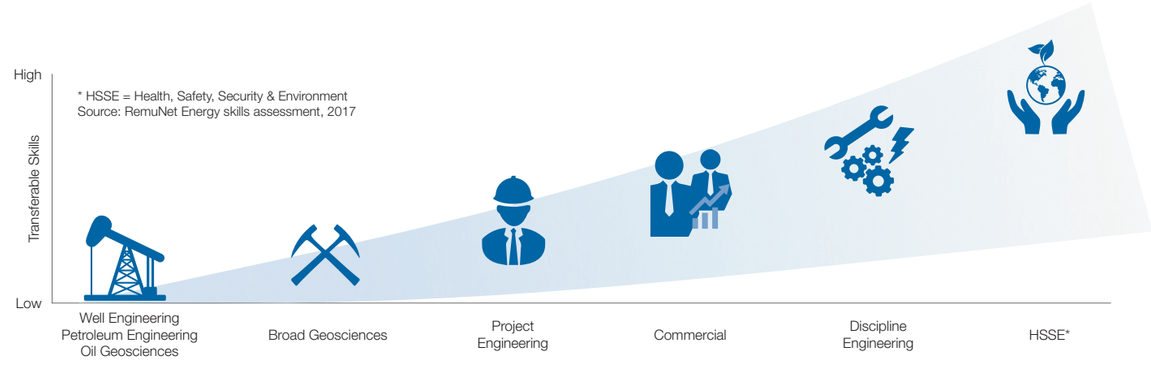


Figure 5: Oil & Gas Functional Groups and their skills-sets transferable towards the renewables industry; hkp/// RemuNet 2016/17 research

In the short term, the heated renewable job market with high demand for professionals and scarce skill-sets push salaries up. In fact, according to the US Bureau of Labor Statistics, the 2006 average annual wage within solar electric power generation was 90,250 USD, while professionals from fossil fuel electric power generation were paid, on average, 77,990 USD. Aware of these factors and aware that the market for renewables is set on a long-term trajectory of rapid innovation, governments and global energy companies have been launching training initiatives to bridge the talent gap and avoid costly new recruits. For example, the Scottish government is funding a £12m O&G transition training fund, while Maersk Oil launched a training transition program in 2014 which provides technical training and dedicated career advice for professionals seeking to move to renewables.

Furthermore, oil price fluctuations create an unstable career path for current and future O&G professionals. In the longer turn, this will lead to a shortage of staff within the fossil energy industry as well as pay pressure to retain existing workers.

hkp/// group is called to action

Attracting and retaining, but also training and transitioning existing and specialist labor will be an increasingly critical component for any successful energy strategy, whether within the traditional O&G or the promising renewables industry.

hkp/// group is also called to action by the green revolution. We're responding by carefully considering our carbon footprint and how – through better practices – we can decrease it. For the Energy sector specifically, hkp/// group is also participating, through its subsidiary hkp/// RemuNet, which runs a number of networks among Upstream O&G operators and their service providers, where pay, policies and broad HR practices are benchmarked and exchanged. For over 20 years, major energy companies have worked with hkp/// RemuNet to co-create and share reliable industry C&B benchmarking insights, market intelligence and advise, global grading and organizational design, among wider HR advice and support.

In order to help its clients realize their renewable strategies and energy transitions, hkp/// RemuNet is now expanding these long running networks for the O&G industry to include renewables companies, jobs and skills sets. We welcome your input in this energy transition discussion and inquiries on how we can help you.

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Jouco Bleeker, Senior Partner, has over a quarter of a century of corporate and consultancy compensation experience from Mercer, Shell and ING – in Europe and the USA. His expertise encompasses executive compensation, job evaluation, expatriate policies, global grading and benchmarking. He has been instrumental in the successful redesigns of corporate HR policy and organizational structure. Jouco holds a History degree from Leiden University. In 2008 Jouco acquired RemuNet and led the firm's rapid global expansion. With the acquisition of RemuNet in 2013, Jouco joined hkp/// as Senior Partner.

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About hkp/// RemuNet and hkp/// group

The hkp/// group is an independent and partner-led international consulting firm specializing in performance management, talent management and compensation.

The hkp/// partners and advice experts possess many years of international consulting experience. They are recognized experts in the market for compensation, talent, financial and risk management. In these focus areas; our clients – supervisory boards, top managers and management boards, as well as specialists – rely on us as a competent partner for value-enhancing, innovative, results-oriented solutions.

hkp/// RemuNet works on behalf of associations and groups of companies to build and manage Charter Survey Networks that provide quality HR and Compensation Benchmarking covering pay, policy, performance and productivity. Due to the data confidentiality, hkp/// RemuNet operates within hkp/// group as a separate and independent entity.

Our unique combination of 'Member directed' networks, expert advice and services, and advanced HR IT Tools offer companies the power to reliably compare and analyze their own practices and policies to other industry and qualified market peers. Together with the network annual meetings and custom online portals, hkp/// RemuNet connects companies in dynamic peer environments.

Today hkp/// RemuNet manages over a dozen international survey networks covering more than 60 countries. In all we consolidate pay, policy, performance and productivity related data of over 700,000 employees, from non-exempt to senior executive staff, for diverse industries around the world, including many Global Fortune 500 companies.

Anti-Trust & Privacy Compliance

Our research is conducted in full and global compliance with all laws and regulations regarding competition and anti-trust. Data and information shall be aggregated by hkp/// RemuNet in such a manner that none of the participants are able to identify individual information or results.

Data Storage

All data entrusted to hkp/// RemuNet is stored on firewall protected hkp/// IT B.V. servers in a certified datacenter in Europe. Remote administration access to hkp/// IT servers is IP restricted and monitored. Only two dedicated persons have physical access.

Corporate Governance

* hkp/// RemuNet is the hkp/// group specialized global pay, performance and productivity benchmarking business.

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