

# WORLD ENERGY MARKETS OBSERVATORY

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# Energy Transition Needs A Workforce Transition

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# Energy transition needs a workforce transition

**Since the 2015 Paris Agreement, many nations have passed legally binding commitments to reduce emissions of greenhouse gases to net zero by 2050. New technologies and green innovations will be required to reduce emissions from homes, transport, agriculture and industry. To deliver this, governments are committing billions in investments, with more expected to flow from the private sector.**

As well as the obvious benefits to net zero ambitions, this investment also creates job opportunities.

**But does the talent exist? Do we have the right skills in the right volumes to fill the jobs we need, and quickly?**

## **Skill shortages and challenges to creating jobs**

In the U.K., National Grid's research, 'Net zero energy workforce report', shows that the U.K. energy industry needs to create 400,000 new jobs by 2050 to meet the net zero target.

The U.K. economy has long faced significant challenges in terms of skill shortages and regional inequalities. Some 91% of businesses recently said that they face a skills deficit, with economies in the center and north of England growing at less than half the rate of London's economy between 1998 and 2016. The COVID-19 crisis has amplified these challenges and brought with it an increase in unemployment and, in particular, youth unemployment. The energy sector isn't immune to this. It also faces the additional challenge of an ageing workforce, with one-fifth of people currently working in the sector due to retire by 2030.

117,000 of the 400,000 new jobs in the energy industry are needed by 2030. Therefore, we need to act now and deploy a range of different strategies, if we are to deliver the jobs required to drive our global net zero ambitions.

*In this chapter, we will explore the workforce transition that is required to enable the energy transition. We will also identify some of the challenges and opportunities that the sector is facing and the tools and frameworks that will help us to address these issues.*





## Implementing a workforce strategy to meet the talent demand

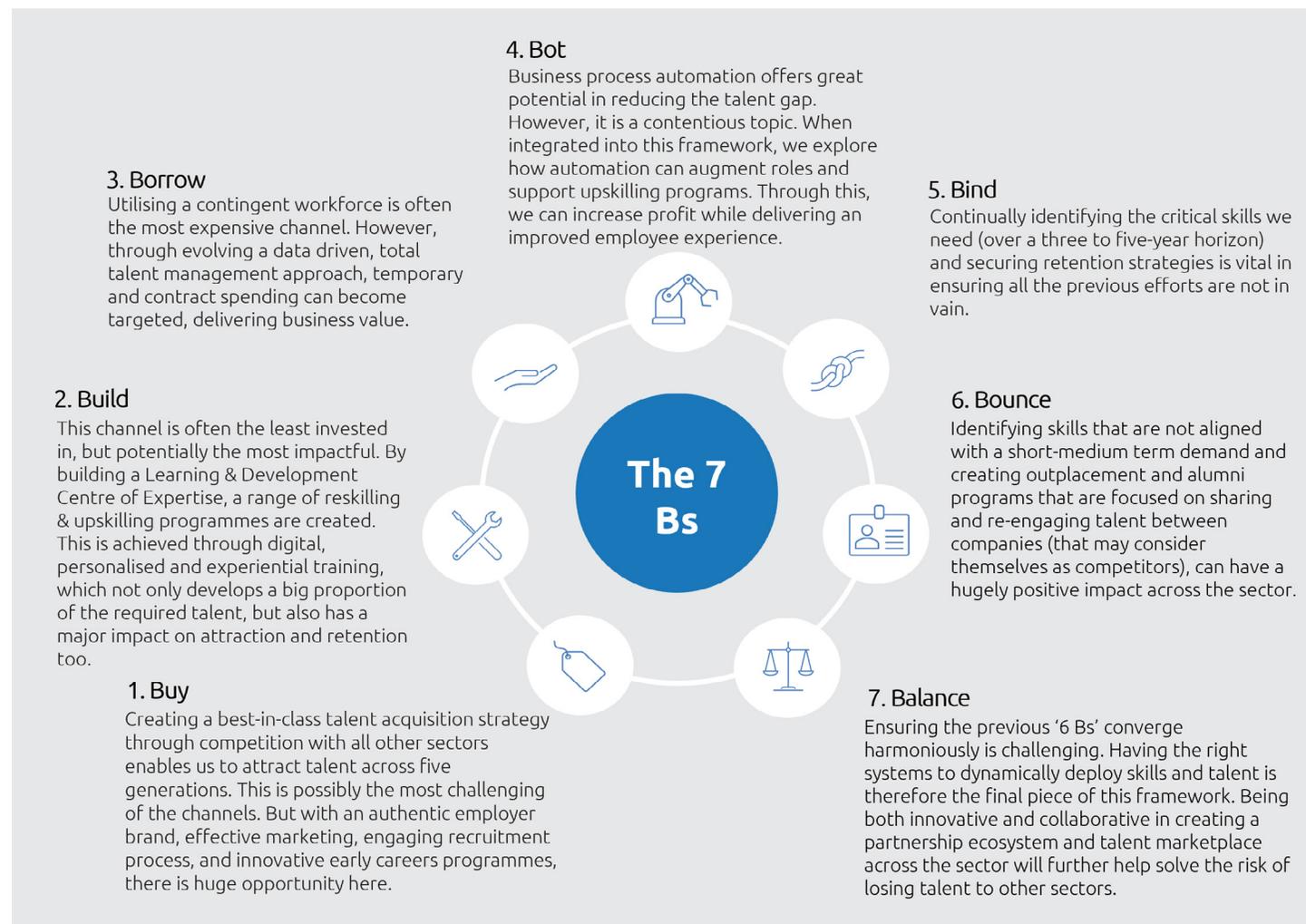
At Capgemini, we have developed a framework for the Energy & Utilities sector, to help combat the net zero workforce challenge. We call it the '7 Bs':

1. Buy
2. Build
3. Borrow
4. Bot
5. Bind
6. Bounce
7. Balance

Individually, the 'Bs' are ways to acquire, develop or augment talent. Together, they form the workforce strategy required to meet the sector and business demand for new jobs and capabilities.

To demonstrate how the 'Bs' can be applied to the global Energy & Utility sector, we will explore **5 global themes** throughout the rest of this chapter:

1. Sustainability and green jobs
2. Automation and simplification of roles
3. Workforce reskilling and job corridors
4. Digitalization and human factors
5. New normal





## Theme 1: Sustainability and green jobs

Delivering net zero targets globally requires a large-scale transformation in the energy workforce. The International Energy Agency's (IEA) net zero pathway estimates a 14 million net increase by 2030 worldwide.<sup>1</sup> The UK will need to fill 400,000 new roles,<sup>2</sup> and the EU projects a net gain of five million jobs.<sup>3</sup>

To realize these workforce growth ambitions, the energy sector needs to overcome the following long-standing strategic challenges:

- **Loss of talent:** The energy sector's highly-skilled and experienced workforce faces a risk of shrinking in the next decade. This is largely due to an impending retirement crunch in major economies. 20% of the UK's energy workforce is set to retire in the next decade, with the US projecting a 10-year retirement rate of at least 26%.<sup>4</sup> Rigid working hours have also impacted retention, with 75% of women reporting that inflexible working hours were a barrier to returning to engineering after maternity and career breaks.
- **Difficulties in attracting new talent:** Competition for STEM talent is fierce across all sectors, evidenced by the

energy industry historically losing out to high-paying sectors such as banking and technology.

- **Lack of diversity:** Poor performance in diversity metrics can inhibit innovation, diminish values, and create a risk of losing talent. The IEA estimates that women only account for 22% of the global energy workforce, despite being 48% of the total workforce.<sup>5</sup> Furthermore, only one in five respondents in the Global Energy Talent Index (GETI) 2021 recognized Diversity and Inclusion (D&I), suggesting the benefits of D&I are not widely recognized.<sup>6</sup>

Talent acquisition and retainment strategies revolve around Buy and Bind.<sup>7</sup> For energy companies, attracting talent requires authentic branding, effective marketing, and an engaging recruitment process. Bind requires a more nuanced understanding of the current workforce, developing Employee Value Propositions and retention strategies.

Changing attitudes among the adult population (especially young adults) presents great opportunities for the sector. 40% of millennials say the employer's performance on sustainability is a critical factor when choosing jobs.<sup>8</sup> Companies must seize the opportunity to

create value-driven employee propositions. An untapped motivator for the workforce is the desire to be directly involved in tackling climate change. Exploiting this through savvy campaigns would make for effective talent acquisition and retainment strategies. National Grid's case study (next page) highlights the importance of effective framing when recruiting talent.

A simple framework can be laid out for retention strategies by formulating effective Employee Value Propositions. The following levers should be considered:

- **SUSTAINABLE DIGITAL WORKPLACE:** The hybrid revolution presents an excellent opportunity to introduce flexible working across the workforce. Championing a sustainable and digital workplace will reduce both costs and CO<sub>2</sub> emissions, without impeding productivity.
- **COOPERATION AND ENGAGEMENTS:** The path to net zero is one of interdisciplinary collaboration. Harnessing peoples' passion means empowering them to engage in outreach programmes and cooperate across sectors (with a focus on attraction into the industry). This has multiple benefits, including instilling a sense of community into the company culture, and stopping wage wars.

<sup>1</sup> <https://www.iea.org/reports/net-zero-by-2050>

<sup>2</sup> <https://www.nationalgrid.com/stories/journey-to-net-zero/net-zero-energy-workforce>

<sup>3</sup> <https://www.mckinsey.com/business-functions/sustainability/our-insights/how-the-european-union-could-achieve-net-zero-emissions-at-net-zero-cost>

<sup>4</sup> <https://cewd.org/wp-content/uploads/2020/12/2019-GapsintheEnergyWorkforce-SurveyResults.pdf> - Center for Energy Workforce Development

<sup>5</sup> <https://www.iea.org/topics/energy-and-gender>

<sup>6</sup> <https://www.theengineer.co.uk/attracting-talent-net-zero-workforce/>

<sup>7</sup> <https://www.capgemini.com/gb-en/2021/06/building-the-net-zero-uk-workforce/>

<sup>8</sup> <https://www.capgemini.com/2020/08/generation-green-is-leading-the-sustainability-agenda/>



**PERFORMANCE METRICS:** Developing effective sustainability metrics (and tracking them) will be key for companies to differentiate themselves. Organisations that have vague sustainability goals are often perceived by Generation Z as ‘green-washing’ and are in turn less trusted.

### Case study: National Grid’s ‘A Job That Can’t Wait’

National Grid’s recruitment campaign, ‘A job that can’t wait’, framed careers within the company as being at the forefront of climate change. This proved to be successful, increasing interest in National Grid’s talent scheme by 760%. Incorporating diversity and inclusion is also critical to Buy strategies.

National Grid has also rolled out its industry flagship program ‘Grid for Good’<sup>1</sup> across both the U.K. and U.S. With both countries facing rising youth unemployment and workforce disengagement, the ‘Grid for Good’ programme aims to support young people with training and employment opportunities. The pilot trials have already helped 1,000 young people across both countries, with the aim of impacting 22,500 people by 2030.

<sup>1</sup> <https://www.nationalgrid.com/responsibility/community/grid-for-good>

<sup>2</sup> <https://www.capgemini.com/gb-en/resources/digital-talent-gap/>

## Theme 2: Automation and the simplification of roles

The energy sector is experiencing a period of unprecedented change. Following decades of underinvestment, energy systems are increasingly becoming a focal point for building national critical infrastructure and empowering consumers, while also facilitating the wider goal of achieving a net zero economy. Coupled with the accelerating pace of technology, companies are seeking to automate and optimize their business processes to stay competitive and align with customer expectations. Within the sector, there are already several prevalent examples of how automation has simplified business processes; namely:

- **DIGITALIZED CONSUMER EXPERIENCE:** The online user experience is becoming increasingly important in the sector. The expected norm for customers today is a fast and intuitive onboarding experience when setting up their online accounts. This includes self-service options and smart phone compatibility. There is also an expectation of ongoing customer communication and user feedback, through push notifications and paperless billing.
- **SMART METERS:** Access to accurate customer data is essential for companies to understand and manage their customer base. Whereas previously, there was a reliance on the collection of manual reads from field

staff, who may not be able to access residential and commercial premises easily and safely. Smart meter devices are therefore able to optimize the collecting and monitoring of customer data.

- **IOT-ENABLED ASSET MAINTENANCE:** Ensuring energy assets and equipment are working safely and effectively is fundamental to running a competitive energy business. However, the manual process of monitoring assets for faults is slow and laborious. Companies are increasingly starting to use a combination of IoT and automation, enabling both predictive and preventative maintenance. In doing so, companies can identify potential risks and manage assets’ down time before faults occur.

Automation and simplification has a profound impact on future skills and capabilities of employees. A recent study by Capgemini Invent<sup>2</sup> showed that:

- 29% of employees believe that their skill set is now redundant.
- 38% of employees believe that their skill set will be redundant over the next 4-5 years.
- 47% of Gen Y and Gen Z believe that their skill set will be redundant in the next 4-5 years.



## How can companies respond?

- First, companies need to plan for the impact that automation and simplification of roles will have on their businesses. This should be done through the creation of a 'build' strategy. This means investing in employee learning and development in both reskilling and upskilling, through digital, personalized and experiential training. Such an approach not only develops the required talent, but also supports retention and attracts new talent.
- Second, one of the main issues facing the industry (in terms of adopting greater automation) is transitioning the workforce to support technology uptake. The workforce's reluctance or resistance to the adoption of technologies stems from the fear of how changes in capabilities, business models and company culture can impact an employee's job stability. It is also important for companies to manage expectations on what solutions they can deliver, and identify processes that can and cannot be automated and simplified. Both strategies can be adopted to overcome this challenge, by highlighting how automation augments roles, and how it aligns with upskilling programmes.

## Case study: Faethm and the German utility provider

Capgemini partnered with Faethm – a globally unique AI analytics platform that predicts the impact of emerging technologies on the workforce.

This technology enables scenario planning that, unlike static reports and studies, can be made specific to any economy at any time, such as industry, geography, company, business unit, team or job.

Capgemini was asked to measure the impact of technology on the workforce, of which 30% is set to be eliminated by 2025. Using the Faethm tool helped to analyze the data, define the future competency framework, set automation focus areas and identify the new roles, and career paths for impacted employees.



## Theme 3: Workforce reskilling and job corridors

Changes within and external to the industry are giving rise to substantive changes in the capability demands of energy organisations. The continued acceleration of data-driven decision-making, new achievements in automation and rapid advancements in energy, increases demand for new roles with specialist and highly sought-after capabilities.

In parallel, the industry is also seeing its core, long-serving foundational workforce entering the latter stages of their individual careers. This has resulted in a continuously shortening runway in which embedded knowledge must be captured. Not only does this enable future innovation, but also ensures the continuity of existing services across the globe.

As an example, within the U.K., approximately 20% of the existing talent pool is set to retire by 2030, while a substantially smaller amount of STEM graduates are expected to enter the workforce. Relevant candidates would need to increase by at least 30% in order to sustain the industry growth required.<sup>1</sup>

As a result of the pending changes to the resource landscape in the sector, approximately one-third of the roles currently in existence will either cease to exist or be transformed into new roles by 2030.<sup>2</sup> When coupled

with expected retirement in the next decade, the urgency in reskilling and redeploying existing talent within the industry is quickly highlighted. Immediate enhancement of transferable skills, cross-pollination between and within firms, and the use of flexible career pathways, will be central to the ongoing success of energy organisations in the future.

The Bind and Bounce resourcing solutions are therefore becoming increasingly important. The global energy industry has historically faced continued challenges in attracting and retaining top talent. This is often attributed to more lucrative career options in other industries, and a lack of long-term career pathway visibility within the energy industry. Employing the methods associated with Bind and Bounce, and most crucially embracing and encouraging movement between organisations within the industry (both locally and globally), will not only stem the outflow of talent, but also continuously increase the richness of existing talent.

In order to continue leveraging its existing resource pool, the global energy industry is embarking on a journey through the Build resourcing solution. This journey sees the reskilling and redeployment of talent into existing and new roles, for which current and future demand is rising. Furthermore, organisations are using job corridors – skill sets that are assessed for roles and/or individuals – to derive a ‘skill set match’ metric to establish the degree to which existing skills may be transferred to required roles.

This helps to maintain existing organisational and industry knowledge while filling required roles through existing personnel. Organisations pursuing strategic upskilling opportunities have reported tangible benefits, including increased productivity, higher levels of employee morale and career progression. This is the result of being entrusted with and executing new responsibilities.<sup>3</sup>

Alongside a widespread personal focus among individuals to contribute to more sustainable operations and outcomes, successes have been achieved, such as those witnessed by Iron & Earth in Canada in the case study. Cases like this are promising in the near-term and increase focus on talent retention and re-deployment. This will be crucial to the timely achievement of net zero ambitions.

### Case study: Fossil fuel industry workers calling for a managed transition to a net zero carbon economy

Canada-based Iron & Earth were faced with a substantive fossil fuel workforce seeking a career in the net zero economy. As a result, they introduced their Renewable Skills/Upstreaming Initiative, empowering indigenous and fossil fuel workers to enter the solar and wind energy market.

Iron & Earth have identified successes in the solar energy system installation, upskilling, and are actively pursuing opportunities to roll-out their program for over 1,000 workers in over 70 communities by 2026.<sup>4</sup>

<sup>1</sup> <https://www.power-technology.com/news/uk-energy-sector-workforce-boost/>

<sup>2</sup> <https://www.euskills.co.uk/download/workforce-renewal-skills-strategy-2020-2025/>

<sup>3</sup> <https://www.capgemini.com/gb-en/wp-content/uploads/sites/3/2018/10/Report-Upskilling-your-people-for-the-age-of-the-machine.pdf>

<sup>4</sup> <https://www.ironandearth.org/>



## Theme 4: Digitalization and human factors

### To deliver net zero, utilities' digital workplaces must become human-centred by design

The COVID-19 pandemic highlighted the need to accelerate the transition to a digital workplace. At Capgemini, we know that a human-centred approach is critical for the successful navigation of this transformation.

So, what does a human-centred digital workplace need to enhance collaboration and employee satisfaction, drive innovation, and reduce time-to-market in an energy and utilities context?

First and foremost, the digital workplace needs to break down siloes in both the ways of working, and the digital tools that underpin organisational processes.

#### Ways of working

Leaders should adopt 'matrix models' of working. This maximizes collaboration across a variety of functions and business areas/units (e.g. across the asset management and O&M functions, or across asset type-focussed operational teams [OHL vs. plant]). These cross-functional teams should explore 'design thinking' techniques, encouraging them to

<sup>1</sup> <https://hbr.org/2016/11/why-diverse-teams-are-smarter>

come together and crowd-source ideas from employees and partners. Homogenous group-thinking is best avoided by workplace diversity. More diverse viewpoints are more likely to lead to new and innovative solutions that are required to reach net zero.<sup>1</sup>

#### Digital tools

Digital tools enable these ways of working. These tools provide whiteboarding, communication and file sharing (like those available in Microsoft Office 365 and others) and are needed more than ever to bring geographically dispersed teams and ecosystem partners together. They also allow the workforce to organise (as needed) in a boundary-less way across specific issues, creating communities of practice.

#### Digital academy

Finally, investments in employee digital and leadership skills (at an industrial scale) is required. Utilities must equip their employees with the right skills to leverage digital tools through a digital academy model. This approach links strongly to the Build channel in the '7Bs' model. Although this channel is often least invested in, a digital academy will ultimately add to the employee value proposition of the energy and utilities sector in a substantial way. Getting this proposition right will be critical to recruiting, reskilling and retaining talent for net zero.

#### Case study: U.K. water utility

Capgemini is supporting the ambitious plans of a U.K. water utility to provide their workforce with the skills they need to close their digital skills gap. This will address the major risk to achieving net zero.

The overarching objective is to define a new digital skills framework and the underpinning learning journeys across three key thematic skills:

- **Digital mindset:** Harnessing the power of new collaborative ways of working.
- **Data literacy:** Using new analytical techniques and visualizations to improve decision-making.
- **Tech savvy:** Leveraging the maximum from investment in digital tools.



## Theme 5: The new normal

COVID-19 has identified jobs within the energy industry as 'essential workers'. So, what does the new normal mean for jobs across offices, control centers and field forces in the sector?

The immediate response to the pandemic in the energy industry saw companies ensuring employees' safety while maintaining operational continuity (e.g. providing sleep pods for control center staff to allow for isolation time).

As we move towards the 'new normal', the trends for office workers are similar to other industries; ensuring people are safe continues to be the priority. The rapid roll-out of digital collaboration tools that enabled people to work together from home has proven to effectively simulate the office environment.

In addition to standard applications such as Office365 and Zoom, investment in increasing situational awareness is rising. The investment 'Bot' reduces the need for 'boots on the ground' as it resources options in active asset monitoring tools (often enhanced with AI and machine learning) and provides augmented and virtual reality capabilities.

With the ability to monitor assets remotely, there is a reduced need for physical inspections by engineers. Remote access to visual information through cameras (with visual information processed by AI/ML), asset data and insights

such as predictions of asset failure and weather impacts, is minimising unnecessary or unplanned asset visits.

Additionally, the use of virtual and augmented reality provides an opportunity for knowledge-transfer and the capability of 'Build'. Pairing together remote experienced engineers with on-site junior engineers delivers benefits for both groups. It keeps experienced engineers safe whilst arming junior engineers (who have their ears and eyes on the ground) with expert coaching and advice on how to effectively intervene and complete their jobs.

More data is put in the hands of the field operator to increase situational awareness. Capabilities that enhance access to information in the field are now must-haves in procurement decisions (e.g. in mobile applications with pre-load options for critical elements to mitigate mobile network access issues).

In control centers, digital twins are enabling improved simulation, ex post facto decision or incident analysis, and accelerated and more effective training. These are critical for the long-term capabilities 'Build' and 'Bot'.

For many jobs in energy, the 'new normal' may not be a straightforward case of hybrid remote working – hybrid may just mean machine with human enhancements.

*As a result of Capgemini's research on the new working paradigm, Energy & Utilities companies reported that, due to hybrid working, they are expecting to save 30% on facilities costs and 33% on operational costs. However, this requires a rethink of how to maintain employee engagement and a sense of community. Our research shows that 51% of Energy & Utilities employees feel disconnected due to remote working.<sup>1</sup>*

<sup>1</sup> <https://www.capgemini.com/gb-en/research/the-future-of-work/> Reinventing work NSO, new working paradigm

## About Capgemini

Capgemini is a global leader in partnering with companies to transform and manage their business by harnessing the power of technology. The Group is guided everyday by its purpose of unleashing human energy through technology for an inclusive and sustainable future. It is a responsible and diverse organization of 290,000 team members in nearly 50 countries. With its strong 50 year heritage and deep industry expertise, Capgemini is trusted by its clients to address the entire breadth of their business needs, from strategy and design to operations, fueled by the fast evolving and innovative world of cloud, data, AI, connectivity, software, digital engineering and platforms. The Group reported in 2020 global revenues of €16 billion.

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