



Skills and training for the green economy

CBI submission to the Green Jobs Taskforce

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People and Skills

Contents

Chapters

Introduction 3

Sector summaries

Home efficiency 4

Automotive 6

Clean energy 9

Full recommendations 11

References 12

Introduction

The transition to net zero and towards a 'green economy' is going to require a range of different skills that goes well beyond what many consider to be 'green skills'. As well as industry specialists and technical skills that will continue to evolve with new technologies, successful transition will require more people with broader skills that match the demands across the wider economy, such as digital, management, and people skills¹. It will also be important to successful transition that training can be topped-up over time as even some technical skills to be learnt now will be outdated as technologies progress well before transition is completed.

This paper has been developed in consultation with businesses, trade bodies, and education providers that will have a key role in delivering net-zero in the UK. The paper focuses on three industries with the most immediate and pressing targets to decarbonise the economy: home efficiency, automotive and electric vehicles, and clean power. At present, skills and training is misaligned to the needs of these key industries, and there are serious concerns about the availability of current skills along with the training available to upskill people into the new roles that are emerging. There is also an immediate demand for skills and training due to the short timescales for delivery, which are partly brought on by government targets in industries undergoing decarbonisation.

In addition to issues relating specifically to each transition, we identify three challenges that apply to all sectors of the green economy which the government needs to consider:

- 1. Lack of awareness of the green economy** – at present there is a huge task in educating the public about the path to net-zero to support the growing consumer market and stimulate demand. Without a stronger brand, individuals are less likely to consider career opportunities in the home efficiency, automotive and clean power.
- 2. Stability and direction through government policy** - the Government's Ten Point Plan for a Green Industrial Revolution sets a broad vision for the priority sector transitions needed to achieve net-zero emissions. This direction is helpful for business and policy makers, but it stops short of offering a full net-zero strategy from government, and businesses are looking for more certainty to help invest with confidence. The threat of changing government policy, particular support schemes such as grants and funding, is a risk to business, which can be offset by long-term policy commitments and goals.
- 3. Transitioning into changing industries and new jobs** – industry will have a major role in preparing their workforces for change, meaning huge amounts of upskilling. However, anticipated changes also likely to see some people leave the industry rather than retrain, and new workers with better matched skills join. There is an important role for government to support more fundamental retraining that keeps people in work, and to support transitions between industries.

Sector Summaries

Home efficiency

The sector has a high number of job opportunities available now

At the heart of the government's 'Ten-Point Plan for a Green Industrial Revolution' is 'greener buildings', recognising the importance of both making buildings, particularly homes, more energy efficient and moving away from reliance on gas. The CBI's 'Green Recovery Roadmap' similarly places progress in this area as a top-priority to reaching net-zero. However, with a third of UK emissions coming from heat, the challenge is stark. Last year the CBI called for both long-term investment and a strategy with strong mandates in several areas to reach this goal. This included mandating that after 2025 all new boiler installations must be part of a hybrid system or be 'hydrogen-ready' and, by 2035, that no new natural gas boilers should be installed. Instead, only zero-carbon solutions such as air and ground source heat pumps, hydrogen-powered boilers and heat network connections should be installed.

Whilst exact numbers are contested, there is no doubt that new job opportunities will arise due to these changes. The government estimates within its own green economic recovery plan the move to greener buildings could support around 50,000 new jobs by 2030. The Energy Efficiency Infrastructure Group estimate that energy efficiency upgrades could support over 150,000 skilled and semi-skilled jobs to 2030². Across the construction landscape, the Construction Leadership Council estimate the need for an additional 500,000 trade positions, more than double the existing workforce, to meet even a minimum EPC 'C' target by 2030, as well as 50,000 Retrofit Coordinators³. But to gain from the opportunities and meet the timescales outlined, the training must start now.

There is huge variety in the types and levels of skills and training required across industry

Changing technologies in the sector will bring new skills demands, for example, in digital, which will be required both of engineers and tradespeople, but also supporting functions. The rollout of smart meters in homes exemplifies this change whereby home technicians have needed to adapt to an increasingly digital role. There will also be new roles and jobs created not within the typical technical trades, for example retrofit coordinators and project managers. The sector has few professionals with these skills at present and will need to both train and recruit to meet demand. The range of skills demand will also vary significantly, and retrofitting will require qualification levels 2-4 for heat pump installers, levels 3-7 for data analytics, and higher-level digital roles right up to level 6 and 7.



The Institute for Apprenticeships and Technical Education (IFATE) are in the process of reviewing current apprenticeships and their suitability for net-zero. During this process they should urgently engage with the home efficiency sector to identify where new apprenticeships can be designed to meet the demand for technicians, as well as looking at existing apprenticeships in digital, for example, which could be adapted to meet the digital skills required in the sector. At the same time, the sector needs training that can offer quicker upskilling. It will be the case that some will need time to retrain, perhaps on an apprenticeship, but as the Construction Leadership Council highlighted, there are many that already have the transferable skills that need honing and deploying very quickly through topping-up, rather than wholesale qualifications⁴.

The sector is currently lacking coordination and credibility in training

The government's highly ambitious targets for heat pumps means that the skills needed to retrofit homes need to be delivered immediately. However, there is currently a lack of coordination across the market which largely consists of sub-contractors and SMEs. Self-employed and small firms (usually fewer than 50 employees) accounted for over three quarters – 543,000 – of people working directly in the sector at the start of 2019⁵. This makes renovating homes a complicated and bitty process and creates a huge challenge for the sector in bringing about coordination and credibility in providing the right skills and training that are needed to transition into a new market. At present, much of the sector is siloed where trades and cross industry standards do not align. A recent IPPR report labelled this a 'collective action problem', where incentives designed to stimulate training and employment are poorly aligned with reality⁶.

It is vital that core standards are developed, backed by a national framework, and are recognised by the entire sector. The new PAS 2035 retrofit standard framework is a positive step in this direction, building towards a unified accreditation, but it will also require a big step-up in skills requirements for many working in the sector. Further down the line, PAS 2035:2019 will become the most comprehensive standard of the entire Retrofit Standards Framework, including everything from assessment, design and monitoring. This 'whole-house approach', in recognition of the fact that there is no solution set that will fit all circumstances, will add even greater pressures on those working in the sector to reskill⁷.





Automotive and zero-emissions vehicles

An exciting but still uncertain future

The UK's automotive industry has some of the most ambitious and challenging decarbonising targets across UK industry, but it is also an industry that has huge potential to evolve, create new jobs, and make significant inroads to reaching net-zero. With the government setting a 2030 deadline for the end of the sale of new conventional petrol and diesel cars and vans, and hybrids after 2035⁹, this is a clear focus of the industry. The phasing out of diesel and petrol vehicles will create two main areas of job opportunities: electrification and battery production. Over the next ten years 120,000 job roles could be impacted, including an estimated 80% of roles involved with powertrains⁹ meaning many will either need to upskill in their existing role or transition to a new role altogether.

The path to net-zero for the automotive industry is an exciting change and one that industry is fully signed-up to. What does remain, however, is the degree of uncertainty that is presented from the plethora of technologies that certain parts of the industry can pursue. This is particularly the case in haulage where options are still being explored around electric vehicles, hydrogen, or low-carbon fuels. The government's planned consultation this year on a phase out date for new diesel HGVs will help give business certainty about the technologies and skills they will need to invest in.

Providing a smooth transition through funding and increased support

The UK is becoming a leading market for electric vehicles, with sales accounting for 6.6% of all car sales in 2020, an increase from 1.6% in 2019¹⁰. In 2021, several international automotive companies with significant UK manufacturing and sales have confirmed plans to switch towards electrified vehicle choices through the 2020s. The industry will have to manage a fair transition for workers and as new technologies are adopted, as well as deal with an ageing workforce due to high retention rates, meaning all levels of the existing workforce must be supported in reskilling.

A large part of this change will see the industry need to upskill their workforces, which the CBI's latest report on reskilling, *Learning for Life*, found will generate positive returns on investment 80% of the time¹¹. However, the investment of more substantial retraining is much more variable for employers and often sits around 25%¹². This suggests that there will be a market failure that government can help to address. While retraining will generate returns for the sector, the individual companies making investments may well not.

In addition to supporting retraining, government will also need to support those workers who will need to transition to new work rather than remain with their current employer, or even in the sector. Alongside funding for skills and training, it's vital that the government provides careers guidance and support for individuals who will need to gain new skills to change sectors because the jump in skills to remain in the sector is too large. These workers' needs will include help understanding their career options and helping them to break down barriers to learning. In *Learning for Life*, the CBI recommended turning 'Job Centres' into one-stop-shop 'Jobs and Skills Hubs' to support workers looking to retrain¹³. Given the tight timescales for the sector, government should work with Combined Authorities, LEPs, Growth Hubs, Local Authorities, colleges, universities, and businesses, to prioritise setting-up 'Jobs and Skills Hubs' in the regions and sectors where jobs decline has the highest risk.

The sector has a demand for sector specific technical skills

Unlike any other sector in the UK economy, the automotive sector faces immediate skills challenges related to three specific areas of government policy: industrial decarbonisation, ending the sale of new petrol and diesel vehicles by 2030 (and hybrids by 2035), as well as developing a network of UK Gigafactories and ramping up our domestic battery supply chain.

In particular, the transition to a future of autonomous, connected, and electrified vehicles requires highly skilled personnel at a rapid pace in a competitive global labour market. The Society of Motor Manufacturers and Traders (SMMT) identified skills needs in industrial chemistry, electrical engineering, virtual modelling, software design, cyber security and digital science, engineering, and architecture¹⁴. New technical skills will be vital when new cars enter the network, meaning the entire technical education system will need to evolve, including in apprenticeships, T-levels and technical qualifications that are being developed under the National Skill Fund, which includes more flexible and modular provision.

Delivering skills for the sector will need a good mix of provision

The apprenticeship brand is strong across the sector but there is still plenty of work needed to develop the training courses for future technologies, notably standards for electric vehicles. Employer-backed trailblazer groups for the sector are working to develop these, but equally, apprenticeships cannot be the only provision that supplies skills for jobs in this area. Apprenticeships take a minimum of one year to complete and for the individuals who already have a good base of industry and workplace skills, they would benefit from shorter, modular, and faster upskilling to learn new industry skills and hit government's target.

The Automotive Council Skills Working Group calculated that the industry sector needs £2.4 million for design of these new courses¹⁵. This will require a mix of flexible and modular training that is aligned to both the skills demanded of employers, as well as the demands of individual learners. The government's launch of the Skills for Jobs White Paper recognises the importance of this kind of provision and makes positive steps in this direction, although, the current 2025 delivery timetable for the Lifetime Skills Guarantee will be too late for a sector that is already embarking on a tight net-zero target.

Developing technical bootcamps for fast upskilling

The 'bootcamp' training model is one training method that has industry support and can support the rapid upskilling of both those in work and those seeking work. The government is currently rolling out 'Digital Bootcamps' through the National Skills Fund across several regions in basic digital skills, maths, and literacy. Expanding this to technical upskilling would allow an employer to draw upon supplementary support for certain employees who have the most acute retraining needs.

If developed, the model would see financial support from the government, with the employer committing to paying salary through the process and allowing time off to train, on a programme that could span for 12-16 weeks. This model could also support employers in recruiting from across the automotive sector. Content would need to be industry-driven and applicable to the wider sector, and should look to complement existing provision, such as apprenticeships.

Its import to build net-zero into all parts of the education system

Private training providers and in-house training will undoubtedly be the key drivers in meeting the more immediate and short-term skills demand in the automotive industry. But more generally, the long-term changes to the sector will require educating and learning right across education system. At school level, students should gain a broad awareness of the transition to net-zero, which could also be supplemented by good quality online learning courses teaching core STEM skills that the automotive industry are calling for. Beyond formal education, the government should also seek to implement higher levels of technical knowledge that can be delivered via online courses and could encourage routes to more specialist training within the sector. The government's Skills Toolkit, rolled out during the pandemic to support online learning, should look to develop content that supports career guidance and transitions into green industries.





Clean energy

Opportunities in clean energy will replace jobs fossil fuels

In recent years, the power sector has undergone a fundamental transition, with the retirement of large coal-fired power stations that used to generate most of the UK's electricity, the rapid growth of renewables, and proliferation of smaller-scale power generation and storage. As part of this transition continues, jobs and the skills they require will keep evolving too. The most pressing change will come from oil and gas sectors, who are responding to legislative and consumer demands. This crossover is going to continue to accelerate. There is a risk to livelihoods that have previously relied on the sector, but this can be minimised by supporting workers to understand the relevance of their skills to growing power industries such as wind power, next generation nuclear, hydrogen, carbon capture, utilisation and storage (CCUS), and bio-energy with carbon capture and storage (BECCS).

Nuclear is one industry that is still growing and has the potential to provide new employment from declining parts of the energy sector due to the many transferable skills across both industries in both technical skills and other areas such as project management. New nuclear construction, the decommissioning of the existing nuclear fleet and the UK's position as a global centre of excellence in nuclear skills mean this is a sector that can provide vital employment for decades to come. Hydrogen, another growth area, could unlock £18bn in GVA by 2035 and support 75,000 additional jobs according to Imperial College Consultants/Hydrogen Taskforce¹⁶. For employers currently operating in the gas sector, this is a new growth opportunity that will require radically different sets of skills and training for a significant part of their workforce. Technical knowledge will need to adapt to new practices, but the operational sides of most businesses will also need upskilling or a top-up of skills. Some of these changes may be further down the line in comparison to home efficiency for example, but for the wider industry it is important that skills and training begins the process change well in advance.

Delivering skills will need a good mix of provision

It is vital that apprenticeships are designed to support both new talent and transitions across sectors, and there are well-established apprenticeships that exist, for example in wind power. However, more generally, the apprenticeship system remains too slow to respond to change and it can often take years to develop new standards. Furthermore, as with the other sectors identified in this paper, a good mix of qualifications will be vital to supplement the apprenticeship system. Certain employers in the electrical supply market are in the unique

position of being able to utilise 100% of their apprenticeship levy funds to train variety of levels and types of professionals, yet they still desperately need modular and more flexible courses to meet their skills needs.

Standards, safety, and regulatory environment is of a very high standard in this sector, and the training developed must meet the rigour required. The industry also needs multidisciplinary individuals in a variety of different roles, not just technical, such as project managers, digital skills, and accounting for skills demands of wider supply chain roles. The training for these skills can be drawn upon from outside the green economy and training does not have to mean completing an entire course. This is more akin to cross-skilling, whereby individuals will be able to learn new skills in a modular and more flexible method, via an intensive course like the 'Digital Bootcamps' currently being piloted by government and profiled in the previous section. There is a huge role for this industry to be driving the future training markets, working alongside providers and government in doing this.

Government must provide support for those transitioning from declining industries

At present, one of the biggest challenges appears to come from the skills gaps between those working in greener industries and those still working in 'brown industries'*. Nesta estimate that 68 per cent of workers in what they define as 'industry leaders'** are high-skilled employees, compared to 27 per cent for those working in 'laggard industries'***, while most low and medium-skilled employees working in the brown sectors. As is the case with the automotive industry, it will be vital for government to support workers where they are displaced with training, support, and careers guidance so they are able to transition into the 'leader' industries.

***Brown sector** - The brown sector consists of industries with high carbon emissions.

****Leaders** - Industries in this category are the most eco-friendly, as they do not produce high levels of carbon emissions and are involved in activities that directly protect the environment across the economy.

*****Laggards** - Industries in this category produce high levels of carbon emissions and are not involved intensively in activities aimed at protecting the environment.

Source: Going Green Preparing the UK workforce for the transition to a net-zero economy, Nesta, 2020.¹⁷

The most crucial aspect to transitions is locality, with certain regions likely to need more attention than others during the decarbonising process. For example, a paper by Vivid Economics and Drax identified that through a combination of elements of BECCS, CCUS and Hydrogen, the Humber industrial cluster will help accelerate the UK-wide buildout of the CCUS clusters needed to hit net zero. However, they also found that the Humber region has very specific skills gaps, in part due to the region having a lower proportion of school leavers achieving NVQ stage 2 or beyond¹⁸.

Encouraging and supporting individuals to gain new skills, especially if they have not participated in training for many years or decades, will be a vital component of 'Jobs and Skills Hubs', as mentioned in the previous sector summary. Attention must also be focused on the regions that will see the biggest declines in jobs due to decarbonisation, ensuring that new job opportunities, career support, and skills and training are presented to those who will see their job displaced. With a clear direction from government, and supported by industry, we can accurately map these interventions and build an education system that is able to respond to rapid change. Without these changes we cannot deliver on the UK's net-zero goals.

Full Recommendations

For careers advice and training support

1. Government should introduce support for training and careers guidance through 'Jobs and Skills Hubs' targeted at the sectors and regions where jobs are at risk. This would be most effective in the automotive industry and parts of the energy market, such as oil and gas sectors, who face rapid declines.
2. The Government should develop further content on the Skills Toolkit which supports development of skills pathways into green industries. A broad base of content such as basic digital skills, right up to more advanced project management should be on offer and should be backed by careers guidance that points towards 'green industries' and 'green jobs'.
3. Employers should work alongside the Careers & Enterprise Company (CEC) to promote 'green' career paths, linking with schools and colleges to offer support for all young people in growing green sectors. The CEC should aim to break-down stereotypes and raise awareness amongst sectors that are historically less attractive, for example construction and engineering.

To develop new quality industry standards

4. The Government should bring forward its 2025 delivery goal of the Lifetime Skills Guarantee to deliver the training needed in priority green sectors and help these industries meet Government decarbonisation targets.
5. The National Skills Fund must provide the skills and training for individuals both in and out of employment and support transitions into new green jobs. To deliver this it needs to:
 - Fund modular and flexible courses that will allow individuals to grow their skills without the need to complete a full qualification, such as an apprenticeship.
 - Cover a variety of training courses including both industry specific technical training, as well as training in cross-industry skills such as digital and project management skills.
 - Develop the 'bootcamp-style' model of training and expand into providing "Skills for Green Jobs Bootcamps" as a pathway to quickly upskill workers into the retrofitting market, as well as look to develop similar models for roles in the automotive sector.
6. The Institute for Apprenticeships and Technical Education (IFATE) should use their ongoing review to engage with employers and sectors and understand to skills demand in the green economy. As part of this, it needs to:
 - Evolve existing apprenticeship standards and develop new quality provision that will supply new skills to the green economy.
 - Ensure that apprenticeships are linked with other types of provision, allowing an individual to top-up their skills using modular and flexible content to build on their existing qualification, without having to complete an entirely new qualification
 - Apply a similar process to the development and rollout T-level routes across the green economy, ensuring that course content is designed to provide both the technical training and broader occupational skills required, such as in digital and project management.
 - T-levels development should prioritise the immediate pressures on the green economy, particularly where there are pressing targets, and should look to review and evolve T-levels to respond to new technologies as the path to net-zero continues.

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Produced by Nic Trower and the **People and Skills** team
To share your views on this topic or ask us a question, contact:



Nic Trower
Senior Policy Adviser
nicholas.trower@cbi.org.uk