

Green Jobs

The IET's response to the Inquiry on Green Jobs.

The Institution of Engineering and Technology (IET) is Europe's largest professional engineering and technology organisation with 168,000 members drawn from industry, academia and the public sector. The members represent a wide range of expertise, from technical experts to business leaders, encompassing a wealth of professional experience and knowledge. Our primary aims are:

- to provide a global knowledge network, promoting the exchange of ideas between business, academia, governments and professional bodies, and enhancing the positive role of science, engineering and technology
- to address challenges that face society in the future.

We would be happy to discuss our response in more detail and provide examples and evidence from our extensive networks of engineering employers and academic partners. Please feel free to contact us to arrange this by emailing sep@theiet.org.

Many of these responses came from the upcoming *IET Skills for Net Zero and a Green Recovery* survey. The Institution of Engineering and Technology's (IET) annual skills survey this year is focussed on the skills requirements for delivering the UK Government's net zero target by 2050, the subsequent impacts of COVID-19 on engineering employers, difficulties in recruiting engineers and employer perceptions of the engineering skills gap. For more information on the IET's work on climate and sustainability please [use this link](#).

Recommendations:

- Government must provide funding and certainty within engineering to enable increased investment in Net Zero skill creation and upskilling, and recruitment of those skills.
- Government should help foster the relationship between academia and industry, matching businesses of all sizes with academic establishments.
- Investment in a range of skills is needed, which should be taught in traditional academic settings, vocational settings and in a way employees can upskill whilst working.
- Government should secure investment in these skills and ringfence investment for future years.
- Industry should provide more hands-on work experience for students to learn these skills
- Academia should improve the knowledge of the Net Zero challenge to encourage even young children to develop necessary skills from a young age.
- Academia and Industry should work to create skills for a Net Zero economy, including skills such as project management, strategic skills and agility skills, which are required by industry.
- There should be a collaborative effort to open pathways for employees and students to gain these necessary skills.

Answers to questions:

- **What estimates are there for the jobs required to meet the pathway to net-zero emissions and other environmental and biodiversity commitments?**

For the manufacturing sector to meet Net Zero, it is estimated that employment in the sector must rise by an additional 15%. These jobs will help create innovation, processes and for key skills that will drive for Net Zero. There are skills in the economy to continue work to Net Zero, such as is outlined in the [IET Scaling up Retrofit 2050 Report](#), which could achieve higher value Net Zero accomplishments. Improvements in Artificial Intelligence could see these jobs become more specialised or increase the proportion of high value jobs in relation to low value. It is difficult for the sector to employ this workload and invest in this technology with the ongoing economic uncertainty. More certainty, or certainty of funding, will be required to ensure jobs are created and recruited for properly to meet the pathway to Net Zero emissions.

According to our *IET's Skills for a Green Recovery Report*, undertaken by business in 2020, a small majority of engineering employers (55%) have a sustainability strategy. Of those with a sustainability strategy, two thirds (67%) say it's integrated into their overall business strategy.

- **Does the UK workforce have the skills and capacity needed to deliver the green jobs required to meet our net-zero target and other environmental ambitions (including in the 25-year environment plan)?**

As stated previously, according to our *IET's Skills for a Green Recovery Report*, undertaken by business in 2020, a small majority of engineering employers (55%) have a sustainability strategy. Of those with a sustainability strategy, two thirds (67%) say it's integrated into their overall business strategy.

Implementing sustainability strategies within organisations requires new skills. Employers are divided as to what type of skills their organisation will need in order to deliver the sustainability strategy, with equal proportions citing the need for innovative thinking (62%), management strategic skills (60%), and agility skills (60%).

However, employers whose engineering/technical staff do need additional skills as a result of changes to lower the organisation's environmental impact are divided about what skills their staff need. Roughly equal proportions report needing each type of skill they were questioned about, from efficiency (59%), and innovation skills (56%) through to management (53%) and delivery skills (53%).

Large businesses with 250+ employees are more likely than average to say their engineering/technical staff need innovation (59%) or delivery skills (57%). Employers in IT and communications cite needing management/strategic skills (65%), while those in construction need both management/strategic (63%) and delivery skills

(63%). Those who employ degree-level engineers say their staff need innovation skills (59%), while those who employ apprentices say they need both innovation (59%) and efficiency skills (62%).

Fewer than one in 10 engineering employers with a strategy think their organisation has all the skills they need (7%). This needs to be rapidly changed to meet the Net Zero target. Skills to implement this strategy must be taught and recruited urgently to prepare for the years ahead. Government must work as a partner with academia and industry to ensure skills that are required are produced.

Most engineering employers who need skills to deliver their sustainability strategy say they will upskill/retrain existing employees (60%), while just under two fifths think their organisation will hire new employees who have the necessary skills (38%).

Under a third will automate tasks within their organisation (31%). Thus it must become easier and more cost-effective for employers to retrain and upskill existing staff whilst producing new skills through the academic pipeline.

Large businesses, SMEs and start-ups will require different skillsets to move toward a green economy, which must be recognised in Government thinking on the issue. Different skillsets will also be required dependent on the location of the business because of the movement toward large population centres such as London, Birmingham and Manchester. It may be that project management skills are required for greater value in Great Grimsby than in London because of the quantities of people able to already do that role in a certain location, for example.

- **What needs to be done to ensure that these skills and capacity are developed in time to meet our environmental targets?**

To ensure there are more skills and capacity developed to meet environmental targets, the Government must foster greater relationships between industry and academia at all levels. Young children must begin learning about the environmental targets and ways to engineer a difference to prepare them in later life to take on these skills.

A mismatch exists between the desire from engineering employers for increased employer engagement and the amount of employer engagement with the education system. A quarter (25%) of engineering employers don't have any collaboration with schools, colleges or universities. In general, SMEs and start-ups have far less collaboration than larger companies and Government should particularly help foster these links to create more innovative thinking around green jobs and environmental skills.

Where engineering employers do engage with the education system, this is most commonly by offering apprenticeship partnerships (35%), paid internships (28%), employees talking about their industry (27%) or pupils visiting the workplace (26%).

Funding on skills must come from Government spending, or from secured, long term investment in certain industries. Companies cannot invest in speculative skillsets and must be confident that the long term aims and investment will remain.

- **What measures should the Government take to ensure that its proposals to meet environmental targets do not by default lead to jobs in affected industries being exported?**

Public procurement should be linked to creating apprenticeship schemes and support for other skill-focused schemes. This will ensure the correct skills are taught and localise skills for employers. Manufacturing, as an example, is a high efficiency skills area which could benefit from this type of procurement.

- **Are the Government's ambitions for green job creation in the public and private sectors sufficient for the scale of the challenges? What changes should be made?**

Yes. However, there must be a green metric to measure progress as we move forward. In June 2019, the UK Government introduced a target to reduce the UK's greenhouse gas emissions by 100% before 2050. Some emissions can remain if they are balanced by schemes to offset an equivalent amount of greenhouse gases from the atmosphere to a point where effective emissions are zero. The vast majority of engineering employers are aware of this target (85%) and around half (53%) think it is achievable for their organisation to achieve net zero by 2050. However, they are less assured of the UK's overall success in meeting this target

Engineering employers understand their responsibility to tackle climate change and are taking steps to improve sustainability. There must be a push to create skills from vocational courses. However, a number of challenges continue to hold them back. This includes finding job applicants with the necessary technical skills and an understanding of the realities of work in their industry. This is particularly an issue when it comes to new graduates. To overcome this, the Government should help:

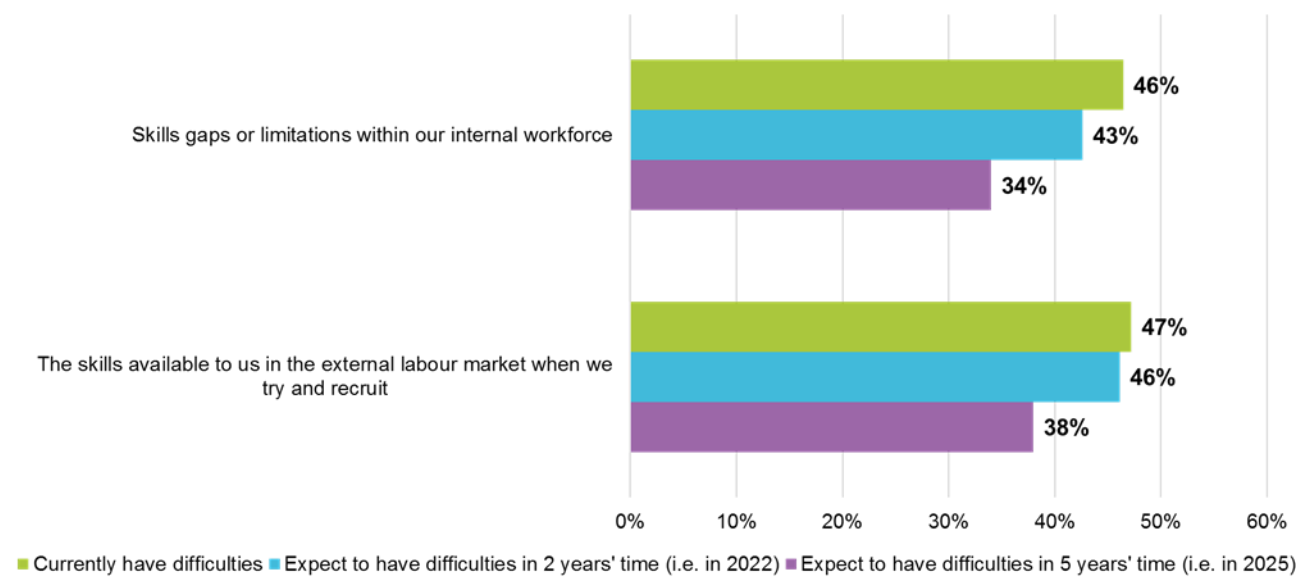
- Collaborate to improve work-readiness of new recruits. Industry and educators, including universities, further education (FE) colleges and schools, should work together to improve work-readiness to equip young people with skills needed to tackle complex multi-disciplinary activities. This includes non-technical skills such as teamwork, communications and project management.
- Improve the understanding of the net zero challenge. Industry and educators should work together to ensure that young people have a good understanding of the importance of sustainability and surrounding issues, in addition to how it needs to be related to the development of new processes and products that will ultimately benefit society.
- Provide meaningful and valuable work experience. Industry and educators should offer hands-on work experience and placements wherever possible. This will help inspire young people and give them the opportunity to put their learning into context. 60% of engineering employers think the UK education system should prioritise more opportunities for relevant work experience.

- Encourage greater opportunities in SMEs. Government and large corporates should help SMEs provide work experience. This will enable young people to gain an all-round understanding of sustainable development across the supply chain, and experience of business development and entrepreneurship.
- **How can the UK ensure jobs are created in areas most impacted by the transition to a low-carbon economy?**

The UK Government must promote a green post-pandemic recovery in every economic sector within Britain. Economic uncertainty leads employers to re-evaluate their priorities, but this uncertainty should be considered an opportunity to support businesses towards a green recovery, with the intention of a more sustainable future.

88% of engineering employers with a sustainability strategy say their business needs new skills to deliver. Of those, 38% will hire new employees with the necessary skills, while 32% will hire apprentices/graduates to train them up. There must be a pipeline of skills being created that these companies want to fulfil the recruitment necessities of the future. 49% of those who are not able to fill skills gaps cite pressure to reduce costs as the major reason they cannot do so.

However, recruiting staff with new skills is the lowest priority for engineering employers (35%) and continues to be the case in their expectations in one year (35%). Twelve months ago, however, recruiting staff with new skills featured higher in employers' priority ranking (38%). This figure could have been infringed by the COVID-19 epidemic, but recruitment remains a low priority for industry.



Nevertheless, thinking ahead to two years from now, very similar proportions of engineering employers expect they'll be facing similar difficulties with recruiting. This is demonstrated to be more difficult when looking five years into the future, because of higher levels of uncertainty reported, resulting in smaller proportions who can say they expect to have difficulty with internal skills gaps (34%) or external skills recruitment (38%).

Among engineering employers currently experiencing a skills gap or limitations in their internal workforce, it's by far in engineering where they're seeing the greatest skills gap, with one in two (53%) reporting this.

Overall, government must provide certainty by planning long-term. It's essential that government provides long-term planning and guarantees investment in these skills through future governments. Industry must have the confidence to invest in infrastructure and skills in order to work on major projects. There is also the incentive argument. In our survey, 57% say financial incentives for new greener technologies would encourage their business to do more to lower its environmental impact.

- **What contribution can green jobs make to the UK's economic recovery from Covid-19?**

COVID-19 could have a negative effect on recruitment of skills into the engineering profession, particularly those in which we need more skills for greater economic and ecological value. Engineering employers in the construction industry (26%) are most likely to have decreased wages for some or all staff.

The COVID-19 pandemic has had an impact upon employment and pay in the engineering sector. Other common actions that engineering employers have taken in response to the impact of coronavirus were freezing recruitment (41%), making redundancies (34%) and delaying planned wage increases (34%).

Large organisations are more likely than SMEs to have frozen recruitment during the COVID-19 epidemic (47% compared with 34%). Notably, micro employers are those who most often say they have not taken any workforce measures in response to the impact of COVID-19 and have no plans of doing so (20%). This could be an indication of lesser capability to do so, but potentially also lesser need.

Among engineering employers who have or are planning to make redundancies as a result of the impact of COVID-19, the majority (55%) report that this will result in permanent redundancies for up to 10% of their workforce. A fifth (21%) say that between 11% and 24% will be made redundant, while 12% say this will be the case for between 25% and 49% of their workforce. Only one percent say that more than half will be made permanently redundant. This is the opposite of what the industry needs to improve the green economy, which should be the cornerstone of the UK's economic recovery post-COVID.

As previously stated, more pathways need to open to get young people into green jobs and to reskill those already employed within engineering. This includes apprenticeship programmes, modular courses and academic / industry partnership to match the correct skills with the correct business. More funding needs to be provided to create long-term stability, providing both academia and industry with the assurance that these skills can be created and developed long term. High value, skilled jobs, need to be expanded at a rate to reverse these job losses and build on successive ecological and economic successes.

- **How can the UK ensure high emissions are not locked-in when tackling unemployment?**

The global economic downturn has resulted in improvements to air quality and reductions in carbon emissions. This has brought the challenge of responding to climate change into sharp focus.

There should be encouragement to replace older equipment with new equipment which produce less carbon. The government can encourage this through a better capital allowance than there currently is. It will create jobs through the necessity of knowledge of skills to use better equipment.

Similarly, there should be more curbs on sending scrap materials to foreign countries to repurpose and sell back to the UK. UK manufacturers could be procured to repurpose certain products into other products, such as plastic into clothing on scale. This would increase employment throughout the UK whilst tackling high emissions.

- **What measures should the Government take to ensure that its proposals to meet environmental targets do not by default lead to jobs in affected industries being exported?**

Due to underfunding in manufacturing, there are limited opportunities for a large number of high tech manufacturing green jobs in aggregate, compared to some Asian and German economies that have comparative advantage in.

Britain also offshores much of its low value manufacturing, sending scraps of little value abroad, to be re-manufactured into high value items, of which we buy, effectively paying twice for the same materials. This type of practice should stop and will create new jobs.

A study on these types of manufacturing processes is needed, looking at how to replicate parts which help with the Green Economy. This will require skills as stated previously to create and produce materials whilst making new green jobs.