

Written Evidence - Environmental Audit Committee Inquiry into Green Jobs

Introduction

1. Enginuity is a not-for-profit engineering sector organisation with a focus on skills. We combine our heritage in the sector with cutting-edge data science to create practical interventions on skills for individuals, educators, and engineering and manufacturing employers.
2. This evidence will focus on two of the questions posed by the Committee in its inquiry, although some of the points made and sources included may be relevant to other questions. As Enginuity is an organisation with a focus on skills, the questions on which we have chosen to concentrate are:-
 - i. *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)?*
 - ii. *What needs to be done to ensure that these skills and capacity are developed in time to meet our environmental targets?*

Government policy and practice

3. The most comprehensive officially published description of the green skills needed in the UK economy is defined and listed in the government report *Skills for the Green Economy*. Published in 2011, much of the content of the report is now out of date and the architecture for the development and management of green skills as outlined no longer exists, with the UK Commission for Employment and Skills (UKCES) having been closed and the Sector Skills Councils (which included Semta, the organisation from which Enginuity was created) no longer having any statutory role in the standards process in England. In addition, until recently the Skills Minister had a joint remit as a Minister in both BEIS and the DfE, but the Minister now solely belongs to the DfE. This means that although there is an alignment of energy policy and industrial policy, as demonstrated through the government's Industrial Strategy, skills policy is potentially now disconnected.

- 4.—In engineering and manufacturing employers have been keen to get involved in apprenticeships standards development and to ensure that the apprenticeship standards developed are reflective of employers' skills needs. However, at present the evidence considered by IfATE in the approval of new standards for development must be based on current labour market need and supply - which risks standards being developed now which may quickly become out of date or fail to respond to change.
- 5.—Given the long-term importance of a sustainable, green economy, and given the pace of technological change in sectors such as engineering and manufacturing, it would be useful if there were a mechanism through which standards that require review could flex to meet change rather than a 3-5 year review period. Employers in this sector are currently calling for a 20% digital flex. Research undertaken by Enginuity for IfATE as part of the Engineering and Manufacturing route review found that two thirds (66%) of employers surveyed would find a fast-track process to meet the pace of change extremely valuable.
6. A joined-up approach, which links standards to industrial strategy, is needed to ensure that there is an adequate supply of workers with 'green' skills and knowledge of for example environmental impact of working practices and out of date technologies. At present, IfATE's board includes a non-executive director of the DfE but there are no board members from BEIS, despite BEIS having an obvious interest in skills and managing key policies which have strong skills focus such as Made Smarter, but also environmental practice. The impact of this is that there is no formal means to ensure that the work of IfATE and the employer groups developing apprenticeship standards for example is effectively aligned with industrial priorities or the government's green economy agenda. This is further explored in a recent report on the government's Net Zero target, published in December 2020 by the National Audit Office.
7. The implication of the above paragraph with regard to ensuring a ready supply of the skills needed to ensure the UK meets its legally mandated objective of reaching Net Zero by 2050 is clear. Without a robust industrial

strategy which is explicitly linked with a plan for the development and implementation of skills policies which support the objective, it will be very difficult to ensure that it is achieved.

8. A micro credential approach to learning would by its nature be more responsive to and reflective of industrial need as technology continues to develop and as job roles change. It may be the case that a full apprenticeship or qualification is not needed to bring existing workers up to the required level of knowledge and competence in new green technologies. The ongoing DfE review of level 3 consultations outlines a policy approach which would be beneficial to engineering and manufacturing, with existing workers able to bypass parts of qualifications where they are able to demonstrate they have already acquired the relevant skills and knowledge so that they only undertake learning and training which will add something new. Adults will also be able to separately undertake funded qualifications in occupational specialisms. Linking this approach to Made Smarter, where the focus is on modular, short-form, on-demand learning and training in new technologies for individual workers, would be sensible in order to ensure the most effective use of the public purse, individuals' time and employers' resources.

9. Helping individuals to understand the specific gaps in their own knowledge and skills which would act as barriers to their acquiring new green engineering and manufacturing jobs would further help to ensure efficient use of resource and more timely meeting of employer demand. The brand new Enginuity career converter is one example which could be rolled out more widely; at present it uses talent matching algorithms to match individuals' skills to five roles in vaccine manufacture and to then identify skills gaps. Linked with a platform such as the Enginuity Engage platform, a process could be created through which individuals can seamlessly understand their skills gaps and shortages and immediately access or be signposted to the necessary learning and training.

Current demand for green skills

10. Due to the way in which occupations are defined when collecting and producing official statistical data, it can be difficult to effectively measure the number of green jobs in the economy. Each individual worker's job is defined within a Standard Occupational Classification (SOC) code; these were recently overhauled in 2020. The occupational titles included in the new range of SOC codes cover a wide range of disciplines and sectors; for example, the range of occupations included within Mechanical Engineer covers the distinct roles of Automotive Engineer, Design Engineer, Marine Engineer, and Mechanical Engineer.
11. New technologies are beginning to have a sizeable impact on the ways in which engineering roles are carried out and new roles are coming into existence which are not captured by the new 2020 SOC codes. This helps to explain why the proportion and number of the engineering workforce whose roles are 'not elsewhere classified' (n.e.c.) consistently grew between 2011-20 during the lifetime of the previous SOC codes. The engineering roles n.e.c. category now includes such varied roles as Acoustician, Food Technologist, Metallurgist, Patent Agent, and Traffic Engineer.
12. This is important in the context of development of standards which underpin apprenticeships and technical qualifications. If official data cannot demonstrate the growth in a given occupation, it becomes more difficult to prove the need for qualifications, apprenticeships and other government-backed and -funded skills programmes which meet employer priorities.
13. November 2019 analysis of the IfATE Engineering and Manufacturing route map, undertaken by Blue Mirror Insights (BMI) on behalf of Gatsby, examined American O*NET data and found that there is a general greening of roles in the sector rather than a raft of new occupations being created. Analysis of macro trends found a marked increase in the need for engineers to evaluate green technologies and processes, with increases in a range of other tasks such as monitoring environmental conditions and analysing environmental data. Through the embedding of such processes into engineers' day-to-day roles, engineering roles are becoming greener even if the role title remains the same.

14. The BMI analysis is reflected in Enginuity analysis of job postings. This analysis demonstrates that core engineering roles such as civil engineers and mechanical engineers remain those which employers are recruiting for, but a deeper dive into the skills employers are demanding in recruits shows a steady growth in demand for a number of specific industrial digital skills.

15. None of the skills listed in the analysis could be said to be specifically green skills; this means that although only 5% of the engineering jobs posted in November 2020 can be explicitly classified as green jobs (e.g. because they have a 'green' title or have been advertised by a 'green'-focused organisation), it is impossible to state how many other jobs have at least some green content and require as a result some level of green skills and/or knowledge. There is therefore a need for the SOC codes to be reviewed more regularly, in line with changing skills needs.

Readiness to train for green skills

16. Ensuring future fitness for purpose of engineering training and learning means that those who provide and deliver it must have the requisite knowledge of new green engineering technologies and processes to pass on. It also means that awareness of the government's Net Zero by 2050 target must be embedded within industry in order to drive demand for green engineering skills. As part of the Enginuity research underpinning the Engineering and Manufacturing route review, employers were asked whether they were aware of the government's Net Zero target. Only 15% disagreed, with a majority (61%) either agreeing or strongly agreeing. The employers were also asked whether they thought apprenticeships were at present able to respond well to new green technologies, with a high degree of uncertainty indicated by 42% saying they neither agreed nor disagreed.

17. Understanding of the skills implications of Net Zero is, at present, patchy amongst those who will be charged with delivering the necessary training. A recent survey sent by Enginuity to staff at training providers and further education colleges, in addition to training managers in engineering and manufacturing sector organisations, asked a number of questions connected with green skills. A net 32% of those who answered the following question indicated a low awareness (1-2) of the government's Net Zero target and how it relates to engineering and manufacturing, while 30% indicated a high awareness (4-5) and 38% were in the middle (3).

18. There is a strong appetite for standards to be reflective of Net Zero and of wider green issues, with a combined 70% of respondents agreeing or strongly agreeing with the following statement (and only 6% disagreeing or strongly disagreeing):-

Do you think there should be a requirement for new apprenticeship standards in engineering to include mandatory learning about green issues, the net zero target and how engineering roles fit into meeting the UK's climate obligations?

This enthusiasm is largely matched by how providers are planning to meet expected demand, with 77% of those surveyed by Enginuity indicating that their organisations planned to expand provision of training in green engineering technologies and skills. However, the fact that half of those surveyed were unsure when their organisation would expand this provision is likely to reflect uncertainty around when employer demand will increase and when new apprenticeship and/or modular training programmes will be funded to meet that demand. A majority of those surveyed also indicated that their organisation either currently raises awareness in green and environmental elements or has plans to do so.

19. Research has found that half of young people in the UK say they want a job which protects the planet and more than half would prefer to work for an environmentally sustainable organisation. EngineeringUK has found that the covid-19 pandemic has made young people more likely to choose roles across STEM sectors, with 17% of young males and 12% of young females now more likely to choose a role in engineering. The EngineeringUK research also shows that ethics and social responsibility matter to young people, with 31% of males and 35% of females asked indicating that they are now more important to them than they were before the global pandemic.
20. Given the above research findings, there is a strong case to be made for the mandating of green knowledge content in engineering apprenticeship standards (as well as T levels) both as a way of preparing the workforce to play its role in meeting the UK's climate obligations and as a way of enthusing young people to follow a career in engineering across a diverse range of groups. Although apprenticeship standards are relatively high level, core knowledge requirements could be amended to ensure that engineers are being produced who understand how, through their work, they can contribute to reaching Net Zero.
21. Ensuring that those delivering training and education in engineering and manufacturing have the requisite knowledge of green issues will be crucial, which means provision of good quality continuous professional development

opportunities. The research undertaken by Enginuity shows that just over a fifth of providers currently offer training or learning opportunities to staff which are specifically designed to embed awareness and understanding of new green technologies; just under a quarter (24%) don't at present but have plans in place to begin doing so. However, more than a third (35%) of providers have no plans in place to embed greater knowledge of green technologies and issues in their workforce. Covid-19 has accelerated the pace of change in both delivery and assessment, proving that 'green' is not simply about content to a sustainable way of working. Increased provision of green CPD opportunities should therefore drive a greening of engineering training and ensure that it keeps pace with how job roles are changing.

22. Improving the knowledge and awareness of the training sector workforce and ensuring that providers have the required equipment to effectively deliver training in new green technologies may not be a zero-cost undertaking. Providers are already under significant financial pressures; almost half of FE and sixth form colleges have needed government financial help, according to the NAO, with more than £700 million in emergency funding spent to keep them afloat. The upcoming Further Education White Paper offers an excellent opportunity for the DfE to set out how it intends to help the sector to prepare for a greener future, with detail on ensuring that colleges and training providers will be able to meet the upfront and ongoing costs of doing so essential. There is a need a greater strategic approach to both funding and the identification of priority/target areas in line with Government priorities and a roadmap for transition.

Summary and recommendations

23. The SIC and SOC code system, although it has many positive attributes, is not sufficient to definitively measure the size of the green engineering and manufacturing workforce or to capture how it is evolving over time through changes to existing roles and the creation of new roles. *The government should explore how it can cross-reference SIC and SOC codes to better understand how the green workforce is growing in different sectors. The government should consider how changes can be made to existing SIC and SOC codes between its wholesale revisions of the system.*
24. There must be a properly joined up, coordinated approach between government departments on Net Zero as at present there is a risk of the supply of skills provided by DfE policy, as carried out by IfATE through the standards setting and review process, being mismatched to the demand generated by BEIS policy. *There should be BEIS representation on the board of IfATE to ensure that the standards developed to underpin apprenticeships and technical qualifications are reflective of the UK's wider Net Zero and green policy priorities.*
25. There is a strong desire amongst those delivering training in engineering and manufacturing for new standards to be reflective of emerging green technologies. Greening training in engineering and manufacturing would help to attract more young people to the sector and meet its current skills needs as well as preparing for a greener future. *IfATE should ensure that all new engineering and manufacturing apprenticeship standards have a green focus and, when conducting its periodic reviews of existing standards, should ensure that these are greened through the inclusion of new knowledge criteria. The DfE should ensure that those delivering training in engineering and manufacturing are fully knowledgeable about the greening of those roles and trained in how to impart that knowledge to those they are training.*
26. In some cases a shorter, micro credential training and learning approach would be a better use of time and money than a full-length apprenticeship or T Level, ensuring that the supply of skills is responsive to the pace of

change. *The government should consider how individuals can best be helped to understand their own skills gaps and shortages, and how they can best overcome them and ready themselves to fill new green engineering and manufacturing roles.*

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