## Executive Summary

- Engineering is a vital component of all sectors identified by government as being critical to achieving a green industrial revolution. The UK's ambitions to meet net zero targets, to increase innovation and enterprise and to ensure that future engineers are educated and trained to meet the needs of an advanced digital economy are all at stake if investment in vocational and technical qualifications at level 3 is not maintained – and increased.
- The supply of talent through the education and skills system will fall far short of future skills demand from critical sectors of the economy which rely heavily on the availability of engineering and technology skills – and will negatively impact the employment prospects for young people.
- Students who have vocational and technical qualifications and who progress on to higher education are more likely than their peers to have come from lower socioeconomic backgrounds.[1] The removal of engineering BTEC and vocational qualifications at level 3 would disproportionately affect students from those backgrounds.
- BTECs are a widely respected and vital pathway into the engineering profession. The removal of these qualifications will reduce both the number and diversity of those entering the engineering profession.
- Concerns remain over the speed and scale of technical education reforms and the practical implications surrounding the delivery of the T Level programme. Chief among these concerns is the viability of the 45-day work placement, the regional availability of engineering and manufacturing T levels and the disappearance of applied general qualifications.
- A greater focus on the T level transition options for young people are needed. It is essential that schools and FE providers receive additional resource to support the transition effectively.

### 1. What impact will the removal of funding for some post-16 vocational qualifications have?

The DfE' proposes to replace the current options available for young people with three pathways: A levels, T Levels, and apprenticeships. Whilst we support all three routes into engineering, there will be groups that will not have good access to or will not be best suited to any of these three pathways.

Engineering BTECs and level 3 vocational qualifications offer valuable routes into the engineering profession, particularly for those who would not be suited to more academic routes like A levels and higher education. Additionally, BTECs are widely recognised and respected by engineering employers, and can offer an alternative pathway into engineering higher education. Currently, one eighth of engineering

[1] Centre for Vocational Educational Research (2019) 'BTECs, higher education and labour market outcomes using the Longitudinal Education Outcome (LEO) dataset' https://cver.lse.ac.uk/textonly/cver/pubs/cverdp024.pdf

graduates have a BTEC in engineering – students who may otherwise have not taken engineering at degree level.[2]

The removal of funding for BTEC courses will reduce the options for young people progressing into a career into engineering. The traditional pathway into engineering higher education is through good attainment in A level maths and often, physics

BTECs are beneficial for young people with lower prior attainment in GCSE maths and physics, because they can still progress to a successful career in engineering without taking a traditional academic pathway through A levels and degrees.

The removal of engineering BTECs and other vocational qualifications at level 3 will create a vacuum which, as early evidence suggests, will not be replaced by an uptake in the number of young people taking T Levels.[3]

We remain concerned that there will be significant regional variation in those who will be able to take T Levels, with limited options available in some areas of the country. Young people from rural and coastal areas of the country typically have fewer opportunities and options available to them, particularly for routes into engineering. This runs counter to the government's levelling up agenda, with some areas benefiting from a greater variety of courses, and others being limited to very few options.

We welcome the news that the DfE is going to remove the level 2 maths and English exit requirements for the new T Levels. However, it is unlikely that this removal will have an impact on the number of young people choosing the new courses.

**a. Which students will benefit from the changes?**

Students from higher socioeconomic backgrounds, and young people in areas where there is more choice available to them will be the main beneficiaries of the changes. Students who have the necessary higher prior attainment to progress to A levels or T Levels will also benefit from the changes due to a reduction in the competition in the jobs market.

**b. Are there groups that you anticipate being left out/left behind?**

As government proposals indicate that T Levels will replace level 3 engineering BTECs and vocational qualifications, regional provision for T Levels will leave many groups left out or left behind. Early evidence suggests that the provision of T Levels nationwide will be uneven, with some areas having good provision, and others left without any.[4] The regional variation of T Levels appears to largely be due to the issue of work placements, and the number of employers willing or able to offer them, particular with the costs and difficulties associated in delivering 315 hours of work experience to a young person.

Currently, the benefits of offering T Level placements for young people do not outweigh the risks and costs, a problem that is more severe in areas of the country which have higher levels of deprivation.

This will disadvantage those from poorer communities, rural and coastal areas, those without access to good and cheap transport and those without personal or family

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[2] Data retrieved from the Ofqual Analytics Vocational and Technical Qualifications Landscape tool: https://analytics.ofqual.gov.uk/apps/VTQ/VTQLandscape/

[3] Spotlight on Workforce Skills, Pearson.

[4] T Level extended work placement research, Employer and college and training provider survey findings and case studies. AELP 2018

connections with employers. It is no coincidence that these are exactly the groups who are over-represented among BTEC students now.[5]

**c. Is there enough planned provision to support Level 1 and Level 2 learners?**

There needs to be a greater focus on the T Level transition options for young people.

Under current proposals, students who undertake level 2 courses in further education need to be adequately supported if they wish to transition to engineering T Levels. It is vitally important that further education institutions and providers receive additional funding in order to deliver the transition successfully.

**d. Are there any fiscal implications of the impacts you anticipate?**

The likely reduction in the number of young people progressing into the engineering profession, at least in the short-term, as a result of the difficulties with placements will further exacerbate existing skills gaps and shortages across the UK economy and create significant problems for engineering and technology industries, who are already struggling to recruit the number of engineers needed. This in turn is likely to have implications for the economy and also on the government ambitions around net zero, and therefore future economic drivers.

The engineering sector is one of the largest contributors to UK economic growth, generating 21.4% of UK turnover in 2018.[6] The government's build back greener plan also highlights the growing importance of engineers needed between now and 2050 to meet net zero targets.

In the building services sector, there is a rapid change needed for embedding the new technologies for net zero, the uncertainty and instability caused by the shifting of the educational infrastructure is poorly timed.

The government must ensure that new pathways into engineering are successful first, before removing proven valuable routes. The removal of pathways could create significant fiscal implications, with additional costs for recruitment, retention and costs incurred through persistent vacancies.

**e. Will employers be impacted? (for example; additional costs, hiring implications or skills gaps).**

With the removal of classroom based technical and vocational qualifications, employers will have to offer more work placements for apprentices and T Level students. This will create additional costs to businesses who will need to provide training, mentoring and workplace adjustments for work placement students. This will be more difficult for SMEs who will not have the staff capacity to do this in a cost-effective manner.[7]

As mentioned above, this will also limit the number of young people going into engineering, which will create skills shortage across the sector. Furthermore, with potentially fewer numbers of young people taking vocational qualifications at level 3, the

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[5] Vocation, Vocation, Vocation, The role of vocational routes into higher education, Social Market Foundation. 2018

[6] EngineeringUK 2019 Report https://engineeringuk.com/research/data/2019-excel-resource/

[7] IET skills for net zero and a green recovery, 2020 Survey. IET, 2020.

number of engineers at levels 4 and 5 will be impacted as level 3 BTECs offer logical routes to qualifications such as Higher National Certificates/Diplomas.

**f. Can the existing provisions for careers information, advice and guidance (CIAG) support the proposed changes?**

Careers information, advice and guidance is already uneven across England and additional opportunities and pathways for young people could cause greater strain on careers advisors if they do not receive adequate training.

During periods of transition, careers services come under additional strain as advisors must become expert in new areas.

Under government proposals, the level 3 landscape could become fractured across the country, with considerable regional variation. In many areas of the country there will be a lack of local provision for engineering careers and therefore a lack of CIAG for different routes.

With careers services already under strain, it is essential that extra resources and funding are made available to ensure that adequate CIAG is available across the country. This will be particularly important for T Levels, with links needing to be established between local employers and T Level providers. The government should provide more resources to enable improved STEM related careers provision and ensure that schools, careers hubs and other local structures such as Local Skills Improvement plans and designated bodies overseeing this, are all sufficiently interlinked.

**2. Will the government's proposed ambition for T-Levels, Apprenticeships and A Levels post-16 support the needs of young people in the future economy?**

Streamlining the post-16 offer to young people is in principle to be welcomed but there is a great risk that the proposals will fall short in delivering the range and scale of employability skills young people need to succeed in the current and future economy. There have been numerous failed attempts by past governments with qualifications such as GNVQs, diplomas, Vocational A levels, City & Guilds and even BTECs. The simplification of the level 3 landscape fails to take into account the number of work placements that will need to be provided by employers, who simply do not have the opportunities or the resources to offer them. Surveys and even early conservative estimates would indicate that this is entirely unrealistic.[8]

**3. Will the government's proposed ambition for T-Levels, Apprenticeships and A Levels post-16 support the needs of employers in the future economy?**

Not in the short to medium term. The proposed ambition for a simplified structure of either T Levels, Apprenticeships or A levels for young people fails to appreciate the nuances of the current structure at level 3. The three proposed routes will not adequately replace the BTEC route into engineering and will therefore fail to meet the ambitions of young people by restricting student choice. On-the-job training routes such as apprenticeships are costly for employers, with many SMEs unable to train

[8] T levels: Placements unlikely in 2021, say employers. TES, April 2021.

apprenticeships due to the costs of training, recruitment, management, and other associated costs. Early evidence suggests that employers are unwilling to offer work placements for T Levels, one of the reasons cited is the cost associated with offering work placements. The engineering industry is also struggling with an ongoing skills shortage, if the proposed changes made by the government lead to fewer engineers, this will worsen the problem.

**4. What are the likely impacts on youth employment should these proposed changes take place?**

Due to the reduction of opportunities for young people, particularly those in areas in which opportunities are already limited and T Levels will not be available, it is likely that the new proposals will result in an increase in the number of young people not in education, employment or training (NEETs).

**a. Are there specific short-term implications?**

Specifically, the engineering skills shortage may increase in different regions of the country, entrenched problems of diversity in the engineering workforce will be exacerbated and more widely, there is a risk of an increase in the number of young people NEET.

**b. What are the long-term implications?**

Engineering is a vital component of all sectors identified by government as being critical to achieving a green industrial revolution. The UK's ambitions to meet net zero targets, to increase innovation and enterprise and to ensure that future engineers are educated and trained to meet the needs of an advanced digital economy are all at stake.

The supply of talent through the education and skills system will likely fall far short of future skills demand from critical sectors of the economy which rely heavily on the availability of engineering and technology skills.

There have been moderate increases in the number of engineering graduates over the last 5 years, but the disruption to technical and vocational qualifications at level 3 may well result in fewer numbers of young people taking engineering qualifications at levels 4 and above.

We remain concerned over the speed and scale of technical education reforms and the practical implications surrounding the delivery of the T Level programme. Chief among these concerns is the viability of the 45-day work placement, the regional availability of engineering and manufacturing T levels and the disappearance of applied general qualifications. We support the implementation of work placements, which can be very beneficial for young people. Therefore, if the government need to ensure that skills planning incorporates a regional overview to counter the possibility of no regional engineering T Levels. The government must also support student travel costs to placements.

**Recommendations:**

- The government must ensure that accessibility into T Levels is implemented on an equitable basis nationwide.
    - The requirement for 315 hours of work placement is challenging in many parts of the country and young people from lower socioeconomic backgrounds will be more affected than others.
- The government must reconsider an arbitrary date of 2024 for the removal of qualifications at level 3. Funding for BTECs and other level 3 vocational engineering qualifications should only be removed once other routes into the engineering profession have proved successful and would not disproportionately affect young people from lower socioeconomic backgrounds.

This submission is made by:

**The Royal Academy of Engineering – Education and Skills Group**

The Education and Skills Group (ESG) is the body through which the engineering profession offers coordinated advice on education and skills policy to UK Government and the devolved Assemblies. It deals with all aspects of learning that underpin engineering. It is hosted by The Royal Academy of Engineering with membership drawn from the professional engineering community including all 39 Professional Engineering Institutions, the Engineering Council, EngineeringUK, the Engineering Professors' Council and other engineering organisations.