

Response ID ANON-916W-SV5V-B

Submitted to Call for evidence on Net Zero review
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About you

What is your name?

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What is your organisation?

Organisation:
Enginuity

Where are you/your organisation based?

Please expand on your answer here:
Enginuity operates across the UK with a head office in Watford.

What sector do you/does your organisation operate in?

Please expand on your answer here:
Enginuity is a registered charity which acts as the sector connector for the advanced manufacturing and engineering industry.

Are you happy for your response to be published?

Yes

Would you like to be contacted when the consultation response is published?

Yes

How did you hear about this consultation?

Where did you hear of this consultation?:
GOV.UK alert

Other (please specify):

Overarching questions

1 How does net zero enable us to meet our economic growth target of 2.5% a year?

Answer here:

There are credible economic analyses which suggest that net zero policies will be positive for the UK economy and could result in huge growth in the UK's exports of low carbon goods and services. For example, the Energy and Climate Intelligence Unit provides a helpful summary at:
<https://eciu.net/analysis/briefings/net-zero/net-zero-economy-and-jobs#:~:text=More%20broadly%2C%20net%20zero%20implies,and%20even%20more%20by%20>

Additionally, net zero has cross-party and cross-government support in the UK, underpinned by widespread support in broader society, enabling individuals, businesses and government organisations to make the long-term investments needed to decarbonise our energy, industrial production, transport, and so on.

However, we will only be able to realise these opportunities if we have the skilled workforce to develop and support existing and future decarbonisation industries and technologies. Ensuring we have a workforce with the right skillset over time will require a huge investment in our people over the next 30 years, through both entry level skills and education, and upskilling and retraining the existing workforce. It is essential that we make that investment as efficiently as possible.

Enginuity is committed to using our data science, research, and expertise to drive efficient outcomes in the skills systems for the engineering and manufacturing sectors. This will enable us to identify the key 'green' skills required by sector, and also the key transferable skills which will enable movement between traditional and net zero sectors.

2 What challenges and obstacles have you identified to decarbonisation?

Answer here:

Successful decarbonisation will require a wide range of existing and new economic activity over a long period of time, including economic activity which we do not yet fully understand. Refitting domestic and commercial heating, moving production and infrastructure to electric vehicles, and developing and building renewable energy and carbon capture technologies, are some of the engineering and manufacturing challenges of decarbonisation now where the UK does not have the skilled workforce it needs. And that picture of the skills needed by the sectors involved in decarbonisation could rapidly change with the developments of future technologies and industries.

To meet these challenges, we need to use the most efficient method to ensure we have an engineering and manufacturing workforce with the right set of skills, not just today but over the next 30 years. We face a challenge to:

- horizon scan changing decarbonisation skills needs over the next 30 years and develop a dynamic understanding of workforce requirements over long time horizons,
- develop and employ tools to ensure the efficient movement of skilled labour from declining to growing sectors, and minimising economic inactivity among the skilled workforce, and
- motivate and enthuse the workforce of the future to ensure greater and more diverse participation in the engineering and manufacturing industries which will deliver net zero.

3 What opportunities are there for new /amended measures to stimulate or facilitate the transition to net zero in a way that is pro-growth and/or pro-business

Answer here:

Measures undertaken by Enginuity

Enginuity has been using our data science, research, and expertise to help the engineering and manufacturing sectors meet the challenges set out in our response to question 2 in a way that is pro-growth and pro-business. Our tools will support the efficient movement of skilled labour to decarbonisation industries.

We are planning to build tools to horizon scan the workforce needs of the engineering and manufacturing sectors, including in the green domain. These tools will enable us to identify occupations, careers, and skills that will be transferable to clean growth industries and support the green economic growth of engineering and manufacturing in the UK.

We will be able to provide skilled workers in engineering and manufacturing with a personalised career connector tool which will show the best options for their further career development. We have already established which careers are green, and will be able to tag green careers and, over time, identify green skills associated with specific roles. As well as assisting the efficient provision of retraining and upskilling, this will help prevent the types of inefficient structural unemployment and early retirements which can occur when workers cannot see a clear career progression.

We are also using our data science, research and expertise to examine specific green case studies, such as blended gas for home heating. Since 1996, the Gas Appliance Directive has required all gas appliances to be tested on a blend of 23% hydrogen before they can be approved for market. If blended gas were distributed to homes and businesses across the country, it could prevent six million tonnes of carbon dioxide being released to the atmosphere every year.

We are using data to determine how the current workforce can upskill or reskill and are predicting and quantifying the possible scale of change. Through this, we have identified several hydrogen-related occupations, creating the starting point for identifying transferable occupations and their related skills.

We are also inspiring our green workforce of the future by leveraging the benefits of gamification to provide children with engaging and inspiring STEM careers materials. Built on the popular Minecraft platform, our most recent Skills Miner game focuses on green engineering skills to make homes energy efficient, while a game in development will showcase vertical farming, an environmentally sustainable method of food production

Further details of our initiatives can be found at <https://greenskills.enginuity.org/>.

Opportunities for government measures

The government could make some immediate amendments to ensure its skills policies facilitate the transition to net zero in a way that is pro-growth and pro-business, including:

- Increasing governmental support for modular qualifications in engineering and manufacturing, to support the efficient provision of upskilling and retraining using career transition tools such as those being developed by Enginuity,
- Reforming the apprenticeship levy to ensure that it can be used more flexibly to support decarbonisation industries, and considering how the considerable levy underspend could be used more effectively to support green industries and workers,
- Providing resources to help sector connectors, such as Enginuity, ensure the success of Engineering T Levels and improve the take up of apprenticeships in engineering and manufacturing,
- Supporting the development of industry-led solutions to apprenticeship shortages among SMEs, such as the apprenticeship clearing house pilot being developed by the Solent Apprenticeship Hub, the Royal Navy Maritime Enterprise Zone, UCAS, and Enginuity, and
- Continuing work by the ONS (<https://consultations.ons.gov.uk/external-affairs/defining-and-measuring-green-jobs/>) and others on defining and measuring green jobs.

Among the important measures government could take to facilitate the most efficient transition to net zero, is increasing participation in the skills and

education pipeline for careers in decarbonisation industries. Doing all we can now to ensure the workforce of the future has the right skills to meet our net zero goals is absolutely pro-growth and pro-business. Simply put, more needs to be done on this. As the House of Lords noted in a recent report:

“The Department for Education’s Sustainability and Climate Change Strategy should be reviewed to ensure every opportunity has been taken through both formal and informal education and communications and the school environment to provide young people with the knowledge and skills to make life and career choices to support environmental and climate goals.” (House of Lords Environment and Climate Change Committee, 1st report of session 2022-23 – In our hands: behaviour change for climate and environmental goals, 12 October 2022.)

We would urge the Department for Education to consider how engaging, inspiring and innovative methods, such as Engenuity’s Skills Miner, can be used effectively to provide children and young people with the knowledge and skills to make life and career choices which support environmental and climate goals. In particular, we would draw the Department’s attention to research we commissioned from CHILDWISE, a leading specialist in research with children and young people, which shows that the majority of children have largely made up their minds about their future careers at a surprisingly early age, with 37% of children (11-14) surveyed by CHILDWISE knowing, and 45% having some idea of, what sort of job they wanted to do when they were older.

This research clearly shows that the focus needs to be on STEM career tools, such as Engenuity’s Skills Miner, which are designed to engage and motivate children from diverse backgrounds in the latter years of primary school and the early years of secondary.

4 What more could government do to support businesses, consumers and other groups to decarbonise?

Answer here:

The industries and technologies which will enable businesses, consumers and other actors to decarbonise rely on a workforce with the right skillset which is dynamic and responsive over time. We have set out in our response to question 3 the measures the government could take to support this.

5 Where and in what areas of policy focus could net zero be achieved in a more economically efficient manner?

Answer here:

The UK will only be able to realise our net zero goal if we have the skilled workers to develop and support existing and future decarbonisation industries and technologies. Ensuring we have a workforce with the right skillset over time will require a huge investment in our people over the next 30 years. It is essential that we make that investment in the most efficient way utilising a sector-led strategic workforce plan.

We have set out in our response to question 3 how education and skills policy could be made more economically efficient. In particular, education and skills policy should be dynamic, adjusting to the changing skill needs of the industries and workers supporting the transition to net zero. However, it should also deliver stable and predictable policy outcomes which businesses can rely on over extended periods to invest in decarbonisation industries and technologies.

6 How should we balance our priorities to maintaining energy security with our commitments to delivering net zero by 2050?

Answer here:

It is widely accepted that there will be a transition over time away from legacy to renewable energy sources. The speed of this transition, while maintaining energy security, will depend on many factors such as technological changes, geo-political developments, investment models and government policies. We would like to emphasise that a key factor to the speed of this transition will be the availability of a workforce with the necessary skillset, upskilling and retraining dynamically over time. Education and skills policy needs to be a central consideration in these types of calculations.

7 What export opportunities does the transition to net zero present for the UK economy or UK businesses?

Answer here:

Export opportunities will come from in-demand green industries and technologies where the UK is able to establish itself as an international market leader. Having a dynamic workforce with the right skill set over time will be essential for the UK to develop world leading green technologies and create world leading green industries.

These developments will be constrained if businesses cannot access the skilled workforce they need today and have confidence in being able to access that workforce for the lifetime of their investments. In particular, businesses need stable and predictable outcomes from the skills system over an extended period.

Questions for businesses

8 What growth benefits/opportunities have you had, or do you envisage having, from the net zero transition?

Answer here:

9 What barriers do you face in decarbonising your business and its operations?

Answer here:

10 Looking at the international market in your sector, what green opportunities seem to be nascent or growing?

Answer here:

11 What challenges has the net zero transition presented to your business?

Answer here:

12 What impacts have changing consumer choices/demand had on your business?

Answer here:

13 What impacts have decarbonisation/net zero measures had on your business?

Answer here:

14 What more could be done to support your business and/or sector to decarbonise?

Answer here:

15 Do you foresee a role for your business within an expanded UK supply of heat pumps, energy efficiency, electric vehicles, hydrogen or clean power?

Answer here:

16 For clean power industry: what barriers to entry have you found in deploying clean energy?

Answer here:

17 How many green jobs do you estimate will be created in your sector by 2030?

Answer here:

It is challenging to estimate the number of green jobs which will be created because of the dependence on government policy which can hugely influence the investment and growth of specific green sectors. For example, changes in government policy on industrial solar farms or hydrogen would have a significant impact on the jobs created in those sectors.

Additionally, it depends on how a green job is defined. The greening of occupations refers to the extent to which green economic activities increase the demand for existing occupations, shape the work and worker requirements needed for occupational performance, or generate unique work and worker requirements.

The engineering and manufacturing sector has the highest requirement for occupations that have been created to meet the needs of the green economy. However, there are also many other occupations in the sector which have, or will have, green characteristics. These distinctions can be considered as:

- Green increased demand occupations which support green economic activity, but do not involve any green tasks,
- Green enhanced skill occupations where the essential purposes of the occupation remain the same, but tasks, skills, knowledge, and external elements, such as credentials, may be altered as result of greening, and
- Green new and emerging technology occupations which are occupations that have been created to meet the new needs of the green economy.

We estimate that, in engineering, manufacturing and production, approximately half the occupations with green characteristics will fall into the first two categories.

Questions for the public

18 Have you or are you planning to take personal action to reduce your carbon emissions (for example through how you travel, what you buy, how you heat your home)? If so, how?

Answer here:

19 Do you face any barriers to doing this? What are they?

Answer here:

20 What would help you to make greener choices?

Answer here:

21 What is working well about the measures being put in place to reach net zero?

Answer here:

22 What is not working well about the measures being put in place to reach net zero?

Answer here:

23 Do you have any further comments on how efforts to tackle climate change are affecting you?

Answer here:

Questions for local government, communities and other organisations delivering net zero locally

24 What are the biggest barriers you face in decarbonising / enabling your communities and areas to decarbonise?

Answer here:

25 What has worked well? Please share examples of any successful place-based net zero projects.

Answer here:

26 How does the planning system affect your efforts to decarbonise?

Answer here:

27 How can the design of net zero policies, programmes, and funding schemes be improved to make it easier to deliver in your area?

Answer here:

28 Are there any other implications of net zero or specific decarbonisation projects for your area that the Review should consider?

Answer here:

Questions for academia and innovators

29 How can we ensure that we seize the benefits from future innovation and technologies?

Answer here:

30 Is there a policy idea that will help us reach net zero you think we should consider as part of the review?

Answer here: