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Green Recovery Plan

for the UK Energy Sector

#GreenRecoveryUK

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Published by Prospect
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8 Leake Street, London SE1 7NN
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PRO-20-0015/JUL20-PDF

Green Recovery Plan for the Energy Sector

Progress towards our climate goals is faltering, and a lack of strategic leadership and clear policy direction means we are on track to miss our legally-binding decarbonisation targets.

The coronavirus pandemic threatens to further derail our efforts to reach net zero, at the very moment when action needs to be ramped up. Yet, given the right mix of policy measures, the UK could be a global decarbonisation trailblazer, creating new green jobs and engines of clean growth in the process.

Prospect believes a green recovery plan for energy to help us get back on track to net zero is urgently needed, and we are proposing ten key areas for action.

Prospect represents over 150,000 engineers, managers, professionals and specialists across the public and private sectors. We are the primary union for skilled specialists, engineers, and managers working in the UK energy supply industry, including the civil nuclear sector. Our members work across the energy life-cycle including research, new build, generation, decommissioning and regulation, giving us a unique and valuable perspective on energy policy. We continue to campaign on behalf of our members for a sensible, informed approach to critical energy questions.

Find out more at **prospect.org.uk/about**

1: Publish a comprehensive net zero roadmap

Successive governments have taken a short-term approach to climate and energy policy in the UK, frequently restricting the planning horizon to the length of the electoral cycle.

This chronic short-termism has meant that, despite some positive steps, progress towards net zero has been much more limited in the UK than it might otherwise have been.

Current forecasts from the Committee on Climate Change suggest we will miss the emissions reduction targets for the Fourth and Fifth Carbon Budgets (covering the period 2023-2032) by a wide margin.

A lack of clarity from government about if and when net zero projects will be initiated has made it extremely challenging to plan investment, nurture a robust UK supply chain, or plan for long-term skills needs.

But, whilst some degree of uncertainty remains in the longer term, we already have a clear sense of the actions we need to take in the next decade to have any realistic chance of meeting our legally-binding carbon targets. Urgent action is needed in five areas in particular:

- Increasing low-carbon power capacity
- Rolling out electric vehicle charging infrastructure
- Starting the conversion of homes and businesses to low carbon heat
- Retrofitting housing to higher energy efficiency standards
- Expanding natural carbon sinks through measures like tree-planting and peatland restoration.

As a matter of urgency the government should map out, in detail, how it will make progress in each of these areas every year for the next decade as part of a comprehensive net zero roadmap.

This will provide the basis for planning specific projects, developing a fair financing framework, planning for skills needs, and supporting a UK project supply chain.

> **“As a matter of urgency the government should map out, in detail, how it will make progress in each of these areas every year for the next decade as part of a comprehensive net zero roadmap.”**

Sue Ferns
Prospect senior deputy general secretary

2: Accelerate deployment of low carbon infrastructure

Between 2010 and 2015 the UK enjoyed a short-lived renewables boom while plans for a new fleet of nuclear reactors appeared to be on track. But, in the latter half of the last decade the boom came to an end as support schemes were slashed, and progress on new nuclear plants stalled.

Despite recent election pledges of 40 GW of offshore wind by 2030, the UK's current build rate remains far too low to reach this target, and the impending decommissioning of much of the UK's existing nuclear fleet risks a major capacity shortfall by the end of this decade.

There is an urgent need therefore for a significant ramping up of activity in the low carbon energy sector.

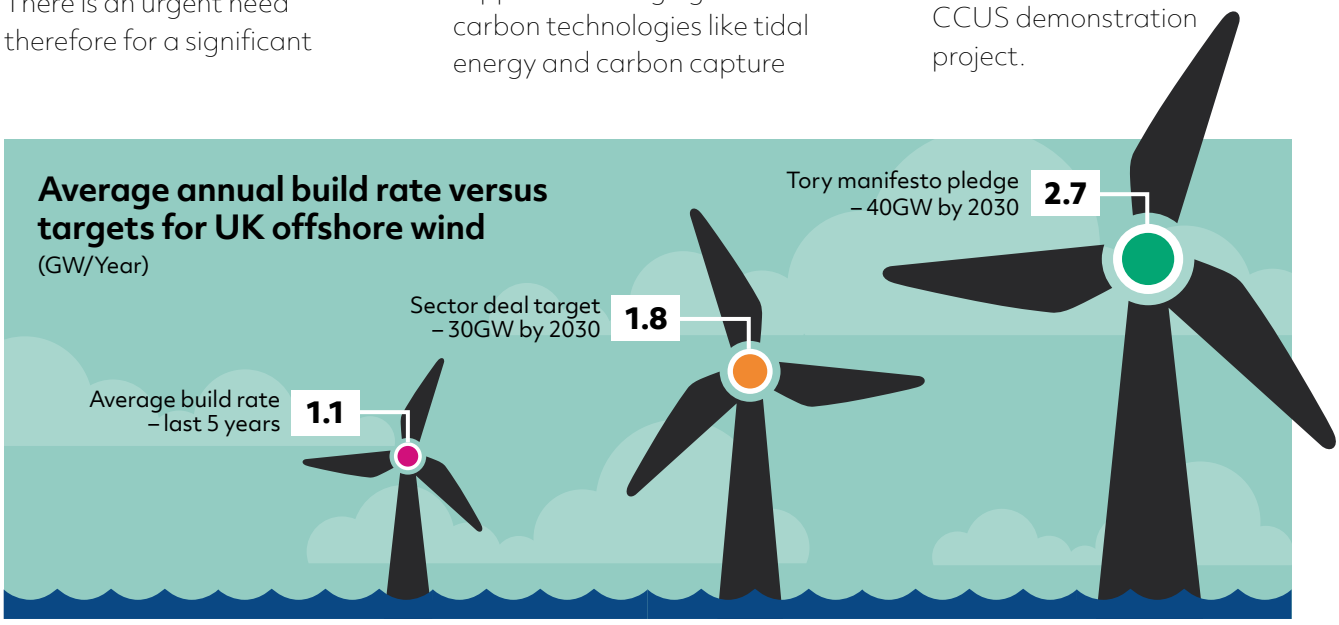
This will mean increasing the deployment rate of established renewable technologies like wind and solar, and a plan for delivering the low carbon firm power we will need to balance out weather-dependent generation.

At present, the only suitable low carbon firm power technology proven to work at scale is nuclear, and getting the nuclear new build programme back on track needs to be a key priority for government.

But we also need to provide support to emerging low carbon technologies like tidal energy and carbon capture and storage to help them deploy at scale. This will ensure we maintain a mix of energy sources for the stability and security of our future energy system.

The government roadmap for net zero should aim to deliver by 2030:

- a total of 40GW of offshore wind
- an additional 15GW of onshore wind and solar
- an additional 10GW of new nuclear
- at least one operational tidal energy demonstration project
- at least one operational CCUS demonstration project.



Source: BEIS, 'Energy Trends: UK Renewables', June 2020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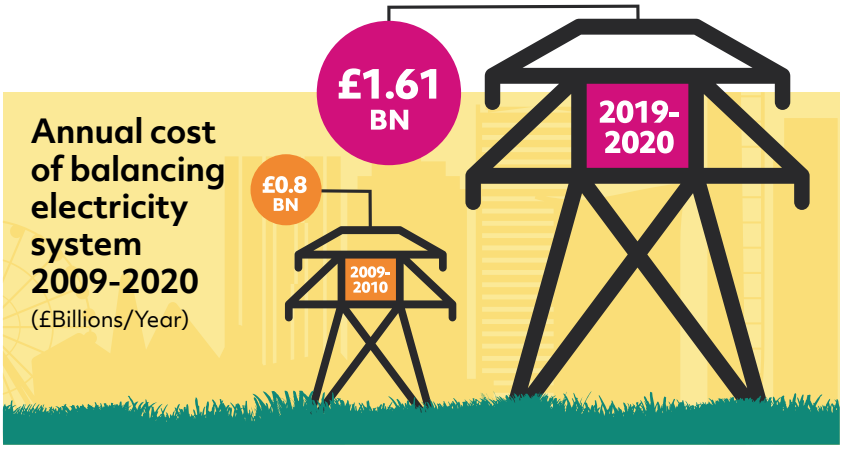
3: Embed a whole systems approach

The UK's recent approach to energy policy has focused on offering varying levels of piecemeal support to particular technologies, but without a coherent vision for how our future, decarbonised energy system will fit together in a way that is secure, stable and cost effective.



Source: National Grid, 'Historical BSUoS Data'

Weather-dependent renewables, for example, have a critical role to play in lowering emissions, but without adequate support from sources of low-carbon firm power and from smarter, more flexible energy grids, they will increase instability in our energy system and increase balancing costs for consumers, costs which developers generally do not pay.

Over the last decade, the failure to adopt a more holistic energy policy approach has meant the annual costs of balancing our electricity system have doubled to more than £1.6 billion. This is driven in particular by a lack of progress in adequately managing grid constraints, improving flexible grid management, incentivising local generation, and developing new storage techniques, and has meant growing volumes of renewable energy are wasted every year.

In the 2019/20 year, for example, National Grid made payments of close to £200 million to wind farms to curtail output that couldn't be effectively utilised by our energy system.

But, a whole systems approach is not just about electricity grids – it also means developing ways to effectively integrate the different elements of the total net zero energy system.

Here, technologies like nuclear have a potentially revolutionary role to play in efficiently combining electricity generation with the production of heat and low-carbon hydrogen, critical for supporting the broader decarbonisation agenda.

Proposed new nuclear projects at Sizewell and Moorside offer opportunities to develop integrated low-carbon energy clusters than can drive forward progress on multiple strands of our net zero roadmap.

The government must ensure that its net zero roadmap embeds a fully integrated, whole systems approach.

This should include a strong mandate for the energy regulator, Ofgem, to incentivise much greater investment in more flexible energy grids, especially at the local and regional level. It should also include support for projects that integrate different clean energy technologies in the most efficient and cost-effective ways, such as the proposed nuclear-focused energy clusters at Sizewell and Moorside.

4: Develop a fair funding formula

We need to rethink our approach to funding net zero. Leaving the private sector to finance and assume all the risk involved in new projects has meant higher costs for consumers and fewer projects being delivered.

It has also meant that emerging technologies like carbon capture and tidal energy have remained at the prototype stage, as the private sector is unwilling to shoulder the risks involved in deploying new technologies at scale.

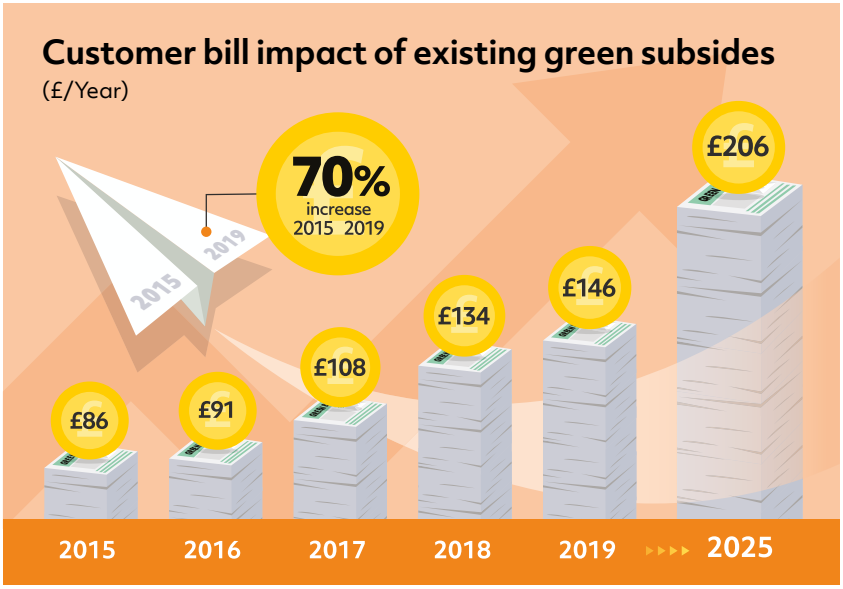
Without a more supportive financing system that can marshal greater resources for the fight against climate change, the pace and scope of green infrastructure deployment will remain inadequate to the challenge we face.

There is also a pressing need to ensure that we spread the costs and benefits of financing net zero as fairly as possible. Recent estimates by the Institute for Public Policy Research suggest that we may need to invest an additional £30 billion a year in new green projects in order to reach our climate goals. But, at present many of the costs of green support schemes are being paid for by consumers through a levy on their energy bills, effectively a regressive form of taxation.

The proportion of the average household electricity bill that is green subsidy costs has grown 70% in the last five years and is forecast to continue to rise steeply. Continuing to finance net zero in this way will disproportionately burden the poorest households, and risks a popular backlash against decarbonisation.

We need an honest conversation about how to finance net zero as equitably as possible. The government should no longer seek to fund clean energy subsidies through customer energy bills and instead look to leverage the historically low cost of public borrowing to greatly increase investment in net zero projects.

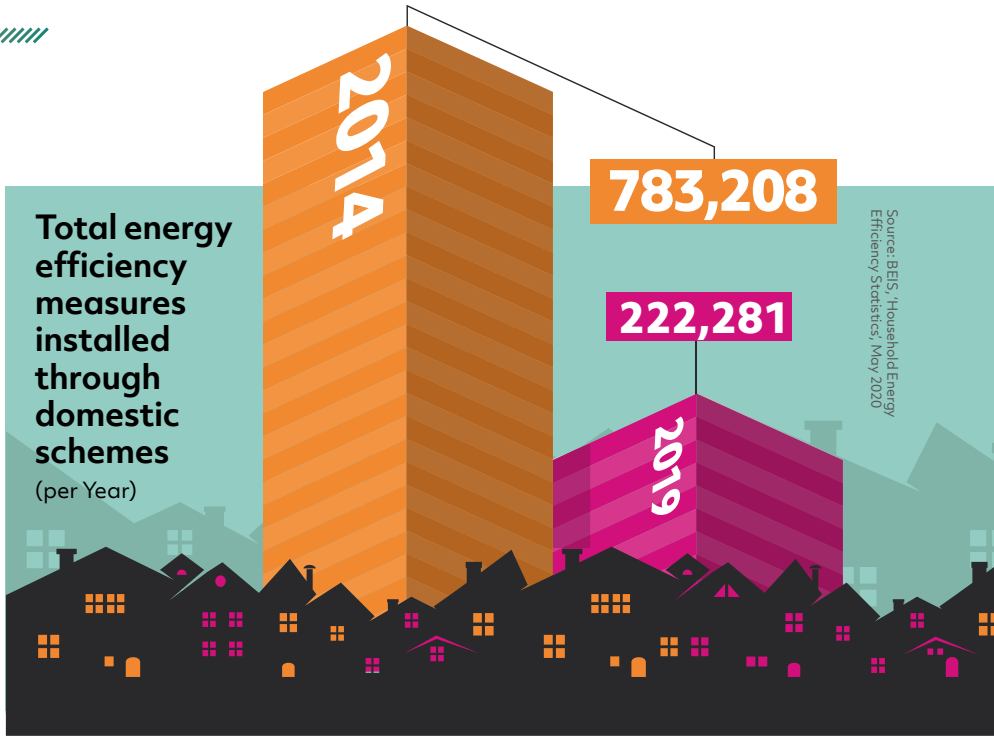
This could potentially be done by issuing new sovereign green bonds, through new progressive tax mechanisms, and by re-establishing a public Net Zero Investment Bank to provide development financing for emerging clean energy technologies.



Source: Ofgem & Aurora Energy Research

The UK still has some of the 'leakiest' housing stock in Europe but annual installations of energy efficiency measures have fallen to a fraction of earlier levels

5: A strategy for energy conservation



The most cost-effective way to support decarbonisation will be to improve our energy efficiency and to find more effective ways to reduce energy consumption.

The last 10 years have been a 'lost decade' for UK energy efficiency measures; policies like Zero Carbon Homes and the Green Deal have been abandoned, while measures like the Energy Company Obligation have been too limited to deliver energy efficiency improvements at the scale needed.

The UK still has some of the 'leakiest' housing stock in Europe but annual installations of energy efficiency measures have fallen to a fraction of earlier levels.

At the same time, as the Committee on Climate Change has pointed out, we have made no meaningful progress on improving green building standards and increasing the energy efficiency of new buildings; only 1% of new homes in 2018 met the highest energy efficiency standards.

We face a huge task to significantly improve this picture, and the success of other net zero policy measures, particularly the decarbonisation of heat, will depend on making big strides forward on energy efficiency.

A strategy for energy efficiency and conservation is an urgent priority, and it needs to include the right mix of support and incentives for households and businesses, as well as a plan for creating a skilled workforce that can help retrofit millions of homes and offices.

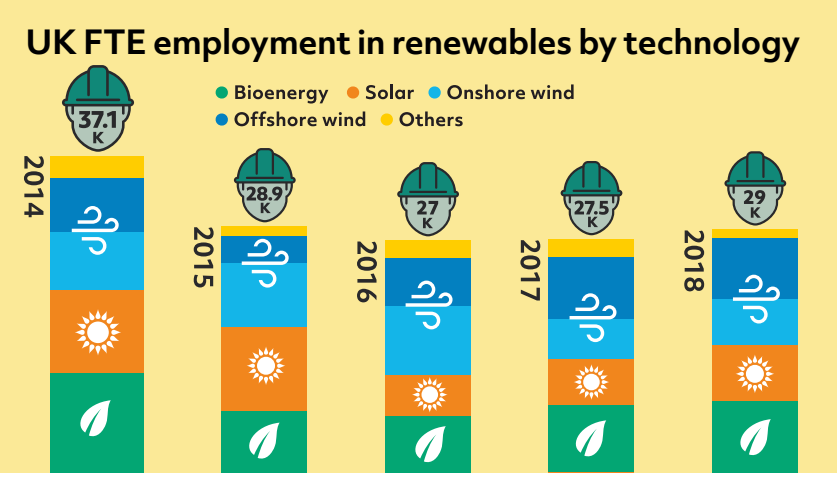
The government should also reinstitute a clear net zero emissions target for all new buildings to limit the need for future retrofitting.

6: Maximise the benefits for UK PLC

The journey to net zero could provide immense opportunities to generate prosperity and create new, good quality green jobs. Crucially, it could also contribute to a levelling-up agenda that promotes strong regional economic growth in parts of the UK that have been left behind in recent decades.

But, in order to realise these opportunities, we will need a proper green industrial strategy with a comprehensive plan for how we will maximise the local benefits to the UK of the drive to net zero. This is particularly pressing given that decarbonisation will require disruptive economic change, displacing some jobs and economic activity in existing carbon-intensive sectors.

Without new sources of clean growth to balance this out, this necessary process of change will mean UK workers and local communities are left behind. The passive, market-driven approach to decarbonisation the UK has followed so far has meant comparatively few of the economic benefits have accrued to UK plc. Much of the economic value, and many of the jobs created by the



Source: Ofgem & Aurora Energy Research

renewables boom of the last decade have been offshored, and the hopes expressed a decade ago of hundreds of thousands of new green jobs have not materialised.

In fact, despite some modest recent growth, the number of UK workers directly employed in UK renewables is down more than a fifth on 2014 levels. UK companies are generally relegated to a place lower down the renewables supply chain, while in sectors like nuclear, the failure to progress the new build programme, threatens the future of the UK's civil nuclear industry.

This picture is unlikely to change without a much more activist industrial strategy from government. UK companies are unlikely to be able to seriously compete with state-backed competitors in Europe and Asia without substantial support.

The government should engage with industry and trade unions to develop a real green industrial strategy that builds on the UK's deep expertise in science and engineering to secure a share of the immense economic and employment opportunities presented by net zero.

This will likely mean a strategic use of public financing mechanisms, including direct equity investment where appropriate, to support new UK clean energy start-ups and to help existing UK firms play a bigger role in the clean energy supply chain.

7: Net zero workforce plan

Meeting our climate goals is not just a question of financing and building infrastructure, it is also about people; without a skilled workforce to deliver it, net zero will remain out of reach.

Recent research commissioned by National Grid estimates we will need to create a 400,000-strong skilled energy workforce over the next three decades in order to deliver net zero.This net zero workforce will be needed to build and operate new clean energy infrastructure, to support the roll-out of low-carbon heating technology, and to install tens of thousands of electric vehicle charging points. Many of these roles will be in highly skilled STEM fields like electrical engineering and data science.

However, we face real challenges to creating this net zero workforce. A host of skills policy failures over the past decade mean that key sectors like energy are struggling to attract and retain the necessary numbers of skilled workers.

Chronic underfunding of technical education, the limitations of the modern apprenticeship system, a confused and fractured qualifications landscape, and a failure to properly promote STEM careers means the flow of new entrants into skilled energy roles is currently far too limited.

At the same time, a looming wave of retirements means the existing base of skilled and experienced energy workers is continuing to shrink.

But, one of the most pressing challenges is the chronic lack of diversity in the energy sector. Despite positive rhetoric from employers, very little progress has been made on increasing the number of women in the energy industry, especially in STEM roles, or the number of workers from a BAME background, who remain chronically under-represented in the sector.

At the same time, a failure to act on workplace equality and inclusivity means that the sector is struggling to retain women already working in the sector; data from the Royal Academy of Engineering suggests more than half of women in energy engineering roles leave the sector by the age of 45.

Serious action on diversity and inclusion is essential. To the extent that the energy sector remains a place that is seen as unattractive and unwelcoming to women and workers of colour, the sector will continue to cut itself off from a huge potential talent pool.

In the wake of the COVID-19 crisis there is a real opportunity to change course and begin developing a comprehensive plan for a net zero workforce that embeds diversity and inclusion at its core. This needs to focus on expanding the pipeline of new entrants into the energy sector, in part by developing a properly funded national retraining scheme, but also needs to look at ways to more effectively retain existing talent within the industry.

Taking action on issues such as equal pay and flexible working will be a key component of this, and will be critical to making the industry a welcoming and inclusive environment for all workers.

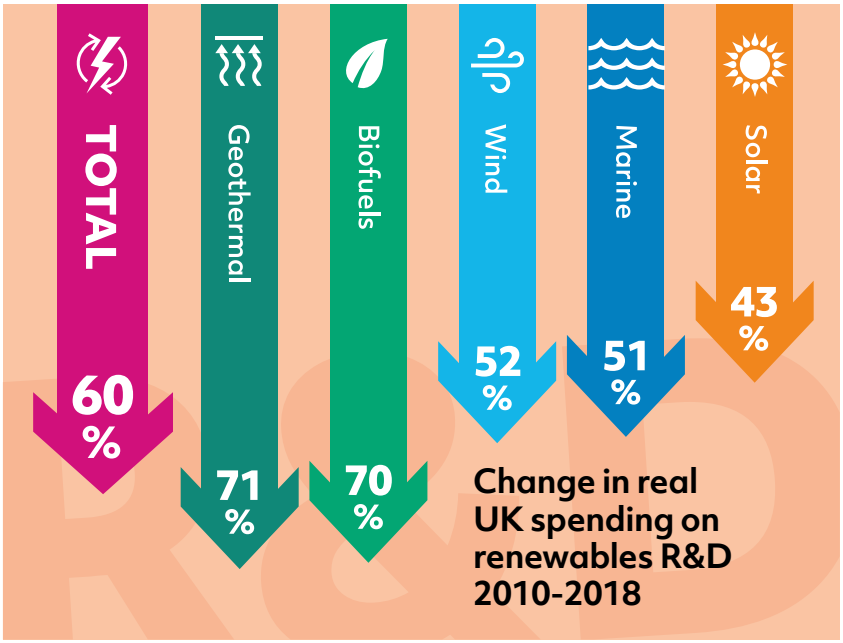
8: Ramp up research and development

Research and development has a critical role to play in helping us to reach net zero. Whilst important breakthroughs have already occurred, in areas such as wind turbine design and battery storage manufacture, there is still much more innovation work to be done.

As the Energy Systems Catapult recently argued, our chances of reaching net zero by 2050 will depend heavily on our ability to greatly increase the pace and scope of innovation in the energy sector, to allow us to find new technological solutions and to develop and deploy them at scale.

Yet, UK spending on energy R&D is falling just at the moment when the resources directed towards innovation need to be increased.

Early results from the official UK Innovation Survey suggest R&D spending by UK energy utilities has fallen to the lowest level since the financial crash, while data from the International Energy Agency shows that real UK spending on renewables R&D fell by 60% between 2010 and 2018.



Source: International Energy Agency (IEA)

These deep cuts to innovation funding need to be reversed as a matter of urgent priority, and if the UK is to be on the cutting edge of new clean energy technologies, then we need a properly funded strategy to expand the UK's energy research and development community.

This strategy needs to have a strong focus on sustaining a skilled R&D workforce, as well as maintaining close linkages with European and international research networks.

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9: Just transition

Just transition needs to be at the heart of our planning for net zero. The UK has a history of poorly managing industrial change, leaving workers and communities to deal with the devastating consequences of abrupt economic upheaval.

The legacy of the dismantling of the UK coal industry is just one example of how long-lasting the negative effects can be; more than a quarter of a century later, former coalfields remain plagued with unemployment and poverty.

There is also a pressing need, in the face of a chronic skills shortage in the energy industry, to preserve the expertise and experience of the skilled workers in sectors like thermal generation, natural gas networks, and offshore oil and gas.

A plan for supporting these workers to transition to new roles in the low carbon economy is an essential component of making the journey to net zero as equitable as possible. The Scottish Government has taken an important step in this direction by forming a Just Transition Commission, established on a social partnership basis. But, as yet, no similar action has been taken or proposed by the UK government.

Just transition must be at the heart of our strategy for achieving net zero and to help facilitate that the UK government should work to establish a UK Just Transition Commission, with a central role for trade unions.

10: A net zero energy commission

The current fractured energy policy landscape lacks clear strategic leadership and oversight, with responsibility for policy and planning decisions divided between myriad different actors and agencies in both the public and private sectors.

At the same time, the policy formation process is often opaque and lacks meaningful input from the full range of stakeholders. Given the scale and scope of the challenge we face in reaching net zero, it is imperative that we start to take long term policy decisions that are embedded in the best available science, and which are built on the broadest possible consensus.

The recent Citizens' Climate Assemblies are a positive step forward in rethinking the process of stakeholder engagement in policy formation, and we need to recognise the benefits of a more democratic, social partnership approach.

To provide the necessary strategic leadership and oversight, build popular consensus, and ensure decisions are grounded in technical realities, the government should establish a Net Zero Energy Commission comprised of key stakeholders, including trade unions.

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