

## Written evidence submitted by Durham Energy Institute (PEG0170)

Durham Energy Institute (DEI) is the hub of energy research at Durham University with over 100 active energy researchers. It unlocks research synergies between different disciplines and sectors to tackle the energy demands of the future. Producing world class research for understanding energy decarbonisation issues across science and society and delivering integrated and equitable solutions for the climate emergency and our net-zero ambitions.

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### Summary of key points in document and answer to question 1:

**What core/guiding principles should the Government adopt/prioritise in its recovery package, and why?**

1. The guiding Principles the Government should prioritise are:
  - a) **Prioritising investment in zero-carbon opportunities for a green recovery** to create green jobs, address climate change, and tackle inequality.
  - b) **Ambitious environmental and decarbonisation targets with a long-term national strategy and roadmap** to outline how these targets and steps will be achieved, encourage investment and enable the skills development required to meet the ambitions.
  - c) All such targets and plans must **adhere to the principles of a socially and regionally inclusive transition**. A recovery which has social and environmental justice at its core. Priorities should therefore acknowledge and directly address energy poverty, social inequality and disparities in employment opportunity in our society exposed by Covid-19.
  - d) **Prioritising region-based clusters as engines of growth and sustainable innovation pipelines**. This is an excellent opportunity to for **levelling-up and addressing the UK north/south divide** by recognising the wealth of resources, expertise, enthusiasm and ready workforce available in the North for a green recovery.
  - e) **Investment to reduce energy demand, ensure an energy efficient building stock** and support for businesses, industry and communities to become greener is also essential.
  - f) **Investment in sustainable innovation as the basis of future growth**, both in research and development as well as bringing new green technologies to market, along the entire innovation chain.
  - g) **Recognising the vital role of Universities as centres of Research and Innovation in the development of regional knowledge economies and innovation systems, as well as ensuring we have the skilled workforce needed moving forward**.
2. Adhering to these principles will build a foundation for a resilient green recovery that contributes actively to the reduction of inequality and energy vulnerability for households as well as for the nation.
3. This **requires strong leadership** in terms of addressing societal behaviour and expectations. The pandemic has shown that businesses and the public can respond effectively and quickly to clear messaging from the Government. Society will need new norms and new expectations if we are to get anywhere close to net-zero by 2050.

## How can the Government borrow and/or invest to help the UK deliver on these principles?

4. **No government loan/fund should be awarded unless clear low carbon/environmental gains can be clearly demonstrated** with follow up process to ensure promises are delivered (see below).
5. **Investment in sustainable energy supply chains will develop green jobs, opportunities, and new markets as well as support other sectors to be greener.** IEA's annual World Energy Outlook<sup>1</sup> highlights the vast numbers of jobs that can be generated through policy initiatives on energy-efficiency, renewables generation, network and infrastructure development and sustainable transport. A recent Local Government Association report states that nearly 700,000 direct UK jobs could be created in the low-carbon and renewable energy economy by 2030, rising to more than 1.18 million by 2050<sup>2</sup>. The exciting development of regional offshore wind clusters is a key example, as are other emerging industries such as CCUS, Hydrogen, energy storage, distributed renewables and geothermal. These opportunities are all being linked and developed within the North of England with initiatives such as Project Aura, Net Zero Teesside and Hynet in the North West<sup>3</sup>.
6. **The investment and support needed for a green recovery is a clear opportunity for 'levelling-up' and overcoming the North-South divide.** Investing in the North of England will create jobs and opportunities for deprived areas and support UK-wide green recovery and growth. The region is exceptionally well placed in terms of workforce, existing expertise, resources and innovative drive which can all be built on (please see below).
7. **Investing in re-skilling and re-tasking the Northern workforce** previously engaged in the Oil and Gas industry, as well as swathes of newly unemployed due to the effects of the pandemic, to support UK green ambitions (see response below).
8. **Now is the time for investment in Research and Development** to ensure key technologies are developed to support the green recovery however many industries are finding they need to cut this investment due to budget constraints resulting from the pandemic. The Government needs to encourage R&D investment moving forward through appropriate financial incentive schemes, tax incentives and other financial instruments to stimulate the market which will in turn repay these initial incentives many times over.

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<sup>1</sup> <https://www.bloomberg.com/news/articles/2020-06-18/3-years-and-3-trillion-could-shift-the-climate-change-narrative> and <https://www.iea.org/reports/sustainable-recovery>

<sup>2</sup> Local Governments Association: Local green jobs – accelerating a sustainable economic recovery ([https://www.ecuity.com/wp-content/uploads/2020/06/Local-green-jobs-accelerating-a-sustainable-economic-recovery\\_final.pdf](https://www.ecuity.com/wp-content/uploads/2020/06/Local-green-jobs-accelerating-a-sustainable-economic-recovery_final.pdf))

<sup>3</sup> <https://aura-innovation.co.uk/>; [www.netzeroteesside.co.uk](http://www.netzeroteesside.co.uk);

9. **It is essential that a long -term sustainable energy policy is developed** to lay-out a direction of travel, build confidence in the sector and encourage investment. It will be important to avoid technology-specific policy actions, instead supporting and regulating for the promotion of UK innovations, employment and local grass-root initiatives. UK needs to be immediately and globally recognised as the net-zero green nation.
10. **The investment required will be significant and we will have to raise revenue (taxes) to do this.** However we will benefit in terms of a cleaner, greener future, more jobs and a stronger, resilient, sustainable economy. One clear option is to **recognise the true costs of carbon emissions in product and service life cycles and implementing effective carbon taxing** combined with initiatives to support decarbonisation of businesses and heavy industry. This will also help industry to recognise the benefits of investing now in newer low-carbon technologies.
11. **These initiatives will enable to UK to become a global leader in net-zero and decarbonisation, exporting our expertise, skills and knowledge, as well as attract inward investment.**

**What measures and support will businesses need to rebuild consumer confidence and stimulate growth that is sustainable, both economically and environmentally?**

12. **At a time of challenging budget balancing choices, it is important businesses are enabled and encouraged to invest now to embed low-carbon practices** within their processes, buildings and workforce. The lock-down has made communities, workers and businesses very aware of the benefits that come from less carbon-intensive, more sustainable and flexible practices, to prevent them slipping back into old practices **clear government leadership and support is needed.** Emphasis on a strong and decarbonised communications network will also be important. The nation as a whole will reap the economic, environmental and social benefits.
13. **Regional University-Industry-Government partnerships are developing exciting research and innovation initiatives aimed at decarbonising industry and facilitating green growth.** These aim to enable industry to remain cost competitive whilst achieving net-zero targets, e.g. through the exploitation of waste heat, hydrogen, CCUS and energy systems integration. Good examples are DEI engagement with the Tees Valley Combined Authority and the Teesside Industrial Cluster to develop regional Industrial Carbon Capture and Storage clusters and Hydrogen Transport initiatives<sup>4</sup> as well as the Durham Heat Hub led by the University and Local Council to support innovation<sup>5</sup>. These initiatives have multiple wins and should be supported and encouraged.

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<sup>4</sup> <https://ukccsrc.ac.uk/project-grant/ccs-from-industrial-clusters-and-their-supply-chains-ccsinsupply/> and <http://www.net-zero-research.co.uk/network-hc/>

<sup>5</sup> <https://durhamheathub.com/>

14. **It is essential to enable a broader ecosystem of SMEs and third sector organisations and not focus policy and strategy only on large scale international actors.** UK leads on small-scale, locally embedded innovative organisations, so measures that support these (primarily a broad-based and long-term green energy policy that levelises market-access) will bring enormous dividends. Projects at a local scale can be supported which can progress from demonstrator to market more quickly.

#### **Whether the government should give a higher priority to environmental goals support?**

15. **Yes, Environmental goals need to be stringent and ambitious.** We will all benefit. The lockdown has made the public very aware of the benefits of lower pollution and traffic, as evidenced by our survey of views across County Durham on [Climate Strategy as we emerge from the pandemic](#)<sup>6</sup> as well as social media and media coverage. The time to make a clear statement is now while the public is supportive and in the run-up to UK Hosting COP26.
16. **We welcome the Government recent announcement of a £3 Billion energy efficiency package.** The scheme is an important start but more funding is needed if we are to retrofit our existing housing stock and introduce the low-carbon solutions outlined such as heat pumps and SMART meters.
17. **Ambitious national environmental and energy-efficiency building standards need to be introduced with a clear long-term roadmap so that training and skills required by the sector can be developed.** Improving energy-efficiency in buildings will reduce energy demand, help us meet our net-zero targets and will address fuel poverty. National Energy Action estimates that over the last five winters the number of excess winter deaths due to living in a cold home is estimated at approximately 10,000 per year'.<sup>7</sup> In its current review of the planning system the Government must resist the urge to prioritise building quickly to the detriment of environmental and sustainability standards. This will only result in sub-standard housing, which is not future-proof and will quickly require retrofitting at a much higher cost.
18. **Local Authorities and Regions need to be supported to aim higher** through ambitious national building standards – there is a strong desire for this but fears that introducing localised targets will make their areas less attractive for building investment.
19. **Sustainable regional development needs to have environmental restoration work built in.** Environmental goals need to be actively driven and ecosystems need to be actively restored: it is not good enough to simply reduce the extent to which we are damaging them. All policies, including sustainable energy policies, need to be assessed

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<sup>6</sup> 'Climate Strategy as we emerge from the pandemic: Responses to Cllr Jon Clare's DEI Perspectives Looking to a post-COVID sustainable future' (July 2020)

<https://www.dur.ac.uk/resources/dei/ClimateStrategyasweemergefromthepandemic-FINAL.pdf>

<sup>7</sup> [www.nea.org](http://www.nea.org)

for their long-term environmental impacts through whole-systems and life-cycle assessments, to mitigate against unintended consequences<sup>8</sup>.

**Whether the Government should prioritise certain sectors within its recovery package, and if so, what criteria should it use when making such decisions? What conditions, if any, should it attach to future support?**

20. **Investment focused on sustainable energy clusters and supply chains, along with energy efficiency measures across all sectors, will create green jobs and support national decarbonisation aims.** Re-skilling and up-skilling the population while de-carbonising must be prioritised. This will also support the levelling-up agenda ensuring the strengths and opportunities within the Northern regions are built on. Development of promising new energy vectors such as hydrogen will not only provide low-carbon energy solutions but create new markets and enable the UK to export its expertise.
21. **Growing regional clusters of low-carbon innovation which can then be rolled-out nationally will create a more balanced and resilient economy.** The Government must develop regional priorities based on local strengths and opportunities with appropriate support, recovery, resilience and growth packages. The Government can boost regional engines by adopting a differential strategy with localised conditions with each region identifying its own sector priorities and regional centres of excellence.
22. **It is important that policies avoid technological determinism.** Set the priorities (sustainable, equitable, environmentally beneficial) and provide **backing to move new technologies and embryonic industries into the mainstream** but do not specifying the technologies. The pandemic has shown us how quickly new innovative solutions can emerge in an enabling environment but it is impossible to predict which innovations should be prioritised.
23. **We need a broad portfolio of renewable energy approaches embedded in the whole energy system to ensure national economic resilience and balanced opportunity.**

**How can the Government best retain key skills and reskill and upskill the UK workforce to support the recovery and sustainable growth?**

24. **Investment in training, upskilling and reskilling for involvement in sustainable energy generation and zero carbon initiatives is a key opportunity.** The UK offshore oil and gas industry supports 270,000 jobs<sup>9</sup> with similar skills and expertise

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<sup>8</sup> See Professor Johnson et al Durham University submission to the EAC inquiry <https://committees.parliament.uk/writtenevidence/1316/pdf/>

<sup>9</sup> OGUK Workforce report 2019 <https://oilandgasuk.co.uk/wp-content/uploads/2019/08/Workforce-Report-2019.pdf>

required by emerging low-carbon industries; geothermal, hydrogen, Carbon Capture Usage and Storage (CCUS). A legion of gas fitters will require re-training when Government achieves its targets for decarbonising domestic heating. The historical legacy of mining can also be repurposed for low-carbon initiatives such as building geothermal energy systems using abandoned mines<sup>10</sup>. Retrain and reskill.

25. **Up-skilling existing workforces to meet the challenges and opportunities** arising from the anticipated development of new technology and increased digitalisation is also required.
26. **Universities play a critical role in training and developing the next generation of workers for the energy industry and supporting emerging market innovations.** A good example of this is Durham University's work with the regional offshore wind energy clusters in Humber, Project Aura<sup>11</sup> and in the North East, Energi Coast<sup>12</sup>, which have Business Development, Innovation, and Skills Development at their core to drive forward the sector. University-Industry Partnerships are at the core of these initiatives. The leadership shown by the UK in support for deployment of offshore wind, including incentivising local content through the Offshore Wind Sector Deal, will lead to a thriving UK supply chain. Our academic leadership of the EPSRC Supergen Wind Consortium has made a significant contribution to the growth of university engagement with the sector, making an important contribution to the UK becoming the global leader in offshore wind. Our Academic leadership in future technologies such as Hydrogen<sup>13</sup> has also been key, working with regional authorities and industrial clusters to develop the technologies, energy systems and supply chain for Hydrogen as an energy vector. **It is anticipated that the impact of Covid-19 on the global green agenda will strengthen even further the need for increasing numbers of such partnerships into the future. These will need support to gather traction.**
27. **The University sector must be recognised as a key stakeholder for re-skilling, upskilling and innovation** - developing an informed and skilled workforce who can enable our net-zero ambitions. Our Centres of Doctoral Training (CDTs) and University-Industry partnership develop collaboration with industry clusters and ensure skills and innovations meet the rapidly changing needs of industry. The EPSRC Offshore Renewable Energy Supergen has recent identified over 150 current PhD projects at UK Universities on studies that are directly relevant to the offshore renewable energy sector. Many of these projects are collaborations with industry. These higher degree candidates will develop skills and competences during their PhD's which they will take

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<sup>10</sup> <https://www.dur.ac.uk/dei/research/geothermal/> and <https://www.durham.ac.uk/dei/news/?itemno=41581> and [https://bdaily.co.uk/articles/2020/07/16/tees-valley-mayor-makes-bid-for-clean-energy-centre-that-could-create-thousands-of-jobs?utm\\_source=bulletin&utm\\_medium=email&utm\\_campaign=2020-07-17-north-east&utm\\_content=readmore](https://bdaily.co.uk/articles/2020/07/16/tees-valley-mayor-makes-bid-for-clean-energy-centre-that-could-create-thousands-of-jobs?utm_source=bulletin&utm_medium=email&utm_campaign=2020-07-17-north-east&utm_content=readmore)

<sup>11</sup> <https://aurawindenergy.com/>

<sup>12</sup> [www.energicoast.co.uk](http://www.energicoast.co.uk)

<sup>13</sup> See [www.durham.ac.uk/dei/](http://www.durham.ac.uk/dei/)

into the industry during the next stage of their career development and export to other countries. Many universities, including Durham, are also running undergraduate and postgraduate level short courses in collaboration with industry partners to upskill their existing workforce. These initiatives could be expanded to support the reskilling and upskilling of UK industry.

28. **Whole system energy experts are required, not just experts in isolated technologies.** DEI specialises in training which combines scientific and social analysis, and whole-systems approaches, enabling engineers and scientists to develop effective solutions for society for the betterment of all. Our approach in our Energy CDT<sup>14</sup> is being used as an exemplar by the European Universities Association who want this rolled-out across all energy training<sup>15</sup>. To enable this, funding for training and research needs to become less siloed, overcoming the Science versus Social dichotomy and supporting multidisciplinary.
29. **Low carbon innovations being developed through our University-Industry partnerships can also engage colleges and other Higher Education Institutions** to ensure young people can learn new 'greener' skills that they will be able to take forward into careers in a wide variety of sectors. This should be encouraged and the Apprenticeship Levy could be an opportunity to support such skills development schemes for green jobs. It is also essential that attention is given to accessibility and **funding re/training opportunities that reach into deprived areas** as well as the usual ones.
30. **In the post-pandemic period we need to prioritise involvement of young people (eg school leavers, university graduates).** These young people are facing a future with increased restrictions on movement and interaction and cuts to staffing. It will therefore be increasingly difficult to gain employment or work experience, even through volunteering. Schemes which support young entrepreneurs and continued skills development need to be supported. Durham University is ensuring that there is an increased level of support, post-graduation training and advice for graduates as they move into this new world.

**Is the Industrial Strategy still a relevant and appropriate vehicle through which to deliver post pandemic growth?**

31. **The Industrial Strategy must be reviewed** to ensure that it remains fit for purpose and that net-zero, sustainability and environmental goals are embedded across all investment and research and innovation funding. The Industrial Strategy provides a

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<sup>14</sup> Durham Multidisciplinary Centre for Doctoral Training in Energy [www.durham.ac.uk/dei/cdt/](http://www.durham.ac.uk/dei/cdt/)

<sup>15</sup> EUA Energy Action Agenda <https://cordis.europa.eu/article/id/122963-eua-issues-energy-action-agenda-for-universities-and-calls-on-policymakers-to-take-note>

clear statement of intention, however, was based on an 80% carbon reduction target and not netzero.

32. **A properly green industrial strategy needs to prioritise sustainability and environmental goals throughout Government operations and policies.** It will need to re-think its approach to 'growth' to acknowledge that is not the primary motivation, including redefining its own assessment of investment to recognise environmental benefit over commercial benefit in achieving a carbon budget. Priorities should be sustainability, resilience and fairness.

**How should regional and local government in England, (including the role of powerhouses, LEPs and growth hubs, mayoralities, and councils) be reformed and better equipped to deliver growth locally?**

33. **Prioritising region-based clusters as engines of growth.** Regions can act as the anchors for capacity building, training hubs and economies.
34. **Localised and place-based funding** from UK Government needs to continue and increase to support regional clusters and continued development of Industry-University innovation. The regional clusters and Industry-University partnerships with support from place-based government funding such as UKRI Strength in Places Fund<sup>16</sup> has begun to generate a range of exciting initiatives which will create opportunities for a green recovery. Examples in the North East include the North East Energy Catalyst<sup>17</sup>, Regional Offshore Wind Clusters<sup>18</sup>, Hydrogen Transport corridor<sup>19</sup>, Net Zero Teesside<sup>20</sup>.
35. **Investment and development decisions are best placed at a regional level and informed by national strategies and targets.** Regional clusters and Local Authorities can develop priorities based on local strengths and opportunities with appropriate support, recovery, resilience and growth packages. More localised decision-making, with local knowledge and understanding of the context, can ensure a more fair and effective distribution of funds.
36. **Ambitious regional energy and development strategies** have been developed by regional clusters involving Local Enterprise Partnerships, Industry clusters, Local Authorities and Universities, and community organisations. These strategies and plans need to be built on in the post-pandemic period but approached flexibly to bring forward the key plans that can be accelerated to ensure a green recovery.

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<sup>16</sup> <https://www.ukri.org/funding/funding-opportunities/strength-in-places-fund/>

<sup>17</sup> <https://www.northeastlep.co.uk/the-plan/energy/north-east-energy-catalyst>

<sup>18</sup> [www.energicoast.co.uk](http://www.energicoast.co.uk)

<sup>19</sup> <https://www.gazettelive.co.uk/business/business-news/scheme-put-teesside-centre-hydrogen-16014933>

<sup>20</sup> <https://www.netzeroteesside.co.uk/>

37. **Local and regional governance structures need to be properly and sustainably funded, and they need to be empowered to take things into their own hands.** They need to be able to foster local innovation, take climate initiatives, engage local communities, partner with community organisations and third sector actors, to make change happen. LEPs have begun to identify cross-border synergies and opportunities, however some consideration should be given to re-introducing properly funded pan-Regional agencies to coordinate these plans.

**What opportunities does this provide to reset the economy to drive forward progress on broader Government priorities, including (but not limited to) NET Zero, the UK outside of the EU and the 'levelling up' agenda?**

38. We have the opportunity to **ensure that climate targets and net-zero are prioritised.** We know that prioritising climate targets will lead us to a sustainable economy, but that prioritising economic targets only will bring us to climate catastrophe. New priorities need to include: investment in climate action, sustainable industry, retrofitting buildings, renewable energy generation and promotion of sustainable transport.

39. Investing in a green recovery presents the opportunity to **re-establishing the UK's global research base, develop innovation pipelines and energise our green manufacturing base.** This will enable our intellectual property and our technologies to be developed within the UK, rather than in other countries (i.e. China). The UK can position itself as a global lead in net-zero solutions, harness our thought leadership and export our expertise, skills and products in low-carbon. It will also make the UK more resilient to global market and political fluctuations.

40. **Levelling up and reduced social inequality will result from these priorities.** Many of our poorer areas, such as areas in the North of England, have poor housing, poor employment, dirty industries (still), yet are ideally suited to green growth, infrastructure improvements for demand-reduction, etc. Opportunities to support community renewable generation and improve efficiency of housing in lower income areas, to alleviate social inequality should be prioritised. A good example is our work with Haringey Borough Council to develop their Affordable Energy Strategy 5 year plan to improve the energy efficiency of homes and eradicate fuel poverty<sup>21</sup>.

**What should the Government do to ensure that delivering on these priorities does not exacerbate the vulnerability of businesses, consumers and communities/workers that have been impacted by COVID-19?**

41. **Working closely with local and regional authorities and with representative organisations** (such as National Energy Action) who can collate information on impacts

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<sup>21</sup> [www.durham.ac.uk/dei/projects/haringeystategy/](http://www.durham.ac.uk/dei/projects/haringeystategy/)

on business, communities and consumers. Policy needs to be developed in collaboration with these organisations, rather than in consultation with them.

**42. Sticking to a core set of principles, with sound employment and fairness principles at the centre of its values.**

**What lessons should the Government learn from the pandemic about actions required to improve the UK's resilience to future external shocks (including – but not limited to – health, financial, domestic and global supply chains and climate crises)?**

**43. Indigenous renewable energy production** improves UK resilience, making us less vulnerable to global price fluctuations and Geo-political shifts.

**44. A broad, and diverse ecosystem of organisations, businesses and companies** is more resilient and flexible. Government needs to take seriously smaller organisations and ensure procurement systems and resources support the SME and community sector to thrive.

**45. A consistent and reliable long-term national policy, that is technology-agnostic, but builds on basic principles is what will enable organisations to invest, innovate and develop.** The greatest danger here is a slew of government policies that become short bursts of enthusiasms and then are withdrawn. National policy can be developed into diverse regional strategies based on local strengths and opportunities, creating a diverse offer of industrial and innovation systems which is more resilient, balanced and competitive in global trade corridors.

**46. The University sector is a key engine of innovation** and has strong partnerships with industry which allow it to respond quickly to develop innovative solutions in a time of crisis.

**What opportunities exist for the UK economy post Brexit and the pandemic for export growth?**

**47. Investment in sustainable energy research, development and supply chains** will enable the UK to export its energy innovation expertise and make it more resilient as we leave the EU. Our expertise in research and developing newer netzero technologies should be promoted, supported and leveraged to develop our Engineering, Services and Manufacturing base. This will reduce the reliance of our Energy, Heating and Cooling, and Transport Industries on imported products to construct and maintain the infrastructure we require.

**48. Educating future leaders and workers** who can work across boundaries, take initiatives and apply their skills flexibly to meet the climate challenge within an enabling framework

49. These opportunities need to be enabled through strong international agreements, freedom of mobility, and moving investment from fossil-based industries to future-renewable industries.

**What role might Government play as a shareholder or investor in businesses post-pandemic and how this should be governed, actioned and held to account?**

50. **Government should hold to account any companies it has invested in through the pandemic ensuring they are prioritising sustainability, energy-efficiency and social justice in decision making and investments.** As highlighted by IPPR<sup>22</sup>, these commitments need to be properly enforced by adopting the ethical reporting frameworks, ensuring business plans meet targets and ensuring executive pay is linked to achieving these climate targets<sup>23</sup>.

51. As we have outlined above, **investment focused on sustainable energy clusters and supply chains will create green jobs and support decarbonisation.** Development of promising new energy vectors such as hydrogen will provide low-carbon energy solutions as well as create new markets and enable the UK to export its expertise<sup>24</sup>. Re-skilling and up-skilling the population while de-carbonising must be prioritised.

52. **It is important that policies avoid technological determinism.** Set the priorities and principles (sustainable, equitable, environmentally beneficial) but do not specifying the technologies. Government is not best positioned to make choices between technological areas – this should be done by R&D and innovation clusters, within a broad framework of ambitious sustainability demands. The pandemic has shown us how quickly new innovative solutions can emerge in an enabling environment, but it is impossible to predict which innovations should be prioritised.

*August 2020*

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<sup>22</sup> Transforming the Economy after Covid-19: A clean, fair and resilient recovery by Carsten Jung and Luke Murphy: <http://www.ippr.org/research/publications/transforming-the-economy-after-covid19>

<sup>23</sup> Some of the most widely known initiatives for social and environmental reporting are UN Global Compact (UNGC), ISO14001 and 26000, Ethical Trading Initiative (ETI), Transparency international (TI), IVV Business Charter and Environmental Management and Audit Scheme (EMAS), Global Reporting Initiative (GRI) and International Finance Corporation (IFC) Performance Standards on Environmental and Social Sustainability (E&S).

<sup>24</sup> See our Network for Hydrogen Transportation - Network H2 <http://www.net-zero-research.co.uk/network-h2-home/>