Business, Energy and Industrial Strategy Committee: Post-Pandemic Economic Growth Enquiry

Written Evidence from the Sussex Energy Group (University of Sussex)

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About the authors

This submission has been prepared by the following members of the Sussex Energy Group (SEG)[1] at the University of Sussex:

- Dr Marie Claire Brisbois (https://profiles.sussex.ac.uk/p458012-marie-claire-brisbois)

- Dr Donal Brown (https://profiles.sussex.ac.uk/p283676-donal-brown)

- Claire Copeland (https://profiles.sussex.ac.uk/p299697-claire-copeland)

- Ed Dearnley (http://www.sussex.ac.uk/spru/people/lists/person/20600)

- Prof Tim Foxon (https://profiles.sussex.ac.uk/p187722-tim-foxon)

- Dr Philip Johnstone (https://profiles.sussex.ac.uk/p328393-philip-johnstone)

- Dr Max Lacey-Barnacle (https://profiles.sussex.ac.uk/p214171-max-lacey-barnacle)

- Prof Steven Sorrell (https://profiles.sussex.ac.uk/p2497-steven-sorrell)

SEG aims to understand and foster transitions towards sustainable, low carbon energy systems. We undertake academically rigorous, interdisciplinary and world-leading research that is relevant to contemporary policy challenges.

Our response addresses some (but not all) of the questions in the inquiry's call for evidence.

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

1.1. The focus of the recovery package should be on building a clean, low carbon economy that is fair and just. The Government clearly understands the need to provide support and stimulus to help the economy recover from the pandemic, but it must ensure that such stimulus does not lock in unstable jobs based on inefficient, fossil fuel driven activity. It is important that the support and stimulus does not waste the opportunity to put the country on a sustainable, low carbon trajectory. A strong focus should be on stimulating energy efficiency and clean energy to set the UK on a pathway to net-zero greenhouse emissions by 2050. This concept has been dubbed a 'Green New Deal', however the benefits of such an approach go beyond mere environmental improvement, with positive impacts on

[1] See http://www.sussex.ac.uk/spru/research/themes/sussexenergygroup

employment, air quality, traffic congestion, health and access to green spaces. The recovery package should also be inclusive, with all members of society able to participate in, and enjoy the benefits of, a low carbon economy.

1.2. The recovery package should include both short- and long-term measures. Immediate stimulus is needed to get the economy back on its feet; however, these measures should link to longer-term objectives and associated support packages. It would be timely to review what those longer-term objectives should be and to engage in public consultation through, for example, citizens' assemblies.

1.3. A focus on low carbon technologies could provide a clear path. However, this will require the establishment of strong supply chains, and in particular investment in the development of the necessary skills to avoid lucrative employment going to overseas workers. This can take time, so the earlier this is planned for and actioned the better. In the short term, supporting activities such as building retrofit (improving the energy efficiency of existing buildings) can build on existing industries and technologies, providing a near-term boost to employment and economic activity whilst handing long-term benefits to households. This activity feeds into (and supports) longer-term decarbonisation policy packages, which should be coupled with governance reform of our energy and transport systems to focus on carbon reduction, public health improvement and other policy aims.

1.4. Wide adoption and roll out of smart technologies is seen as a critical part of the effectiveness of a low carbon transition. However, the rollout of smart meters has not been successful[2]. The issues raised by the smart meter roll out programme need to be addressed urgently so the UK can get back on track to meeting targets. The digital sector and AI are seen as core economic strengths and are an example of success in the "levelling up" agenda, for example between 2011-15 the strongest areas for digital turnover growth were geographically diverse: Dundee (171% growth), London (106%), Sunderland (101%), Bristol & Bath (87%) and Edinburgh (85%)[3].

1.5. Finally, the Government should support both centralised and decentralised recovery initiatives. Local and regional authorities are already implementing a range of measures that will drive economic recovery and job creation in their areas, whilst meeting carbon reduction targets and pressing social needs. These organisations understand the local context and can act as key enablers of clean economic growth. Devolving powers to local and regional authorities, coupled with the appropriate levels of financial and technical support, should be a core part of the Government's recovery package[4].

[2] B. Sovacool, P. Kivimaa, K. Jenkins (2018). The smart meter rollout: Social questions and challenges.
[3] Tech Nation 2017
[4] Brisbois, M. C. (2020). Decentralised energy, decentralised accountability? Lessons on how to govern decentralised electricity transitions from multi-level natural resource governance

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

2.1. At the time of writing there is no sign the pandemic is ending anytime soon and social distancing measures of some form will be in place for the foreseeable future. Government support and investment will therefore need to move from an immediate-term focus on damage control to a longer-term view of living with the virus whilst supporting the UK's strategic priorities.

2.2. Consumption patterns are likely to remain altered for some time, particularly spending on more social activities (bars, restaurants, cinemas, theatre, concerts etc). This "social" consumption has been identified as forming a substantial fraction of general consumption and could hit GDP hard[5]. Over the longer term this fall in GDP could hinder the UK Government's ability to borrow. While government borrowing will clearly continue to be necessary, there will need to be a greater focus on channelling funding to where it is most needed and can be most efficiently used. Research around science, technology and innovation will be necessary to support this process.

2.3. Many industries face an existential threat from social distancing and require (or will require) government bailouts or support packages. These needs to have conditions attached. Ultimately the cost of these packages is borne by the taxpayer, and there needs to be an appropriate and proportionate return on that support. This does not necessarily need to be financial but could, for example, be a binding commitment to improving natural capital, moving to low carbon operations and/or investment in local communities. The level of commitment required should depend on the kind and level of support provided.

2.4. At the time of writing, management of the pandemic is moving from centralised control (with centralised, national lockdown) towards more targeted, localised control. This needs to be backed with stronger localised funding options, with local funding bodies and banks working in tandem with local authorities to enable funding to get to where it is most needed.

3. Whether the government should give a higher priority to environmental goals in future support?

3.1. The recovery package should align with the Government's target of net-zero greenhouse emissions by 2050. It should provide stimulus for clean energy generation, energy-efficient buildings and low-emission transport, whilst supporting transition from polluting industries via, for example, retraining initiatives. If we do not follow such a path, we risk locking in polluting activities and the UK will fail to meet its net-zero target.

3.2. A 'Green New Deal' approach to economic support will not just benefit the environment: it is also one of the best ways to stimulate economic growth and boost employment. As an

[5] Keogh-Brown et al (2009). The possible macroeconomic impact on the UK of an influenza pandemic

example, retrofitting energy efficiency measures into existing homes is a labour-intensive process where nearly every pound spent translates into UK employment and tax revenue returned to the exchequer. The retrofit programme we outline in section 6, for example, would create an estimated 294,527 direct new jobs. This compares favourably to blunter instruments such as universal cuts to VAT, which tend to stimulate purchase of imported goods that have a much smaller impact on direct UK employment.

3.3. Improving the energy efficiency of homes is a priority as home working is likely to be the norm for the foreseeable future where employment allows it, leading to overall increased energy consumption in buildings. (See also answer to Q6.) There could be energy savings from commuting, but the picture may be complex as more people turn to cars to avoid shared transport options – particularly in the less walking/cycling friendly winter months.

3.4. Some emerging studies[6] point to other key areas of green growth that have high economic multipliers and could be quickly implemented. These include clean physical infrastructure, investment in education and training, natural capital investment and clean R&D. More UK-specific research in this area would help to develop granular policy proposals, and better quantify both the distribution of impacts and co-benefits/disbenefits that might be produced on the timescales needed for immediate COVID-related recovery.

3.5. Other benefits of a focus on environmental goals include alleviation of fuel poverty[7][8] and reductions in air pollutant emissions from vehicles and buildings[9]. This will have a direct, positive impact on people's health, reduce health care expenditure and improve quality of life.

3.6. Any delay in investment in renewable technologies as a result of the pandemic should be reversed. There is a risk that the delay may result in numbers of deaths and emissions that outweigh those saved in the imposed lockdown(s)[10]. The Government's policy response is critical and urgent.

4. 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?

4.1. Improving the energy efficiency of existing buildings should be a clear priority for the recovery package. Such improvements bring multiple benefits, including lower carbon emissions, improved health, increased direct employment and higher household disposable

[6] 'Building back better: A net-zero emissions recovery', Smith School of Enterprise and the Environment (2020)
[7] 'Under One Roof', National Energy Action (2018)
[8] Liddell, C., & Morris, C. (2010). Fuel poverty and human health: a review of recent evidence.
[9] Sovacool, B. K., Martiskainen, M., Hook, A., & Baker, L. (2020). Beyond cost and carbon: The multidimensional co-benefits of low carbon transitions in Europe.
[10] Gillingham et al. (2020). The Short-run and Long-run Effects of Covid-19 on Energy and the Environment

income. We welcome the Government's announcements of a Green Homes Grant scheme; however, this scheme does not go far enough.

4.2. A more comprehensive scheme should incentivise multiple integrated building fabric measures, new heating systems and controls, and the widespread adoption of rooftop solar. Such a programme would create a large number of direct jobs in the retrofit industry and associated supply chains, whilst bringing very large financial, health and comfort benefits to those households receiving retrofit measures. Reduced energy bills also increase the disposable income of households, potentially leading to increased spending in the retail economy or on other fixed expenditures.

4.3. In a report with the New Economics Foundation[11], SEG researchers model a scenario where around 9 million homes receive whole-house retrofit measures between 2020-2023, saving around 15% of total domestic energy demand. This includes targets for a 10% (38TWh) reduction in heat demand through energy efficiency improvements and an 87-fold increase in decentralised low-carbon energy. The latter equates to 10% of homes heated by 2.6 million heat pumps, and a 135% increase in renewable micro-generation (7.4GW) via 3.8 million rooftop PV systems. These deployment figures – although an order of magnitude larger than current activity – have precedent in the historic renovation, renewable energy and heating markets.

4.4. Our modelling shows that meeting these targets would produce massive benefits for climate change, public health, jobs, poverty alleviation and the wider economy. Our scenario saves approximately 19.2 $MtCO_2$/year by 2023, or 21% of 2019 emissions from the UK's homes. This is a cumulative 40.9 $MtCO_2$ by 2023 or 17% of the required savings under the UK's third Carbon Budget (2017-2022). Average annual energy bill savings are £418 for each home retrofitted and reach a cumulative saving £53.17 billion by 2035. Wider health, comfort and environmental benefits are estimated to reach £47.19 billion, meaning a combined total of £100.43 billion. Most benefits are expected to continue past our model's cut off point of 2035.

4.5. This would create an average of 259,000 direct new jobs between 2020-2023, peaking at 383,000 in 2023. This represents a 17% increase in total construction employment and a 262% increase in the renovation maintenance and improvement sector. Using ONS data, our scenario creates an additional 221,000 indirect jobs per year in the wider economy and supply chains, estimated to be a total average of 480,000 jobs between 2020-2023. Macroeconomic modelling[12] suggests that this level of investment would lead to an increase in GDP of ~£40 billion between 2020-2023, with GDP and company profits up 0.64% and 1.30% respectively in 2023 vs the baseline.

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[11] 'A GREEN STIMULUS FOR HOUSING: The macroeconomic impacts of a UK whole house retrofit programme' (NEF, 2020)

[12] Nieto, J., Brockway, P., Barrett, J. (2020). Socio-macroeconomic impacts of meeting new build and retrofit UK building energy targets to 2030: a MARCO-UK modelling study Sustainability Research Institute School of Earth and Environment, Leeds University

4.6. Our modelling suggests that such a programme would entail a total capital investment of ~£85 billion by 2023. This breaks down as demand reduction costs (energy efficiency) of £50 billion to 2023, low-carbon heat systems at ~£26 billion and the remaining ~£9 billion for solar PV. In our central funding scenario, we assume ~£22 billion financing via government grants for low income homes, £20 billion in 'Green Mortgages' at 4% interest and £46 billion in state backed 0% interest loans for 'able to pay' households. This results in a total investment of ~£100 billion in today's prices over a 25-year term, including interest. Based on a total government spend of ~£28 billion and tax receipts of £60 billion we see a net gain in government revenues of ~£26 billion or £1.74 for every pound spent.

4.7. Several industries were especially badly (and quickly) affected by the coronavirus crisis. One example is bus and train operators, who have seen passenger numbers and associated income fall dramatically during the lockdown period, with little chance of normality resuming in the immediate future. Clearly these industries will be reliant on public funding for the foreseeable future, and this period should be used to review the operational models for the public transport sector as a whole. Environmental performance and wider public benefits should be two key factors considered here. The Department for Transport is currently consulting on a Transport Decarbonisation Plan[13]. This process began before the pandemic hit UK shores; however, the final plan should strongly link to the post-pandemic recovery package.

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

5.1. Regional and local government have a key role to play in a green economic recovery. They have the local intelligence needed to target key areas of opportunity and need, and the convening power necessary to bring together partners and develop local solutions. Currently, however, local government is often overlooked by centralised power and delivery structures, whilst also suffering from a lack of financial resources to create meaningful change (greatly exacerbated by the pandemic crisis). De-centralising powers, along with provision of sufficient financial resources, would greatly strengthen the ability of regional and local government to create meaningful change.

5.2. To provide but one example, the soon to start Green Homes Grant scheme provides a good opportunity to create meaningful improvements to the UK's housing stock. However, the centralised model sees funding flow directly from national government to installers and homeowners, with no role for local intermediaries. With this system the primary beneficiaries are likely to be relatively wealthy homeowners, and the focus will rest on individual measures rather than a whole house approach – a lost opportunity. Involving local government and their community partners in the scheme could radically change this picture. Using local intelligence grants could be targeted at individuals and properties most

[13] See our response to the Creating the Transport Decarbonisation Plan consultation here.

at need. Outreach and advice services could be established to guide property owners towards a 'whole house' approach to grant funded energy efficiency improvements.

5.3. Reform can learn from (and build upon) current best practice at the local and regional level. One example which SEG researchers are involved with is the Greater Brighton city-region, which brings together six local authorities around Brighton and Hove. The Greater Brighton Economic Board is expected to endorse an Energy Plan to support and develop local capacity and initiatives to address the climate change crisis. The city-region is now actively exploring plans for a green recovery. Its industries, including tourism, aviation and ports, have been severely affected by the pandemic and are in urgent need of support, whilst its thriving digital industries sector points towards new opportunities for the region. The University of Sussex is convening Innovation Forums involving businesses, local authorities and community organisations for Greater Brighton to aid the delivery of social, environmental and economic projects.

5.4. Another best practice example with which we have links is the North of Tyne city-region, which brings together the urban local authorities of Newcastle and North Tyneside, and the rural local authority of Northumberland, under a directly elected Mayor. The North of Tyne Combined Authority plans to implement a £10 million Green New Deal Fund to stimulate innovation and business growth in the areas of energy efficiency, renewables and low-carbon transport, including leveraging match funding, promoting innovative financing models and supporting skills and retraining development.

6. Contact for Further Information

Ed Dearnley (SEG Programme Manager) on 01273 873471 or e.dearnley@sussex.ac.uk.