

---

# AN ECONOMY THAT WORKS

---

BETTER GROWTH BEYOND GDP

---



**ALDERSGATE  
GROUP** Leaders for a  
sustainable economy >>>

---

## POLICY REPORT

---

# TABLE OF CONTENTS

|  |    |
|--|----|
| Foreword   | 3  |
| Headline indicators: Oliver Dudok van Heel, An Economy That Works Alliance     | 4  |
| High employment: Susanne Baker, EEF  | 6  |
| Equality of opportunity: Duncan Exley, The Equality Trust                      | 10 |
| Wellbeing at the core: Christine Berry, New Economics Foundation               | 14 |
| Low carbon: Ben Caldecott, Oxford's Smith School of Enterprise and Environment | 18 |
| Zero waste: Professor Paul Ekins OBE, University College London                | 22 |
| Enhancing nature: Toby Roxburgh and Karen Ellis, WWF-UK                        | 26 |

An Economy That Works is an alliance of organisations from across the economy whose fundamental belief is that a successful economy needs to deliver High Employment; Equality of Opportunity; Wellbeing. Furthermore, it needs to be Low-carbon; Nature Enhancing; and produce Zero Waste.

For more information visit [www.aneconomythatworks.org](http://www.aneconomythatworks.org)

"To help address one of the greatest challenges facing our society – delivering clean, reliable and affordable energy to support our world long into the future – we need a systemic approach that can meet our long-term needs while ensuring short-term stability. An Economy That Works offers a clear sense of direction towards such an approach by highlighting the importance of an economy that delivers skills, jobs and innovation while minimising our environmental footprint."

***Steve Holliday, CEO, National Grid***

"A sustainable future depends on the radical redesign of the global economy that takes into account economic, environmental and social impacts. An Economy That Works has a framework that can move us further faster."

***Dan Hendrix, Chairman and CEO, Interface Inc.***

# FOREWORD

When the framework underpinning An Economy That Works (AETW) was first launched in May 2014, reactions to it were encouraging. It was seen as a very useful guide to define the fundamental purpose of the economy. The six characteristics that define a successful economy provided a well-argued overview of what is needed, beyond the ubiquitous and increasingly inadequate metric of Gross Domestic Product (GDP).

But even the strongest advocates of our framework were asking the obvious question: 'What next?'

The last few years have seen a plethora of new economic frameworks, from the Stiglitz Commission to the EU 'Beyond GDP' initiative, but what they all shared in aspiration they often lacked in practical application.

When the Aldersgate Group published the AETW report, it was as a foundation document that would help inform and guide policy makers towards strategic alignment. This remains the aim of the AETW initiative. We will not achieve an economy that works through aspiration alone, we need to translate these aspirations into tangible policy proposals which are made in cognisant harmony, not in unintentional conflict. This report aims to demonstrate the first step in that direction, highlighting a number of concrete policy proposals that together will help deliver an economy that works.

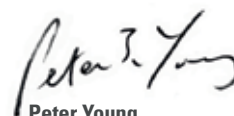
In keeping with the spirit of the AETW initiative, the proposals in this report are not the brainchild of one organisation, but are independent contributions authored by experts from very different organisations. Each organisation shares the overall vision outlined in AETW, but makes specific contributions where expertise is greatest. The contribution from the manufacturers' association **EEF**, discusses the role of innovation in job creation, which is accompanied by an endorsement from the **TUC**; the **Equality Trust** outlines the need for equality of opportunity to be integrated in industrial policy; the **New Economics Foundation** argues for a greater focus on employee wellbeing; Ben Caldecott of the **Smith School, University of Oxford** sets out a possible programme to retire sub-critical coal fired power stations; **UCL** makes the case for environmental tax reform to achieve a zero-waste economy; and **WWF** argues for greater transparency around the UK's exposure to natural capital losses. **The AETW Alliance** introduces an additional policy proposal to promote coherence, highlighting the need for headline indicators appropriate for measuring progress.

We hope that this exciting new report, the final one to be sponsored by the Aldersgate Group after 18 months of productive support, will inspire much more of this type of collaboration over the coming years: leaders from business and civil society who are focused on their own priorities, just as Aldersgate Group is on its vision for a sustainable economy, bringing their own knowledge, expertise and influence together to achieve a collectively shared goal they could never achieve individually.

Please get in touch ([info@aneconomythatworks.org](mailto:info@aneconomythatworks.org)) if you are inspired to help deliver the aims of AETW and wish to be part of the growing coalition that will help realise it.



**Oliver Dudok van Heel**  
Executive Director,  
An Economy That Works alliance



**Peter Young**  
Chair, Aldersgate Group

# HEADLINE INDICATORS

## MEASURING PROGRESS TOWARDS AN ECONOMY THAT WORKS: THE CASE FOR HEADLINE INDICATORS

Oliver Dudok van Heel, Executive Director

**AN ECONOMY  
THAT WORKS**  
BETTER GROWTH BEYOND GDP

### SUMMARY PROPOSAL

In order to ensure that we achieve an economy that works and to know that we are heading in the right direction, it is critical that there are clear headline indicators in place to measure progress along the key characteristics of An Economy That Works (AETW), in addition to GDP growth.

There is a need to define clear headline indicators, to integrate these (further) into policy making, and to increase government accountability for these indicators.

### WHY THIS MATTERS

If we do achieve societal and political consensus around the need for an economy that works, how will we know if we are heading in the right direction?

Headline indicators encapsulate the key goals which motivate activity across society and frame what the economy is for. At the moment GDP growth is the most prominent of these and tends to override other goals. This is partly due to the fact that GDP growth has been established as the key indicator since World War II (WWII). GDP was entirely appropriate at the time, given the need to rebuild national economies. As a result, our ability to measure GDP is well defined and its measurement has become the de facto proxy for economic success.

However, since WWII much has changed, and as a result of changing social and environmental pressures, GDP growth in isolation is no longer a strong enough indicator of the health of our economy. We therefore need additional headline indicators to ensure that we are able to measure progress in the areas that will help deliver a prosperous, competitive and sustainable economy. Our foundation report identified these as the six core characteristics of AETW: High Employment; Equality of Opportunity; Wellbeing; Low-Carbon; Zero Waste and Enhancing Nature.

The development of indicators in these six areas is on the whole less advanced than it is for GDP, so there is a need to both improve the quality of the indicators and to translate these into measures that citizens can understand and policy makers can use and be held accountable for.

### CORE PROPOSAL

The goal of this policy proposal is to define headline indicators for the six AETW characteristics, that will be used together with GDP growth to define how the UK is delivering prosperity, competitiveness and sustainability for UK citizens.

The development of 'Beyond GDP' indicators is an area of research that has grown tremendously over the last decade. From the EU's Beyond GDP initiative, to the Stiglitz Commission in France, the EU-funded BRAINPOoL (Bringing Alternative Indicators into Policy) and NetGreen projects, or Eurostat's headline indicators<sup>1</sup>, to name but a few, much work is being put into the development of quality headline indicators as an alternative – or a supplement – to GDP growth.

The UK has arguably been a leader in this area, with Prime Minister David Cameron commissioning the Office of National Statistics (ONS) to develop a set of wellbeing measures. The 'Measures of National Well-being' include 41 indicators divided into 10 categories that seek to give a sense of national wellbeing. While most of these indicators go well beyond 'wellbeing', they do address a number of the dimensions of the AETW framework<sup>2</sup>.

However, the main weakness of ONS's wellbeing measures is that the breadth of indicators measured makes the linkage with specific policy changes weak and as a consequence this work, whilst valuable, has very little impact on policy.

Clearly there is plenty of knowledge and expertise, but what is lacking is the aggregation of this work into clear headline indicators. There is a sea of indicators available, but policy makers need a small set of headline indicators which can cut through the noise, and which are salient, credible, and legitimate.

Research by the EU-funded BRAINPOoL project identifies key success factors for alternative indicators<sup>3</sup>:

- a Real relevance for policy makers.
- b Salience for a broader audience through being simple, clear and well-communicated.
- c Credibility and legitimacy.
- d Developed with the audiences at whom they are targeted and/or encouraging participation.

# HEADLINE INDICATORS

We would add to this a sense of permanence. Policy makers and politicians need to believe that chosen indicators are here to stay if they are to take them seriously.

## Barriers to overcome

One of the reasons that some policy areas are measured while others are not is very pragmatic. There are some indicators that are far more tangible and easy to measure than others. GDP and employment figures have been part of the political and economic narrative for over half a century, while greenhouse gas (GHG) emission reductions are now accepted as an appropriate measure of progress towards a low-carbon economy. In other areas, measurement is still under development, or requires measuring intangibles (assets that are not physically measurable), which makes it more challenging.

By relying on the measures that are easiest, rather than indicative of overall importance, we are guilty of an observational bias called the streetlight effect, also known as the drunkard's search:<sup>4</sup>

Because of this bias, we are defining policy indicators based on data that is easy to measure, such as GDP growth, and forgoing other indicators of the health of an economy that are harder to measure, such as equality or wellbeing.

Recent research in the development of wellbeing and natural capital indicators has shown that it is possible to overcome this bias and actually measure what matters.

**Wellbeing indicators:** Initially, the measurement of wellbeing focused on identifying appropriate proxies for wellbeing, such as longevity, income and access to education. It was felt that the measurement of wellbeing itself was too subjective to offer credible results. This is rapidly changing as subjective wellbeing measures are successfully being triangulated with 'tangible' aspects such as physical measures, observed behaviour and health outcomes.

Furthermore, measuring wellbeing in populations, using statistical tools such as regression analysis enables subjective measures to be 'objectified' by discounting for factors that might be deemed too subjective (e.g. family status, employment, housing conditions, social networks).

As a result, subjective wellbeing is increasingly accepted as a robust way of assessing wellbeing progress and producing clear policy proposals as a result. An example of this is the integration of subjective wellbeing measures in the ONS and the OECD's measurements and guidelines.

**Natural capital valuation:** In 1997, Dr. Robert Costanza and colleagues introduced the concept of natural capital valuation in a study that estimated the value of global ecosystem services at \$33tn p.a.<sup>5</sup>. In a recent study that improves on this work, Robert Costanza and colleagues valued global ecosystems at \$125tn<sup>6</sup>. The UK National Ecosystem Assessment is building on this and other work to monetise the value of the UK's eight main habitats. This knowledge will not only enable us to identify trends in value to the UK economy of various ecosystems, but also help quantify the economic cost/benefit of specific initiatives that either destroy or rebuild ecosystems.

## NEXT STEPS

More work needs to be done on the development of the most appropriate indicators, following which this proposal asks for government to launch a multi-stakeholder process with the explicit aim of agreeing these headline indicators for each of the six categories of AETW.

In addition to key UK stakeholders from business, politics and civil society, this process should also reach out to organisations and national and local governments outside the UK who have been exploring similar themes.

This will build on the indicator development work undertaken by different organisations and will result in six clear indicators – one indicator for each AETW characteristic – possibly made up of several sub-indicators.

## ABOUT THE AUTHOR

### Oliver Dudok van Heel is

Executive Director of the AETW alliance, which was set up by the Aldersgate Group in 2014. AETW is an alliance of organisations from across the economy who believe it is necessary to redefine the fundamental purpose of the economy, to deliver prosperity, competitiveness and sustainability. Oliver is also a Senior Associate of the University of Cambridge's Institute for Sustainability Leadership.

## References

- 1 | <http://bit.ly/1vthYOn>
- 2 | <http://bit.ly/1e3L6ww>
- 3 | BRAINPOoL (2012) Review report on Beyond GDP indicators: categorisation, intentions and impacts.
- 4 | "A policeman sees a drunk man searching for something under a streetlight and asks what the drunk has lost. He says he lost his keys and they both look under the streetlight together. After a few minutes the policeman asks if he is sure he lost them here, and the drunk replies, no, and that he lost them in the park. The policeman asks why he is searching here, and the drunk replies, "this is where the light is." David H. Freedman (2010) *Wrong: Why Experts Keep Failing Us*. Little, Brown and Company.
- 5 | Costanza et al (1997) The value of the world's ecosystem services and natural capital.
- 6 | Costanza et al (2014) Changes in the global value of ecosystem services.

# HIGH EMPLOYMENT



## A GOAL TO MATCH THE OECD AVERAGE FOR BUSINESS EXPENDITURE ON R&D

Susanne Baker, Senior Policy Adviser



### SUMMARY PROPOSAL

A strong innovation culture holds the key to unlocking the potential of the sectors and technologies of tomorrow: creating lasting job opportunities that address structural labour market issues and encourage more globally focused manufacturers, and the supply chains and services that support them, to expand in the UK. Yet innovation in the UK is being undermined by erosion in spending compared to that of our competitors.

### WHY THIS MATTERS

What will the jobs of the future look like? And, in turn, what skills will be in demand? It is impossible to second guess what the future will hold, but whilst there is not a definitive answer, current trends help us to prepare. What we think today will help to shape tomorrow.

The labour market is already experiencing challenges: persistent high unemployment in some regions and declining employment in mid-level occupations. Regional imbalances further exacerbate what many already believe to be worrying trends in the UK. Policy makers now need to equip the workforce of tomorrow with the skills that they will need to survive in an increasingly competitive labour market.

But we also need to foster those sectors and companies that promise to address some of these labour imbalances and the challenges of the future. Only an innovation-led approach can help deliver the sectors, and employers, of tomorrow. Innovation is a key driver of growth and competitiveness. Innovative companies do better than those that do not innovate.

Analysts have already begun to point to likely trends for the future: the technological advances, developments in data analytics, greater interconnectivity, demographic changes and a predicted shift in the economic buying power of consumers from West to East. All will have a huge impact on business models, how work is organised and in turn how people are employed.

Environmental trends will also feature prominently. Global economic growth is leading to increasing worldwide demand for natural resources and raw materials. Overexploitation implies higher extraction costs and degradation of ecosystems. The prices of these resources will become more volatile. More regulators will be responding to climate change whilst energy security concerns will continue to drive uptake of non-fossil fuel technologies.

Research by Green Alliance and WRAP<sup>7</sup> has highlighted that under a transformational scenario an additional 517,000 jobs can be generated through the creation of a bioeconomy, expansion of remanufacturing, servitisation, and more closed loop recycling and recycling in general. But significantly, their analysis estimates net job creation of 102,000. Furthermore, they suggest that the circular economy could also help to address regional and skills imbalances, reducing structural unemployment and creating lasting jobs, over and above short-term gains. The research hints at a promise of geographically dispersed employment opportunities and job creation across all skill levels, offsetting expected losses in skilled employment by 18% over the next decade.

Elsewhere, recent assessments of early-development stage energy technologies hint at the possible scale of the opportunity for the UK economy through manufacturing, services and distribution. Current estimates range from £39.5–126.5bn between 2010 and 2050 to £189.5bn–877bn if some supply chains are considered. The opportunities are especially promising for manufacturing, which accounts for a significant proportion of the market in many important subsectors (22% in carbon capture and storage (CCS), 37% in photovoltaic and 46% in wind energy). The right framework to develop these technologies could also encourage more globally focused companies to expand in the UK.





Securing a fairer share of the rewards of growth for people at work is good economics as well as vital for household budgets. The UK's future growth prospects, as well as family livelihoods, depend on our ability to increase the numbers of secure, well-paid jobs that our economy provides. Substantial progress on innovation will be vital to delivering the high value, high productivity economy we all need.

***Frances O'Grady, General Secretary, TUC***

#### **CORE PROPOSAL**

There is a need to ensure that the level of innovation conducted by UK businesses is, at the very least, enough to keep up with overseas competitors, or better still to maintain an edge. But bringing new products and services to market is an inherently challenging process. The government recognises its vital role in partnering with industry to reduce the risk of innovation and many of the recent changes to innovation support have been positive. However, international statistics suggest that the UK economy as a whole is not investing enough in innovation.

Although UK business expenditure on research and development as a proportion of GDP (BERD intensity) has been stable, remaining between 1.0% and 1.2% of GDP for over a decade, this is far lower than the level for international competitor economies. The OECD average for BERD intensity is 1.6%, and in Germany the figure is 2.0%. What is more, the UK's relative position has declined as BERD intensity in most competitor economies has improved in the last ten years. This disparity is more pronounced for investment in energy and environmental research and development (R&D). In absolute terms, Japan, the United States and Germany are the largest funders, while Mexico, Canada and Japan are top investors in relative terms. Energy-related R&D accounts for the vast majority of money spent<sup>9</sup>.

Expenditure on R&D is only one measure of innovation performance. There are a wide range of indicators that can be considered which help to understand the strength of innovation. For example, the European Commission's annual Innovation Union Scoreboard<sup>9</sup> looks at all aspects of the system from key enablers such as research quality and skills, through to outputs such as the number of companies successfully bringing products and services to market.

The Innovation Union Scoreboard finds that there are a number of areas in which the UK's innovation performance is very strong – particularly in its science base – but the UK is not an “all-rounder”. In particular, the UK underperforms when it comes to applied research. For example, the proportion of small- to medium-sized enterprises (SMEs) bringing innovations to market – as defined by the Community Innovation Survey – falls a long way short of the EU average.

This matters for our long-term competitiveness. The scoreboard finds that leading innovation economies such as Sweden, Denmark, Germany and Finland perform strongly across the range of indicators, so while the UK has a stronger performance than the EU average, due to the strong science base, it is classified as an innovation ‘follower’ because this research is not always successfully applied and brought through to market. Perhaps more worrying is that the UK is slipping down the ranks.

If the UK is to compete internationally, both the level and effectiveness of innovation must be increased. It will not be enough to rely on the strong performance of our science base. The UK must perform strongly across the board from early-stage basic research, through to applied research and commercialisation.

A more overarching approach to science and innovation policy would help ensure funding is optimally allocated. The current balance of funding between different elements of the science and innovation landscape has arisen through evolution, not design.

# HIGH EMPLOYMENT



Currently, different elements of the support landscape receive different treatment. For example, the science budget has been ring-fenced while the Technology Strategy Board's budget for innovation is subject to re-evaluation in each government Spending Review. Funding for elements of the low-carbon innovation landscape, such as the Energy Technologies Institute, Catapult Centres, the Carbon Trust and the Green Investment Bank, has also been announced over different timescales.

Science and innovation support must be in place across a long-term timeframe, for example ten years or more. This would help create the certainty necessary to support companies' investment decisions and enable innovation bodies to plan how they spend their funding more effectively, ensuring that UK support is well coordinated with the wider innovation architecture, for example by complementing the EU's Horizon 2020 programme.

Given the scale of the challenge on innovation there must be a clearer rationale for funding allocations and the implicit trade-offs in this area. While the Research Councils and the Technology Strategy Board should maintain a strong degree of autonomy about how they spend their budgets, when it comes to large-scale investments, such as science infrastructure and sector roadmaps or strategies, there must be clear and convincing evidence on what should be prioritised and the ongoing value of innovation interventions.

Without this, innovation priorities are vulnerable to changes in the political climate, in turn creating uncertainty for businesses. Past strategies have not always survived changes in government.

Steps have already been taken towards building the evidence base necessary to understand which areas require investment. For example, the Low Carbon Innovation Coordination Group's Technology Innovation Needs Assessments<sup>10</sup> (TINAs), outlines how innovation can help bring to market, or reduce the costs of

deploying, a range of low-carbon energy technologies. The TINAs also attempt to identify the UK opportunity, based on our industrial strengths, and the potential market value out to 2050.

This approach should be adopted more widely. Evaluations of all sector or technology innovation needs should take a whole-economy approach with the aim of identifying the key challenges facing the UK economy and biggest competitive opportunities. A wide range of stakeholders must be involved in the process to ensure the best evidence base, which will require better communication and transparency.

However, it is not enough to do a one-off evaluation. We need to regularly refresh our evidence base and assess how funding needs have changed as technologies evolve and markets develop. The process of re-evaluations should in turn drive decisions around prioritisation of science and innovation expenditure: helping to ensure strategies and innovation activity continues to deliver competitive advantage by keeping UK companies and the UK's research base at the forefront of innovation.



# HIGH EMPLOYMENT



## NEXT STEPS

There has been much positive progress in innovation policy in the last few years. There is no need for radical change, but what we do have must be strengthened, made more stable and more strategic.

## In summary we need

- A goal to match the OECD average for government expenditure on R&D and long-term funding commitments for science and innovation support bodies.
- A more overarching, strategic approach to science and innovation policy to ensure funding is optimally allocated and covers all stages of the innovation pathway, including applied research. Funding should complement, rather than compete with or duplicate, European innovation support.
- A whole-economy approach to identify the key challenges facing the UK economy and the market opportunities where the UK can compete. A wide variety of stakeholders should be engaged in these assessments.
- A clearer rationale for funding allocations and trade-offs, in recognition of the fact that funding will always be limited. Prioritisation decisions should be subject to regular review to ensure funding is well-targeted and based on solid reasoning. This means refreshing our evidence base periodically. However, reviews should not be so frequent that they undermine stability of support.

## References

- 7 | Green Alliance & WRAP (2015) Employment and the circular economy: job creation in a more resource efficient Britain.
- 8 | OECD (2014) Green Innovation, in OECD Science, Technology and Industry Outlook 2014. OECD Publishing <http://bit.ly/1ADxLsU>
- 9 | European Commission (2014) Innovation Union Scoreboard 2014. <http://bit.ly/1mS6zTd>
- 10 | See <http://bit.ly/1w487cL>

## ABOUT THE AUTHOR

**Susanne Baker** is the Senior Climate and Environment Policy Adviser at EEF, the manufacturer's organisation. EEF works to help to foster enterprise and innovation, keeping businesses safe, compliant and future-focused. Everything it does is designed to help manufacturing and engineering flourish, from providing essential business support and training, to championing our industry within government in the UK and in Europe.

# EQUALITY OF OPPORTUNITY



## INTEGRATING EQUALITY WITHIN INDUSTRIAL STRATEGIES TO BOOST UK COMPETITIVENESS

Duncan Exley, Director

 THE EQUALITY TRUST

### SUMMARY PROPOSAL

The factors that have led the UK to be the joint-worst developed economy for equality of opportunity are also contributing to a downward spiral of productivity and to distrust of business. This piece proposes principles by which industrial policy can create greater equality of opportunity while building the long-term competitiveness of the UK economy.

### WHY THIS MATTERS

The UK has a chronic opportunity problem. We have the joint-worst social mobility of any country in the OECD<sup>11</sup>. This is obviously a problem for those people who are denied opportunities to realise their potential; opportunities which would not be denied if they were born elsewhere, but it is also a problem for individual UK businesses and the wider economy.

Most obviously, businesses suffer because they cannot make full use of people's talent, but employers are also affected in other ways. There is extensive research showing that when employees feel that the allocations of roles (and rewards) are undeserved, their engagement with the company and its purpose collapses, harming productivity and innovation<sup>12</sup>.

As Norman Pickavance, former HR & Communications director at Morrisons, writes, when *"99 per cent of the population feels like they have missed out [this] can have a highly damaging effect on confidence and performance"*<sup>13</sup>.

The consequences are not limited to the sum of the micro-economic effects on individual businesses; they also manifest as political risks, as a public sense of unfairness leads to a collapse of trust. When the British Social Attitudes survey recently asked voters to consider the statements *"big business benefits owners at the expense of workers"* and *"Management will always try to get the better of employees if it gets the chance"* those who agreed outnumbered those who disagreed by over three to one<sup>14</sup>. 52% of members of the Institute of Directors now identify 'anger over senior levels of executive pay' as a threat to public trust in business; and a third of employees say that their level of trust in senior management is weak<sup>15</sup>. The political risk that politicians will find it expedient to be seen to be clamping down on businesses is not just a theoretical: there was an element in the Scottish independence referendum campaign of the Yes Scotland campaign being bolstered by voters' reactions to businesses' perceived opposition to independence.

And there are measurable costs, which should concern "universal investors" and others with macroeconomic concerns. Research for The Sutton Trust in 2010 found that *"Failing to improve low levels of social mobility will cost the UK economy up to £140 billion a year by 2050"*<sup>16</sup>.

### CORE PROPOSAL

The case for a comprehensive industrial policy has been made by a wide range of organisations and individual experts, but there are specific features that an industrial policy must contain if it is to effectively increase opportunity and thereby to promote productivity, innovation, trust in business, and a more efficient overall economy. These features have the capacity to both augment opportunity and reduce the UK's level of economic inequality, currently unusually high for a developed economy (indeed the two are inseparable: as a literature review for the Department of Business, Innovation and Skills pointed out, *"it is likely to be very hard to increase social mobility without tackling inequality"*<sup>17</sup>).



Failing to improve low levels of social mobility will cost the UK economy up to £140 billion a year by 2050

***The Sutton Report***

The first feature of such a policy should be a clear objective not just to increase employment, but to increase the proportion of jobs offering decently-paid, skilled work. As Will Hutton points out, *“In a world where the so-called ‘intangibles’ associated with knowledge and knowhow are becoming ever more important, Britain is rich in both”*<sup>18</sup>, but there has been little effective policy to build and nurture them. As a result, alongside the high-paid individuals in the finance sector, we have a higher proportion of low-skilled jobs than any other OECD country except Spain<sup>19</sup> and the fifth highest proportion of workers in low-paid jobs out of 25 OECD countries<sup>20</sup>. A preponderance of such jobs, which offer little progression opportunity, suppresses social mobility. We cannot – and should not try to – compete with developing countries on the basis of a low-paid, low-skills workforce, and the longer we delay in implementing a high-value jobs strategy, the more we lose opportunities to do so.

The second feature of a pro-opportunity industrial policy should be to ensure the necessary infrastructure is created to nurture such industries. Infrastructure-building and industrial policy can be used to ameliorate the UK’s economic inequality which is itself a limiting factor on opportunity for individuals and investors; and infrastructure-building is necessary to build the productive capital of the economy, as Legal and General’s CEO Nigel Wilson eloquently argues<sup>21</sup>. This requires, as the economist Marianna Mazzucato demonstrates<sup>22</sup>, a dialogue between state and private sector to explore how they can support each other, because the private sector alone cannot build sustainable prosperity.

But infrastructure-building cannot be confined to the obvious factors of transport, communications and skills; it requires a third feature to be incorporated into the industrial strategy: modernising our systems of management and industrial relations, which currently have features barely adequate for the 20<sup>th</sup> century.

If employees in high-productivity industries are to perform at the level made possible by technology, and be allowed to develop their skills and opportunities, they need managers at all levels who are competent to facilitate this. But currently the UK places little emphasis on training and developing managers compared to other European countries. Seventy per cent of UK managers say their firms don’t offer them a career development structure<sup>23</sup> (itself a problem for opportunity). The Chartered Institute of Personnel and Development also recognises the need for the UK to modernise its management culture, and has recommended that the government establishes a Workplace Commission<sup>24</sup> to recommend ways of doing this, which is an excellent proposal.

# EQUALITY OF OPPORTUNITY



Whichever body leads on making our workplace and management practices fit for the future, its work must look not only at how staff are managed but also how to encourage and assist companies in developing the most effective structures for organising and rewarding staff. To quote Norman Pickavance again, corporate concern with building employees' performance is currently focused *"on a smaller and smaller cadre of people at the top"*<sup>[25]</sup>; with the result that senior management and the wider workforce become disconnected from each other, the managers lose touch with their employees, the employees lose touch with the mission of the organisation and opportunity is suppressed (because if personnel-development efforts are focused on senior staff then they are focused on people who come from disproportionately privileged backgrounds: in the UK, a privately-educated child going is 11 times more likely to become chief executive of a FTSE 100 company than one of the 93% who went to a state school<sup>[26]</sup>).

A range of businesses are already putting in place initiatives to align motivations of the wider workforce with the mission of the organisation, allowing 'shopfloor' employees a sufficient level of understanding to enable innovation and pride-in-the-job as well as progression. Growing the take-up of these initiatives is in the interest of individual businesses and a body such as a Workplace Commission can bring together the key stakeholders who will benefit from and facilitate this process, including shareholders and unions. Such initiatives include performance bonuses that are extended to the whole workforce (as at Sainsbury's); bringing employees into decision-making structures (as at First Group, which has a non-senior employee – currently a train driver – on its board of directors); moderating the pay dispersion between senior and average employees (as at Handelsbanken); and developing employees 'from the shopfloor up' (as at Adnams, where Executive Director Karen Hester is a former cleaner and payroll clerk).

Initiatives to help move companies towards better conditions for staff at the lowest level of the company's hierarchy are also important, not only in facilitating opportunity, but as part of companies' building a workplace culture commensurate with a high-productivity economy. Unsurprisingly, the prevalence of employment practices which are as unpopular with the public as sub-living wage pay and zero-hours contracts adversely affect attitudes to business, but they also destroy the commitment of frontline staff to the mission of the organisation and with it the possibility of bottom-up innovation. Additionally, employees who are low-paid and whose contracts make them financially insecure (and overly-dependent on benefits which the wider economy must pay for) can act as a narcotic for companies. Where staff are cheap and flexible, there is less incentive in the short term to invest in people, capital or innovation, tending to lock companies and the economy into a bargain basement model in which – as mentioned above – we will be outcompeted by developing countries.

# EQUALITY OF OPPORTUNITY



## NEXT STEPS

The entire An Economy That Works project is about recognising that the UK economy faces a choice between taking the opportunities provided by accelerating social and environmental change and being made increasingly obsolete. The UK's opportunity crisis is no exception. This requires that individual companies modernise their practices, but it also requires strategy: as Nigel Wilson says, *"we need to look to the long term. If Britain is to prosper, it needs to equip itself properly"*<sup>27</sup>.

We have proposed an industrial strategy with characteristics that could build the productivity, prosperity and opportunities of the workforce, and trust in business. Such a strategy requires policymakers to make policy and put in place structures, but the significant, sustainable change that is now necessary requires that new policies and structures are combined with cultural shifts. The necessary cultural shifts involve the adoption of more collaborative attitudes on the part of policymakers, senior business managers, shareholders and workers' representatives towards each other.

## References

- 11 | Corak; 2012; "Inequality from generation to generation: the United States in Comparison".
- 12 | For example: Stiglitz, "The Price of Inequality", 2012, Norton; Martins "Dispersion in wage premiums and firm performance" Centre for Globalisation Research, 2008; Shaw, Gupta & Delery, "Pay Dispersion and Workforce Performance: Moderating Effects of Incentives and Interdependence" Strategic Management Journal, 2002.
- 13 | Pickavance; "The Reconnected Leader: An Executive's Guide to Creating Responsible, Purposeful and Valuable Organizations", 2014, Kogan Page.
- 14 | BSA 30 Annotated questionnaire.
- 15 | CIPD, Oct 2013 Employee Outlook: Focus on trust in leaders.
- 16 | Sutton Trust: "£140 Billion A Year – The Cost Of Low Social Mobility" March 2010 (website accessed 28 Jan 2015).
- 17 | Crawford, Johnson, Machin and Vignoles; "Social Mobility: A Literature Review", 2011, BIS.
- 18 | Hutton, "How Good We Can Be", 2015 Little Brown.
- 19 | Skills Outlook 2013, OECD, 2013.
- 20 | Resolution Foundation, 2013, Low Pay Britain 2013, p14–5.
- 21 | Wilson; "We need economic rehab not a quick fix of cheap money"; Financial Times, March 7, 2014.
- 22 | Mazzucato, "The Entrepreneurial State", 2013, Anthem.
- 23 | Mabey and Ramirez 'Comparing national approaches to management development. In: Handbook of Research on Comparative Human Resource Management'. Edward Elgar, 2012, pp. 185–210.
- 24 | Mayhew, 'Industrial strategy and the future of skills policy', CIPD, 2014.
- 25 | Pickavance; 2014.
- 26 | Sutton Trust, 'The Educational backgrounds of 500 leading figures' 2007.
- 27 | Wilson, 2014.

## ABOUT THE AUTHOR

**Duncan Exley** is Executive Director of The Equality Trust, which works to improve quality of life in the UK by reducing economic inequality. The Equality Trust provides data and analysis of the impacts of inequality on individual health, society, the economy and organisations, as well as the scale and drivers of inequality and attitudes to it. The Trust works with a wide range of decision-makers and influencers to identify ways of reducing the adverse effects of inequality.

# WELLBEING AT THE CORE



## PUTTING EMPLOYEE WELLBEING AT THE HEART OF BUSINESS MODELS

Christine Berry, Researcher



### SUMMARY PROPOSAL

Improving people's lives is the ultimate objective of all economic policy – and evidence on subjective wellbeing is giving us an increasingly clear picture of the factors which really affect people's experience of life. Putting wellbeing in its rightful place at the heart of economic policy making would imply a much greater focus on factors like security, fairness, and our relationships with others (managers, colleagues and wider society) – which have traditionally been neglected in labour market policy. Government should support employers to put employee wellbeing at the heart of their business models.

### WHY THIS MATTERS

Enlightened employers increasingly recognise that a healthy and motivated workforce is good for the economy and good for business. Subjective wellbeing is linked to better job performance, productivity, loyalty and creativity<sup>28</sup>, and firms whose employees feel valued and motivated perform better financially.<sup>29,30</sup> This can create a virtuous circle: higher wellbeing improves engagement and productivity, which in turn improves wellbeing.<sup>31</sup>

At an economy-wide level, the costs of low wellbeing are enormous and growing, certainly as measured in terms of illness and absence. Mental illness alone – now the leading cause of sickness absence – costs the economy an estimated £70–100bn a year, or 4.5% of GDP.<sup>32</sup>

But there is a more fundamental reason to focus on wellbeing: because improving people's lives is the ultimate aim of economic policy. It's an upside-down world that seems to value wellbeing solely as a precondition for creating jobs and growth, when really the only valid reason to care about jobs and growth is to improve people's wellbeing. Since 2008, the mantra that finance must serve the real economy has become a staple of public debate. In the same way, we now need to recognise that the economy exists to serve the wellbeing of real people, and not as an end in itself.

Traditionally, policy makers have focused on growth and employment as proxies for wellbeing. This reflects the assumption of conventional economics that people's welfare equates to the value of the products they consume. However, the growing evidence base on subjective wellbeing means that this assumption can be tested – and has been found severely wanting. The relationship between income and wellbeing is not straightforward, while factors usually left out of the equation altogether – such as stability, security and good social relationships – are vital determinants of life satisfaction.

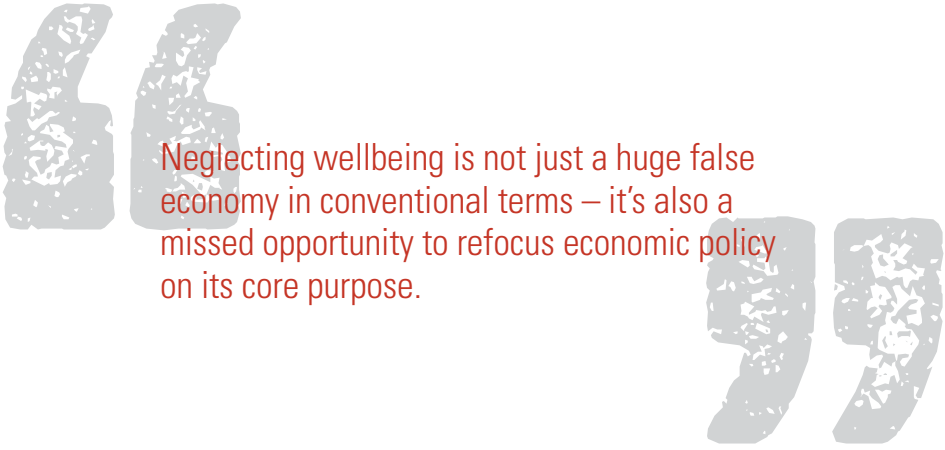
This gives us a fresh perspective on economic success. It's true that having a job in the first place is a key determinant of wellbeing. But this is not just because it provides an income – it also gives us a sense of purpose, a place in society, and a degree of stability. If we want an economy that works, we need to focus on the quality of work as well as the quantity. Yet surveys suggest that UK workers are finding their jobs more stressful, precarious and demanding than ever before.<sup>33</sup>

Neglecting wellbeing is not just a huge false economy in conventional terms – it's also a missed opportunity to refocus economic policy on its core purpose. That's why it is so welcome that policy makers and businesses alike are beginning to wake up to wellbeing. But we can go much further – and in what follows, we set out how.

### CORE PROPOSAL

#### What do we mean by 'wellbeing'?

As the word 'wellbeing' becomes mainstream in policy discussions, it is important to be clear what it means. Wellbeing is not the same as health, either mental or physical – although both, and particularly mental health, are key *drivers* of wellbeing<sup>34</sup>. Rather, it is about people's feelings and functioning overall, including their satisfaction with their lives.



Neglecting wellbeing is not just a huge false economy in conventional terms – it's also a missed opportunity to refocus economic policy on its core purpose.

By extension, wellbeing at work is not just about occupational health or employee engagement, important though these are. It is about the whole range of ways in which people's jobs influence their experience of life. When we talk about mainstreaming wellbeing at work, we don't just mean laying new wellbeing-focused programmes on top of existing business practices, but reorienting business models themselves around the aim of cultivating a healthy, happy workforce.

#### **What does a high wellbeing economy look like?**

**Stability and security.** Macroeconomic instability is disastrous for wellbeing. Because we experience losses more acutely than gains<sup>35</sup>, an economic downturn more than wipes out any wellbeing gains from rising incomes during the boom years<sup>36</sup>. Indeed, booms themselves can damage wellbeing if they are destabilising: wellbeing is actually negatively associated with very high growth rates<sup>37</sup>. From a wellbeing perspective, instability is clearly not a price worth paying for high levels of growth.

This has fundamental implications for how we measure economic success. Lord O'Donnell GCB, Chairman and Senior Adviser at Frontier Economics, wrote a recent report on wellbeing and policy, recommending that "policy should aim above all at a stable rate of growth, rather than growth that (even if higher on average) includes periods of recession."<sup>38</sup> This means taking threats to economic resilience much more seriously. Growth should be treated as a means to the end of achieving high and stable levels of employment – not the other way around.

Similarly, job security is one of the most important job-related determinants of wellbeing. People on temporary contracts have lower wellbeing than those on permanent contracts<sup>39</sup>, and more than half of workers rank job security as 'very important' to them<sup>40</sup>. In the UK, insecurity appears to be on the rise; in 2012, more than half of British workers were anxious about losing their jobs<sup>41</sup>. Up to 1.4 million people are on zero hours contracts,<sup>42</sup> with many not knowing how much work they will have from one day to the next.

Of course, wellbeing evidence alone cannot resolve longstanding debates about *how* to improve security (for example, whether through employment protection legislation, or via more generous state support for those who do lose their jobs, as in Denmark). But it does tell us that reducing insecurity must be a much higher priority – supporting the emerging political consensus in favour of banning exploitative zero-hours arrangements.

**Fair pay.** Of course, incomes do matter to wellbeing. But they matter by far the most for the poorest: the relationship declines dramatically further up the income scale<sup>43,44,45</sup>. And feeling you are paid fairly (compared to colleagues and similar workers in other companies) seems to matter more to job satisfaction than absolute salary.<sup>46,47</sup>

This has two implications for businesses. Firstly, it points towards a transparent pay-scale in which people feel their contribution is fairly rewarded. Secondly, given a fixed salary budget, weighting pay increases in favour of lower earners is likely to produce the greatest benefits for organisational wellbeing – particularly if these workers earn below the living wage.

Many companies recognise the benefits of ensuring all their staff feel fairly valued. Some, such as John Lewis and TSB, have even adopted policies on maximum pay ratios. Wellbeing evidence gives a compelling reason for all companies to put fairness front and centre in their remuneration policies, and – in line with the Corporate Governance Code – to focus on pay and conditions throughout the company, not just rewards to 'top talent'.

At a macroeconomic level, this reinforces the conclusion that growth in aggregate incomes is not a particularly helpful measure of economic wellbeing: tackling low pay is a bigger priority. The APPG on Wellbeing Economics (for which NEF provides the secretariat) has recommended that wellbeing evidence should be taken into account in setting the minimum wage.



# WELLBEING AT THE CORE



## Relationships, control and social value at work.

Wellbeing evidence demonstrates that we are social beings, not the atomised individuals of economic theory: our relationships with others are critical drivers of wellbeing. Wellbeing at work means thinking about:

- *Relationships with managers and colleagues.* Managers who listen to staff and are supportive, respectful and appreciative are likely to encourage employee satisfaction (and thus better performance)<sup>48</sup>. And studies show strong connections between wellbeing and positive social interaction at work<sup>49</sup>.
- *Autonomy and control.* There is strong evidence that feeling in control of one's situation is vital for wellbeing. Studies consistently find that autonomy is positively associated with job satisfaction<sup>50</sup>. Lack of control may also reduce performance, acting as a 'hindrance pressure'.<sup>51</sup>
- *Social value of work.* Increasingly, employees want to work for an organisation that creates social as well as financial value. Various studies show correlations between perceived social value and job satisfaction.<sup>52</sup>

The Health and Safety Executive (HSE) has identified lack of support from managers, poor relationships and lack of control as among the main causes of stress at work (an increasingly important cause of sickness absence).<sup>53</sup> There may be little policy makers can do to influence these factors directly – but they can support and encourage best practice.

## What does this mean for policy makers?

A high wellbeing economy demands a 'race to the top' on job quality, not a 'race to the bottom'. It requires not just any job creation, but good job creation. Macroeconomic policy should have the central aim of maintaining high and stable levels of employment – not simply maximising GDP. And policy makers must support businesses to put employee wellbeing at the heart of their business models.

Government also has a role in levelling the playing field: for example, by banning exploitative contractual terms or strengthening the minimum wage, so that employers seeking to do the right thing cannot be undercut by the irresponsible. A high wellbeing economy requires a proportionate and intelligent approach to regulation which supports good business, rather than allowing policy to be driven by the lowest common denominator.

## NEXT STEPS

The Department for Business Innovation and Skills (BIS) and ACAS are already beginning to take welcome steps, for example by publishing guides to the evidence on work, wellbeing and performance.<sup>54</sup> More could be done to build on this, for example through awards or accreditation schemes, best practice guidance, and measures to incentivise (or at the very least, avoid disincentivising) high wellbeing business practices. And, of course, the public sector itself should act as a beacon of best practice – particularly pertinent in high stress professions such as teaching and nursing.

A key next step is that wellbeing is not treated as a side-issue to be overseen by a single team within BIS, but as an overarching consideration to be mainstreamed into all economic policy making. This requires wellbeing experts to be embedded in all relevant departments. As Lord O'Donnell has suggested, impact assessments also need to be overhauled, harnessing the potential of wellbeing evidence to inform better decisions about how to improve people's lives.

Most of all, government should make an explicit public commitment to building a high-wellbeing economy, supporting high-wellbeing businesses, and pursuing an industrial strategy consistent with a 'race to the top' in job quality.

# WELLBEING AT THE CORE



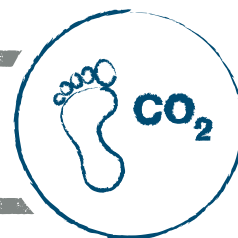
## References

- 28 | For an overview see Jeffrey, K. et al. (2014). 'Wellbeing at work: A review of the literature.'
- 29 | Rayton, B. Dodge, T. & D'Analeze, G. (Nov 2012). 'The evidence: Employee Engagement Task Force – 'Nailing the evidence' workgroup.' London: Engage for Success.
- 30 | PricewaterhouseCoopers. (2008.) 'Building the case for wellness.' London: PricewaterhouseCoopers LLP.
- 31 | Pruyne, E. (2011). 'Corporate investment in employee wellbeing: The emerging strategic imperative'. Hertfordshire: Ashridge Business School and Nuffield Health.
- 32 | Hughes, S. 2014. 'Annual Report of the Chief Medical Officer 2013. Public Mental Health Priorities: Investing in the evidence.' London: Department for Health.
- 33 | See for example Independent, 2 November 2014, 'Going to work is more stressful than ever, poll reveals', <http://ind.pn/1vyjzMA>; ESS. (2013). 'Economic crisis, quality of work and social integration: Topline results from Rounds 2 and 5 of the European Social Survey'. Brussels: European Commission.
- 34 | See for example O'Donnell et al. (2014). 'Wellbeing and policy'. London: Legatum Commission.
- 35 | Kahnemann, D. & Tversky, A. (eds.) (2000). *Choices, Values and Frames*. Cambridge: CUP.
- 36 | Boyce, C., Wood, A. et al. (2013). Money, Well-Being, and Loss Aversion: Does an Income Loss Have a Greater Effect on Well-Being Than an Equivalent Income Gain? *Psychological Science*, 24(12), 2557–2562.
- 37 | Lora, E. & Chaparro, J. (2008). *The conflictive relationship between satisfaction and income*. Inter-American Development Bank, Working paper #642.
- 38 | O'Donnell et al. (2014). Op cit.
- 39 | Abdallah, S. et al. (2013). *Quality of life in Europe: Subjective wellbeing*. Brussels: Eurofound.
- 40 | Clark, A.E. (2010). 'Work, jobs and wellbeing across the Millennium'. In E. Diener, J.F. Helliwell, and D. Kahneman (eds). *International Differences in Wellbeing*. Oxford: OUP.
- 41 | Gallie, D. et al. 2013. 'Fear at work in Britain: First findings from the Skills and Employment Survey, 2012.' London: Centre for Learning and Life Chances in Knowledge Economies and Societies, Institute of Education.
- 42 | ONS. 30 April 2014. 'Analysis of employee contracts that do not guarantee a minimum number of hours.' <http://bit.ly/1rNIJZ0>
- 43 | Abdallah, S. & Shah, S. (2012). *Wellbeing patterns uncovered: An analysis of UK data*. London: NEF.
- 44 | Abdallah, S. et al. (2013). *Quality of life in Europe: Subjective wellbeing*. Brussels: Eurofound.
- 45 | W Kahnemann, D. & Deaton, A. (Sept 2010). High income improves evaluation of life but not emotional wellbeing. *Proceedings of the National Academy of Sciences*, 107(38).
- 46 | Bryson, A. et al. (2014). Op cit.
- 47 | W Parker, L. & Bevan, S. (2011). *Good Work and Our Times: Report of the Good Work Commission*. London: Work Foundation. p38.
- 48 | Jeffrey, K. et al. (2014). 'Wellbeing at work: A review of the literature'. London: NEF. Pp28–30.
- 49 | Jeffrey et al. (2014). Op cit. pp37–38.
- 50 | Jeffrey et al. (2014). Op cit. p35.
- 51 | Podsakoff, N. P., LePine, J. A., & LePine, M.A. (2007). Differential challenge stressor-hindrance stressor relationships with job attitudes, turnover intentions, turnover, and withdrawal behaviour: A meta-analysis. *Journal of Applied Psychology*, 92(2), 438–454, cited in Robertson, I., & Cooper, C. (2011). *Well-Being, Productivity and Happiness at Work*. Basingstoke: Palgrave Macmillan.
- 52 | Jeffrey et al. (2014). Op cit. p32.
- 53 | WHealth and Safety Executive, 'Causes of stress', <http://bit.ly/1EJT252>
- 54 | Bryson, A. Forth, J. and Stokes, L. (2014). 'Does worker wellbeing affect workplace performance?' London: Department for Business, Innovation and Skills. <http://bit.ly/1pdBSd9>

## ABOUT THE AUTHOR

**Christine Berry** is a Researcher at the New Economics Foundation (NEF). NEF is an independent and non-partisan research institution which applies economic analysis to the improvement of social, economic and environmental outcomes. NEF's Centre for Wellbeing is widely recognised as a centre of expertise on subjective wellbeing, and regularly acts as an expert advisor to government departments and statistical offices at national and international level.

# LOW CARBON



## RETIRING SUBCRITICAL COAL-FIRED POWER STATIONS

Ben Caldecott, Programme Director



### SUMMARY PROPOSAL

The next government should create a new coal closure programme to retire remaining UK subcritical coal-fired power stations by the end of 2020. This would generate significant environmental and health benefits, and help induce new investment into the UK energy sector, helping to solidify and extend the economic recovery into the next parliament. It would also send an important signal to other countries, especially those with coal generation assets that have the ability to 'make or break' our climate future.

### WHY THIS MATTERS

The UK and partner countries should support pragmatic options for addressing the most significant contributors to anthropogenic climate change. One such option, presented by Christiana Figueres, Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC), is the premature closure of subcritical coal-fired power stations.<sup>55</sup>

Retiring these coal plants quickly can help the world deal with the multiple scourges of coal – the millions of deaths caused globally from air pollution, the thousands killed in mining accidents each year, the local environmental impacts from both mining and combustion, and the staggering amounts of carbon pollution that makes the major contribution to anthropogenic climate change. The case for abandoning coal in a timely manner, starting with the least efficient power stations using the most polluting coal, is overwhelming.

Coal provides 40% of the world's electricity, or 1,627 GW of global capacity.<sup>56</sup> Of total global capacity, 75% is subcritical, 22% supercritical, and 3% ultracritical.<sup>57</sup> Subcritical is the least efficient and most polluting form of coal-fired generation – it requires more fuel and water to generate the same amount of power, and creates more pollution as a result. The average subcritical power station generates 1.75<sup>58</sup> times as much carbon pollution as the average advanced ultracritical – the most up-to-date form of coal-fired power station – and uses 1.67<sup>59</sup> times more water. While the average age of all coal-fired power stations globally is 21 years, ultracritical power stations are considerably younger, with an average age of just 5 years.<sup>60</sup>

To limit global emissions to a level consistent with a 2°C future, the IEA estimated in 2013 that it will be necessary to close 290 GW of subcritical generation worldwide by 2020<sup>61</sup>. Subcritical coal accounted for a staggering 8.6 GtCO<sub>2</sub> of emissions globally in 2009.<sup>62</sup> For context, in 2010 annual gross greenhouse gas emissions globally totalled ~50 GtCO<sub>2</sub>-equivalent, with ocean and land sinks absorbing just over 50% of these emissions, resulting in net atmospheric emissions of around 22 GtCO<sub>2</sub> per annum, or a ~3 ppm increase of atmospheric CO<sub>2</sub> concentrations.<sup>63</sup>

Because of their age and inefficiency, subcritical are vulnerable to regulation and a logical first step in any climate mitigation strategy. The premature closure of subcritical is a cost-effective way to reduce emissions, as they typically represent the oldest part of nations' power generation fleet.

The United States (18%), EU (18%), China (13%), and India (10%) have the largest subcritical power station fleets. The US and EU with the oldest plants (with an average age of 40 and 37 years respectively<sup>64</sup>) should act quickly on early closure (within five years), paving the way for China and India (with much newer power stations) to follow suit. Owners of power stations can be either regulated out of power markets or in the case of new plants, compensated for premature closure.

### CORE PROPOSAL

The UK's coal generation capacity in 2012 was 28 GW<sup>65</sup> and this was entirely subcritical, accounting for approximately 18% of the EU's total subcritical capacity<sup>66</sup>. Permanently closing this capacity would contribute 10% to a 290 GW by 2020 global closure target. Fortunately for policy makers, since 2012 approximately 9 GW of this capacity has already closed, leaving the UK with nine subcritical power stations with 19 GW of capacity<sup>67</sup>. The rapid pace of recent closures shows how a 2020 coal closure programme is doable and this would undoubtedly make a significant contribution to international climate change mitigation efforts.



Speeding up closure and bringing forward investment has clear environmental and social benefits, as well as the desirable consequence of generating investment at exactly the moment required to solidify and extend the UK economic recovery.



Given that the UK has not built a new coal-fired power station in over 40 years<sup>68</sup> and existing plants long ago paid off their construction costs, the price of accelerating a near-term and inevitable decommissioning process is likely to be very low.

Yet doing so can generate some important benefits. In addition to tackling the largest source of power sector carbon emissions, premature closure would address the estimated 1,600 premature deaths caused annually by air pollution from UK coal-fired power stations.<sup>69</sup> These power stations also rely on thermal coal imported from Russia – with around 44% of our coal coming from that unreliable trade partner.<sup>70</sup>

It is perfectly correct to say that rapid plant closure, *without* a commensurate programme to build replacement capacity, interconnection, and improve energy efficiency, might endanger UK capacity margins. And so the key is to have such a build programme in place early in the next parliament, even if it entails inducing new gas-fired capacity in the short-term. While the removal of old coal capacity would have the consequence of improving the attractiveness of the UK market for other generation and demand reduction options – spurring investment – a scaled up programme of new investment may also be needed and this could be underpinned by the UK government's electricity market reforms, including new contracts-for-difference (CfDs) and the capacity market.

One of the reasons why a UK coal closure programme is urgently needed, is that if advanced economies with old and inefficient subcritical plants, like the UK, Germany, and the United States, do not act first to close these power stations, we cannot expect China, India, South Africa, or Indonesia to follow suit in a timely fashion. The world's climate future really does depend on what these countries do with their subcritical coal-fired power stations. Delayed closure in these emerging countries, due to inaction in advanced economies, could be the thing that scuppers global climate change mitigation efforts – regardless of whether we have a new international climate agreement or not.

The direct costs to the UK of closing existing subcritical plants prematurely would be negligible. Though we will have to increase the rate of new build to replace closed capacity, we would have had to build this new capacity in any case. Speeding up closure and bringing forward investment has clear environmental and social benefits, as well as the desirable consequence of generating investment at exactly the moment required to solidify and extend the UK economic recovery.

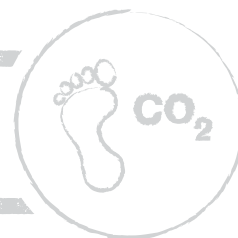
#### **The mechanisms and incentives for closing coal**

Closing subcritical coal would need to be done in the most cost-effective way possible. Carbon taxes, emission performance standards, or tradable allowances are all mechanisms to internalise the externalities of coal combustion and could induce premature closure within the timeframe proposed here.

The EU Emissions Trading Scheme (ETS) is unreformable in the near term and structurally oversupplied – it is therefore almost completely irrelevant for the timely closure of coal in the UK. The UK carbon tax regime lacks certainty and there is unlikely to be the political appetite to raise this tax to the levels required to permanently retire UK subcritical coal by 2020 – the impact on energy intensive industries and the windfall for low carbon generators make this an unattractive option. Perhaps the most effective strategy, therefore, is simply to regulate away subcritical through an appropriately tough emissions performance standard, introduced at the start of the next parliament, with a 4–5 year grace period.

While the closure challenge in the UK is relatively modest due to the age of the remaining subcritical coal-fired power stations, in countries like India and China, where these assets are much newer, other options need to be explored. Regulating these assets out of existence might not be possible any time soon – asset owners and operators, often with significant political clout, will need to be 'bought off' through targeted compensation. Under these circumstances, compensating owners of coal assets for premature closure is both reasonable and necessary to ensure enough coal is decommissioned in time.

# LOW CARBON



But how could this be done cost-effectively? Countries, together or separately, could create Coal Closure Funds (CCFs). These would be set up with taxpayer funds, through a levy on energy bills, and/or contributions from donors, philanthropists and individuals, and would pay owners of subcritical coal to permanently retire their assets. The assets would then be made inoperable, as opposed to simply being 'mothballed', when they could then be reactivated at some future date.

CCFs would operate by organising a series of reverse auctions. Owners of power stations would bid to receive a fixed price for each unit of generation capacity retired. The lowest bids would win the auction.

Auctions could be run annually and could cover power stations in one country, regionally or globally, depending on the geographical scope of a CCF. Auctions could also be run for specific types of coal-fired power station or those within a certain age range. Similar reverse auctions have been successfully used to reduce the number of fishing vessels and fishing permits in overfished areas, or to buy back abstraction licences in areas suffering from water stress.

CCFs could also operate a 'degression' to incentivise coal owners to accept compensation sooner rather than later. For example, each auction could have a price cap, which would fall by a certain percentage each year. CCFs could also offer more in total funds in early auctions and reduce the compensation kitty for later auctions. That way, owners might be more likely to secure a better price the earlier they bid, encouraging early action.

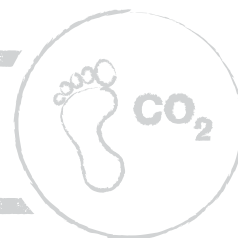
## **An affordable solution?**

In the UK, as well as the US and most of the rest of the EU, most coal-fired power stations are more than 35 years old and so the CCF mechanism might not be required – emissions performance standards could be a better option. But if CCFs were implemented, the additional cost of inducing early closure would be relatively small. Many investors would jump at the chance of reducing their exposure to the regulatory and reputational risks associated with subcritical coal. As a result, small CCFs could quickly close a large number of subcritical power stations.

In other countries, particularly China and India, where large fleets of coal-fired power stations are newer, the funds required would have to be commensurately larger. Here CCFs could concentrate on the oldest and most polluting power stations first. In addition, donor governments helping to pay for CCFs in developing countries, as well as early US and EU closures, could be part of a grand bargain to secure international climate action.

## **Carbon capture and storage?**

Some argue that carbon capture and storage (CCS) and negative emissions technologies (NETs) could increase the size of carbon budgets by 2050, allowing for more coal to be used. The fact is that these technologies are highly uncertain and even under very optimistic scenarios, would not prevent the need to reduce coal extraction and combustion very significantly.<sup>71</sup> Moreover, to the limited extent that CCS and NETs create additional carbon budget, this should be reserved for the residual emissions from important, but 'stubborn' non-point source emitters like agriculture and aviation.<sup>72</sup> Additional carbon budget from CCS and NETs should not be wasted on sectors where there are viable alternatives to mitigate emissions.



## NEXT STEPS

In the absence of meaningful carbon pricing or robust regulation and in light of ever-increasing urgency, we desperately need a realpolitik strategy to retire subcritical coal-fired power stations. The first CCFs could be created quickly and then scaled up as experience of their operation grows. There are few things that would achieve significant emission reductions as quickly.

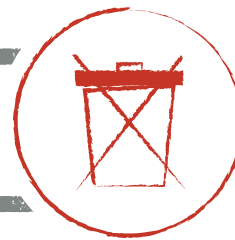
## References

- 55 | <http://bit.ly/1MNFafJ>
- 56 | Carma and Enipedia 2015.
- 57 | Ibid.
- 58 | International Energy Agency, Redrawing the Energy Climate Map (Paris, OECD/IEA, 2013).
- 59 | EPRI (2008). Water Use for Electric Power Generation.
- 60 | Carma and Enipedia 2015.
- 61 | International Energy Agency, Redrawing the Energy Climate Map (Paris, OECD/IEA, 2013).
- 62 | Carma and Enipedia 2015.
- 63 | Le Quéré, et al. (2009) "Trends in the sources and sinks of carbon dioxide," *Nature Geoscience*, 2(12), 831–836.
- 64 | Carma and Enipedia 2015.
- 65 | <http://bit.ly/1ENzgaS>
- 66 | Carma and Enipedia 2015.
- 67 | DECC (2014). Digest of United Kingdom Energy Statistics 2014. (London, DECC, 2014).
- 68 | <http://bit.ly/1BIN3jh>; <http://bit.ly/UpNtae>; <http://bit.ly/1FQqOnP>
- 69 | HEAL, 2013, see: <http://bit.ly/1hvEaLy>
- 70 | <http://bit.ly/1C1ygAN>
- 71 | Caldecott, B.L., Lomax, G. & Workman, M. (2015) Stranded Carbon Assets and Negative Emissions Technologies. Working Paper Series. Smith School of Enterprise and the Environment, University of Oxford.
- 72 | Ibid.

## ABOUT THE AUTHOR

**Ben Caldecott** is a Programme Director at the University of Oxford's Smith School of Enterprise and the Environment, where he founded and directs the Stranded Assets Programme. He is concurrently an Adviser to The Prince of Wales's International Sustainability Unit. This article was written in his personal capacity.

# ZERO WASTE



## TAX REFORM TO BOOST RESOURCE EFFICIENCY

Professor Paul Ekins OBE, Director of Institute of Sustainable Resources



### SUMMARY PROPOSAL

The UK government has an aspiration for a zero waste economy, but current policies are far too tentative to realise this. What is required is a bold package of policies that includes ambitious environmental tax reform. Whilst not the subject of this paper, this should be accompanied by a wide range of other policies to increase resource efficiency (including at EU level), including other economic instruments, regulations on waste and energy efficiency, facilitation of industrial symbiosis, review of waste definitions and product specification, and intensification of green public procurement. These should be complemented at the EU level by policies to increase resource efficiency through harmonisation of environmental taxes, further application of the principle of extended producer responsibility, and more stringent regulations on waste exports and eco-design.

### WHY THIS MATTERS

Wastes are expended resources. They represent materials to which value has been added, which have lost that value, and have become economic liabilities and/or environmental costs. Reducing waste therefore reduces these liabilities and costs.

A major component of wastes in most economies is the emission of greenhouse gases (GHGs) that are discharged into the atmosphere from burning fossil fuels, from deforestation and land use change, and from agriculture and other sources of methane emissions where they contribute to potentially dangerous levels of climate change. Reducing these waste emissions is something to which all countries are committed in principle, while the UK has statutory targets for such reduction through to 2050.

Ongoing population growth is likely to take human numbers to 9 billion by 2050, while economic growth will enable an extra 3 billion people by 2030 to consume at the present levels of the middle classes in the old industrial countries. On current consumption patterns, this would lead to resource depletion and environmental damage on an unprecedented level, with inevitable negative knock-on effects on lives and livelihoods in all countries.

The operation of markets will be crucial in addressing these challenges, but they will only be able to do so if they are guided by public policy that enables them to take account of the liabilities and costs entailed in waste, which are currently external to the pricing system through which markets operate.

Pricing externalities through market-based instruments has been shown in many circumstances to be the most efficient way to reduce environmental damage and lead to the more efficient use of resources. However, with few exceptions such instruments have so far not been applied at a sufficient level to lead to a step change in waste reduction, whether this be the necessary reduction in emissions of GHGs, through carbon taxation or emission trading, or the reduction of other forms of waste, both solid and liquid.

One means of introducing market-based instruments is through environmental tax reform (ETR), which is described in more detail below.

### The economic benefits of increased resource efficiency

There are now many calculations that strong actions and investments to increase resource efficiency can generate economic benefits over the short, medium and long terms, rather than costs. One estimate puts these benefits at USD 2.9tn in 2030, of which 70% have an internal rate of return on investment of more than 10%<sup>73</sup>.



“Wastes are expended resources. They represent materials to which value has been added, which have lost that value, and have become economic liabilities and/or environmental costs. Reducing waste therefore reduces these liabilities and costs.”

At the European level, a report for the European Commission<sup>74</sup> estimates that European businesses could reap net benefits from resource efficiency measures based on current prices and technologies of €603bn. In the UK, a study for the Department for Environment, Food & Rural Affairs (Defra) estimated that resource efficiency opportunities related to energy, waste and water amounted to £55bn in 2009, of which £23bn had a payback of less than one year.

Moreover, there is good evidence that resource efficiency can result in lower costs through achieving lower levels of price volatility, which can have a substantial effect on profitability and therefore on company value. Reduced earnings volatility should increase value. A study of 1,000 UK companies over a 33-year period<sup>75</sup> showed that the difference between the top and bottom quintiles of profit stability is a 25% to 30% share price premium for the most stable quintile. Investors also favour low profit volatility.

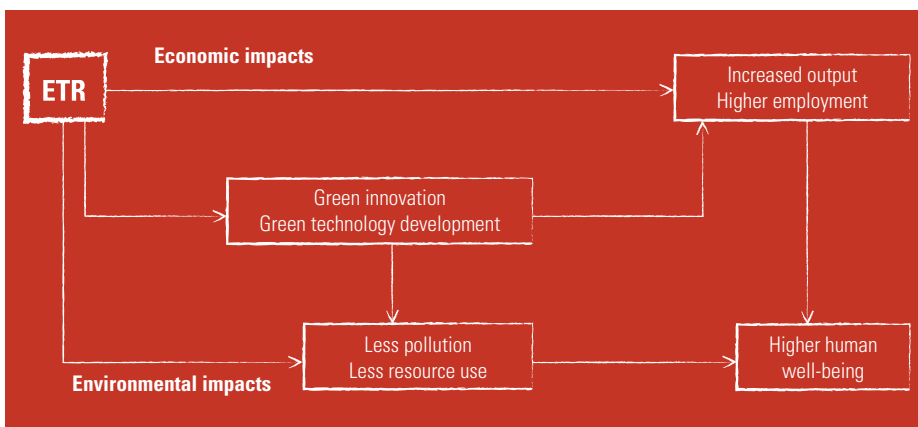
In summary, therefore, reducing waste can make both environmental and economic sense. This section now moves on to consider how it may be achieved.

#### CORE PROPOSAL

Moving towards a zero-waste economy in the UK, which is already an objective of the UK government<sup>76</sup>, will require a significantly more robust and binding suite of policies than are currently in place, building on the landfill tax success and other policies that have been put in place in the context of the European Union's Waste Framework Directive, and the targets of the Landfill Directive.

Material movements through an advanced industrial economy like that of the UK are very complex. So too are the various classifications of materials that become wastes. It is therefore important that any policy proposals to retain the value of materials for longer, so that the flow of waste is reduced and ultimately eliminated, are adopted and implemented

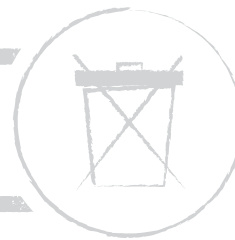
in full consultation with the industries that handle these materials. Prime among these are the materials and waste management industries, including those involved in construction and demolition, manufacturing of different kinds, and the production of packaging materials. What follows is therefore a wide range of possible policy proposals, all of which could contribute to the objective of a zero-waste economy, but the precise mix, rate of introduction and level of ambition of which would need to be subject to detailed consultation with relevant industries and other stakeholders, such as waste collection and disposal authorities. However, the consultation should make clear that the objective is a zero-waste economy by a certain date (for example, 2040), and the purpose of the consultation is to identify the most cost-effective and material-efficient way of getting there. The centre-piece of such a policy package should be environmental tax reform (ETR), a more detailed description of which now follows.



Box 1: The potential contribution of environmental tax reform to human well-being.

Source: Ekins and Speck 2011<sup>77</sup>, Figure 1.6, p.15

# ZERO WASTE



## Environmental tax reform

Environmental tax reform (ETR) is the systematic changing of the basis of taxation, such that a greater proportion of revenues comes to be derived from pollution and the use of scarce resources, thereby giving a price signal for their reduction, balanced by a compensating decrease in other taxes, usually taxes on either labour or capital, which reduce incentives for employment and enterprise. There is now considerable evidence that ETR, if efficiently implemented, can lead to increased employment, and sometimes small positive impacts on GDP, while reducing waste and pollution. It can also stimulate green innovation and new industries. Box 1 illustrates the various pathways through which ETR can increase human well-being.

Because environmental tax reform works directly through adjusting relative prices, and because the trajectory of tax, and therefore price increases can be announced in advance, it gives clear signals to businesses about the costs of waste which they can expect in the future, which enables them to plan and invest to reduce these in an efficient way.

The UK already has significant experience with such a policy process, through its implementation of the landfill tax. This was introduced at £7 per tonne active waste (£2 per tonne inert) in 1996, but increased sharply thereafter, with a 'landfill tax escalator' on active waste of £3 per tonne from 2004–2007, and then £8 per tonne to its level from April 2014 of £80 per tonne active waste (£2.50 per tonne inert)<sup>78</sup>, a level at which it was calculated to drive the required investment in waste management infrastructure. The tax has raised £10bn in revenue since 1998, which has allowed other taxes to be lower by the same amount, for the same profile of public expenditure. Defra considers that the tax has been very successful, contributing to a 25% reduction of overall quantities of waste recorded at landfill sites registered for the tax between 1997–98 and 2005–06<sup>79</sup>. In addition, the recycling rate for household waste rose from below 15% in 2000–01 to above 40% in 2013–14<sup>80</sup>. This is an important policy success that can be built on to reduce emissions and waste further.

Many of the detailed environmental, material, employment and economic implications of an ambitious ETR in the UK were modelled through the work of the UK's Green Fiscal Commission<sup>81</sup>. The taxes implemented were largely energy taxes, though taxes on water and materials were also considered. The taxes were implemented largely as 'escalators' (a small annual percentage increase in the tax), following the examples of the landfill tax, and the fuel duty escalator in the 1990s. The scenario found that over the period 2006 to 2020 through this means, environmental tax revenues in the ETR scenario rose from around 6% to 15% of total tax revenues, allowing income tax to be cut by 10% and National

Insurance Contributions by around a third. Other impacts were that carbon dioxide (CO<sub>2</sub>) emissions fell by 16% in 2020, employment was up by around 1.5% (450,000 jobs) and the effect on GDP was negligible, as the negative effects of the energy price increase were almost completely offset by the positive effects of the increased employment and reduced labour taxes (Ekins 2009, pp.61 ff.).

It should be stressed that ETR may be the most important, but is certainly only one of the package of policies that will need to be implemented systematically to increase resource efficiency in the UK. A much wider range of policies may be found in the 'Action for a resource-efficient economy' document produced by the European Resource Efficiency Platform (EREP), with the objective to create growth and jobs; provide incentives to overcome barriers to improving resource efficiency; put a proper value on resources; provide clear information and measure progress; and promote new business models.<sup>82</sup>

# ZERO WASTE



## NEXT STEPS

Despite the evidence of the benefits to be gained both from ETR and wider resource efficiency policies en route to a zero-waste economy, they remain politically difficult to implement, especially at the necessary scale to significantly accelerate progress in the desired direction. In respect of ETR, probably a sensible first step would be for the government to convene an arms-length Environmental Tax Commission, with wide stakeholder representation. Such Commissions have proven successful in other countries in raising public awareness about ETR, correcting misperceptions, and identifying ETR policy packages than can command public support<sup>83</sup>.

In respect of resource efficiency policies more broadly, businesses, central and local government, and citizens' groups need to agree ways forward on the policies one by one, as appropriate. Local authorities should be permitted to re-start pilots for Pay As You Throw programmes for households, but in a transparent way, with clear proposals for households to share in the reduced waste disposal costs that such a policy can deliver. Businesses need to collaborate with government on how to take the idea of Extended Producer Responsibility to the next stage. And so on. Businesses are now clearly incentivised by the landfill tax to reduce waste, and the public is now far more committed to recycling than even a decade ago. Now is the time to go to the next level in reducing the waste and emissions from, and retaining the value in, the materials and energy that provide the physical basis of UK livelihoods, wealth and welfare.

## References

- 73 | Dobbs, R., Oppenheim, J., Thompson, F., Brinkman, M. and Zornes, M. 2011 Resource Revolution: Meeting the world's energy, materials, food and water needs, McKinsey Global Institute, p.70 <http://bit.ly/LB7RQZ>
- 74 | AMEC and BIO IS 2013 The opportunities to business of improving resource efficiency, report to the European Commission, February, pp.95–96 <http://bit.ly/1o9s2FL>
- 75 | Mainelli, 2004. Ethical volatility: how CSR ratings and returns might be changing the world of risk, Balance Sheet 12(1): 42–45.
- 76 | Defined to mean “we reduce, reuse and recycle all we can, and throw things away only as a last resort”, see <http://bit.ly/1fufmCK>
- 77 | Ekins, P. and Speck, S. Eds. 2011 2011 (with Stefan Speck) Eds. *Environmental Tax Reform: A Policy for Green Growth*, Oxford University Press, Oxford.
- 78 | Institute for Fiscal Studies, <http://bit.ly/1DORsjP>
- 79 | <http://bit.ly/17Pftuz>
- 80 | See Figure 4, ‘Statistics on waste managed by local authorities in England in 2013–2014’, <http://bit.ly/1yMB6VN>
- 81 | <http://bit.ly/1DORN60>
- 82 | For full text see: <http://bit.ly/18zTsxa>
- 83 | Ekins, P. and Shaw, B. 2013 ‘Green Fiscal Commissions in Europe’, in Mori, A., Speck, S., Lee, S. and Ueta, K. Eds. 2013 *The Green Fiscal Mechanism and Reform for Low Carbon Development*, Routledge, London/New York, pp.152–186.

## ABOUT THE AUTHOR

**Professor Paul Ekins OBE** is Professor of Resources and Environmental Policy and Director of the UCL Institute for Sustainable Resources. He is also Deputy Director of the UK Energy Research Centre. He has extensive experience consulting for business, government and international organisations. Paul Ekins’ academic work, published in numerous books, articles and scientific papers, focuses on the conditions and policies for achieving an environmentally sustainable economy. In the UK New Year’s Honours List for 2015 he received an OBE for services to environmental policy.

# ENHANCING NATURE



## STRESS TESTING UK EXPOSURE TO NATURAL CAPITAL DEPLETION

Toby Roxburgh and Karen Ellis, Economics Advisers



### SUMMARY PROPOSAL

The next government should take decisive steps to improve the management of natural capital-related risks, in both the public and private sectors. As has been highlighted by the UK's Natural Capital Committee (NCC), accelerating declines in natural assets are increasingly threatening the resilience of the UK economy and businesses<sup>64</sup>. The government has a duty to assess, manage and report on these risks, and to ensure that they are taken into account in public policy making. It must also help businesses adapt to these changes, mitigate risks and maximise the significant associated opportunities. To help with this, the government should initiate a new natural capital 'stress testing' exercise, to evaluate economic risks associated with natural capital depletion, mirroring the stress testing approach used in the UK banking system.

### WHY THIS MATTERS

All economic activity ultimately depends on and affects natural capital – the stock of ecosystems, species, fresh water, land, minerals, the air and oceans that provide benefits to people. But mounting evidence, including recent reports from the UK's Natural Capital Committee (NCC), shows that overuse and degradation of natural capital is putting many of the 'services' they provide at risk<sup>65</sup>. This is already imposing significant costs to the UK economy:

- **Overfishing:** over-harvesting of many wild fish stocks has dramatically reduced yields, leading to lower economic returns to businesses and coastal communities. UK fisheries are contributing £1.4bn per year less to the economy than they were in the 1970s<sup>66</sup>.
- **Soil degradation:** the total annual costs of soil degradation in England and Wales have been estimated at £1.2bn a year, including the costs of carbon emissions from degraded soils<sup>67</sup>.
- **Flooding:** land-use changes and development have reduced the capacity for UK river catchments and coastal margins to provide the protection from floods that they used to. This is creating increased risk to the economy, businesses and communities – risks that will increase under projected climate change scenarios. The value of the role coastal wetlands play in mitigating flooding and storm damage alone has been evaluated at £1.5bn per year<sup>68</sup>.
- **Air quality:** The annual health, environmental and CO<sub>2</sub> costs of air pollution from UK industry alone has been estimated at £9.5–£15.5bn<sup>69</sup>.

The impacts and dependence of businesses on natural capital can expose them to risks through changes in: the supply and price of inputs or resources (e.g. water, land, energy, or commodities); regulation and licensing conditions; and customer demand and access to markets, including the securing of finance and insurance<sup>70</sup>. All of these can affect operational, financial, and market performance. Nearly a third of profit warnings issued by FTSE 350 companies in 2011 were attributed to rising resource prices.<sup>91</sup> Eighty per cent of senior manufacturing executives cite limited access to raw materials as a present business risk and threat to growth<sup>92</sup>.

In response, many businesses – including Aldersgate Group members The Crown Estate, Kingfisher, Kier, M&S and Aviva – are acting on their own initiative, exploring new systems and methodologies to: identify their impacts and dependence on natural capital, evaluate and cost associated risks, and identify risk mitigation measures and new opportunities. Case studies from around the world reveal improved business performance, for example, through cost savings, increased revenues, access to new markets, improved brand profile, and increased asset values and share prices (see Box 2)<sup>93</sup>.

But business cannot tackle these challenges alone. The government has a responsibility to ensure that the UK's natural capital is managed and used sustainably, in order to secure the long-term resilience of UK plc. To achieve this, as the NCC has highlighted, it is vital that natural capital is fully integrated into all aspects of public policy decision-making, and that the UK develops a statutory, long-term (25 year) plan for protecting and improving it.



Natural capital is a material issue because all aspects of business are ultimately linked to and influenced by trends in natural capital. This highlights a risk to business, which could ultimately lead to financial and also reputational losses.

***Helen Brand, Chief Executive, ACCA  
(the Association of Chartered Certified Accountants)***



## BOX 2: THE CROWN ESTATE'S TOTAL CONTRIBUTION INITIATIVE

The Crown Estate, a member of the Aldersgate Group, manages substantial amounts of land and natural assets including significant areas of London, Windsor Great Park, numerous regional shopping centres, hundreds of thousands of acres of rural land and coastline, and the UK's seabed. Its role is to make sure that the land and property it invests in and manages are sustainably worked, developed and enjoyed to deliver the best value over the long term.

The Crown Estate has developed an approach called Total Contribution in order to measure the broader value it creates beyond its financial return, and to identify opportunities to support business decision-making. Total Contribution considers the business's economic, environmental and social impacts and dependencies. It also covers the full value chain; from direct operations through to the indirect activities of the supply chain and the 'enabled activities' of others on The Crown Estate's land.

The measurement of The Crown Estate's significant natural resources has been an important element of this approach, and in 2014 the use of natural capital accounting was piloted on the Windsor Estate, using the NCC's Corporate Natural Capital Accounting framework. The pilot identified the environmental and cultural value provided by the estate's natural assets, but which are not fully reflected in the financial accounts at present (including the provision of recreation opportunities, air filtration by vegetation, and carbon storage and sequestration). In total, these benefits were estimated to be equivalent to £4.4mn per annum gross external benefit, and £45.6mn (in present value terms) over 100 years.

This approach has prompted a review of risks and opportunities, updating the areas of focus for the business. It has helped communication between departments so that the finance team and asset managers can now have more detailed conversations about budgeting and strategic planning

such as why continual investment in the ancient oaks is important to maintain their health and biodiversity and ensure they remain a destination to visit. It has improved relationships with partners and tenants, including the development of innovative leases that reward tenants for improvements in natural capital. This in turn preserves the long-term financial value of the business's assets, providing benefits for The Crown Estate, the tenants and nature.



# ENHANCING NATURE



The government must also help businesses adapt, for example, through measures to reduce their impacts and dependence, mitigate associated risks and maximise business opportunities. Here, too, the government needs to introduce an appropriate framework of incentives (e.g. targets, regulations, taxes, subsidies) to incentivise private sector innovation and investment, and ensure it is geared towards securing nature's recovery.

In all cases, a critical pre-requisite is for the government to develop a far greater understanding of the dependence and impacts of the UK economy and key business sectors on natural capital, the status of these assets, and the potential economic and business risks and opportunities this poses.

## CORE PROPOSAL

In the next parliament, the government should initiate a new, forward-looking natural capital 'stress test', drawing on the stress testing approach used in the UK banking sector<sup>94</sup>. This is the method of evaluating the 'health' of individual banks in terms of their capacity to maintain lending and trading activities under a range of plausible future adverse economic scenarios, in order to inform management response (e.g. decisions about the amount of capital a bank needs to retain to cover potential liabilities).

Applied to natural capital, the stress test could identify the risks to key economic sectors associated with changes in natural capital stocks (and consequent service provision) under a range of future scenarios. Scenarios could relate, for example, to changes in specific UK and international natural assets (e.g. fish stocks, water and forests) and/or relevant drivers/pressures (e.g. extreme weather events, global warming and population growth). As the process is refined, interactions between scenarios, natural capital assets, geographies and/or economic sectors could be explored.

A natural capital stress test would help to identify risk exposure of key economic sectors due to failing to address natural capital degradation. It would also help to inform policy response – such as decisions about what level of assets need to be maintained to mitigate risk (or achieve other desired outcomes) and appropriate policy-response and investments. Where relevant, the risks (and mitigation measures) identified could be integrated into the government's National Risk Register and National Security Strategy, both of which are updated regularly and publically available.

A natural capital stress test would be invaluable in supporting a national strategic natural capital risk assessment (a 'Stern 2'-type study), as has already been proposed by government and industry figures.<sup>95</sup> Such a study would be invaluable in publically reporting on the risks to the UK economy and key business sectors associated with national and global natural capital resource trends, taking into account the UK's wider impacts/dependencies and future climate change scenarios. But, despite widespread support, no action has yet been taken.

The stress test approach would be critically dependent on information about the current status of natural assets. Hence, as recommended by the NCC, an important priority is for the government to fast-track the further development of the NCC's natural asset risk register<sup>96</sup>, which captures information on current stocks, trends and extent to which specific assets are (or are at risk of) being used unsustainably. The UKNEA has also highlighted that improvements are needed in the government's analytical capability around macroeconomy-environment interactions generally, and set out a number of recommendations<sup>97</sup>.

# ENHANCING NATURE



## NEXT STEPS

Development of the NCST concept would require combinations of expertise in estimating the stock, trends and value of natural capital, macro-economic performance, environmental scenarios, and other relevant disciplines. Thus it would require collaboration between experts on natural capital such as those currently located in the NCC, those with wider expertise on environmental issues who can help identify relevant scenarios to examine, and economic modellers from within Treasury. Such a combination of expertise is not regularly brought together and therefore would be likely to produce an innovative discussion across disciplinary interfaces that facilitate innovative new thinking and insights.

The exercise could potentially be coordinated by a new, independent Office for Environmental Responsibility (OER), the creation of which has been proposed by the Environmental Audit Committee<sup>98</sup>, and which would have a remit to advise the government on appropriate environmental strategies, targets, policies and investments, and monitor and hold government to account on meeting commitments.

## References

- 84 | Natural Capital Committee, 2014. The State of Natural Capital: Restoring our Natural Assets. Second report to the Economic Affairs Committee.
- 85 | Natural Capital Committee, 2015. The State of Natural Capital: Protecting and Improving Natural Capital for Prosperity and Wellbeing. Third report to the Economic Affairs Committee.
- 86 | Natural Capital Committee, 2014. The State of Natural Capital: Restoring our Natural Assets. Second report to the Economic Affairs Committee.
- 87 | Cranfield University, 2011. The total costs of soil degradation in England and Wales. Defra project number SP1606.
- 88 | Defra, 2011. The Natural Choice: securing the value of nature, HM Government, London, UK.
- 89 | Defra, Scottish Executive, Welsh Assembly Government & Doeni 2007. The Air Quality Strategy for England, Scotland, Wales and Northern Ireland – Volume 1. Defra, London, UK.
- 90 | <http://bit.ly/1Dg4Tbj>
- 91 | Aldersgate Group, 2013. Business Statement: Resource security vital for growth and prosperity.
- 92 | EEF, 2012. EEF Executive survey 2011, EEF The Manufacturers' Organisation, London, UK.
- 93 | Aldersgate Group, 2013. Business Statement: Resource security vital for growth and prosperity.
- 94 | Bank of England, 2013. A framework for stress testing the UK banking system. A Discussion Paper.
- 95 | Aldersgate Group, 2013. Letter to Steven Fries.
- 96 | Natural Capital Committee, 2014. The State of Natural Capital: Restoring our Natural Assets. Second report to the Economic Affairs Committee.
- 97 | Anger, A., Shmelev, S., Morris, J., Zenghelis, D., & Di Maria, C., 2014. UK National Ecosystem Assessment Follow-on. Work Package Report 2: Macroeconomic implications of ecosystem service change and management: A scoping study. UNEP-WCMC, LWEC, UK.
- 98 | Environmental Audit Committee, 2014. An Environmental Scorecard.

## ABOUT THE AUTHORS

This chapter was written by **Toby Roxburgh** and **Karen Ellis**, who are Economics Advisers to WWF-UK, with inputs from Ian Dickie (Aldersgate Group Director and a Director of economics for the environment consultancy (eftec)).

WWF is one of the world's largest independent conservation organisations, with more than five million supporters and a global network active in more than 100 countries. Through our engagement with the public, businesses and government, we focus on safeguarding the natural world, creating solutions to the most serious environmental issues facing our planet, so that people and nature thrive. Find out more about our work at [www.wwf.org.uk](http://www.wwf.org.uk).



"Kier invests in, builds, maintains and renews the places where we live, work and play, daily contributing to our growing and thriving economy. An Economy That Works provides a framework that could help us to make decisions that deliver increased wellbeing, competitiveness and prosperity for this and future generations."

***Haydn Mursell, Chief Executive Officer, Kier Group***

"Single-issue policy making is struggling to address the complex social and environmental challenges of our time. The Economy that Works coalition has a relentlessly positive vision and its systemic blueprint for creating decent jobs, delivering equal opportunity, and enhancing wellbeing across the UK is exciting and galvanising."

***Sir Richard Lambert, Former Director-General, CBI***

"The purpose of the economy is supposed to be to improve people's lives. 'An Economy That Works' provides a thoughtful framework to help make that more of a reality. The task for the next government must now be to implement the policies that will turn some of these benefits into reality."

***David Nussbaum, Executive Director, WWF UK***

"An Economy That Works offers a clear framework to guide the transition towards a prosperous and sustainable UK. It provides compelling evidence that a greener, smarter economy is critical for stability, resilience and wellbeing today and in the future."

***Andy Atkins, Executive Director, Friends of the Earth***

"There's an interesting hypothesis out there that when the facts change, people's opinions might change accordingly. Unfortunately, nothing could be further from the case in terms of today's dominant orthodoxies, almost all of which sustain themselves in a largely fact-free zone. Hence the pressing need for 'An Economy That Works', as defined and elaborated in this excellent new initiative."

***Jonathon Porritt, Co-Founder, Forum for the Future***

# ALDERSGATE GROUP MEMBERS

AN ALLIANCE OF LEADERS FROM BUSINESS, POLITICS AND SOCIETY THAT DRIVES ACTION FOR A SUSTAINABLE ECONOMY



## AN ECONOMY THAT WORKS' PARTNERS



# AN ECONOMY THAT WORKS

AN ALLIANCE DEDICATED TO CREATING AN ECONOMY THAT DELIVERS PROSPERITY,  
COMPETITIVENESS AND SUSTAINABILITY: BETTER GROWTH, BEYOND GDP.

[WWW.ANECONOMYTHATWORKS.ORG](http://WWW.ANECONOMYTHATWORKS.ORG)

[WWW.ON-IDLE.COM](http://WWW.ON-IDLE.COM)



Email: [info@aneconomythatworks.org](mailto:info@aneconomythatworks.org)

Tel: +44 (0)20 7841 8966

Web: [www.aldersgategroup.org.uk](http://www.aldersgategroup.org.uk) and [www.aneconomythatworks.org](http://www.aneconomythatworks.org)

Hub Westminster | New Zealand House | 80 Haymarket | London SW1Y 4TE

Aldersgate Ltd is a not-for-profit company | Company No: 6205552