

Department of Business, Energy and Industrial Strategy Industrial Strategy Green Paper

Background to CIWEM

CIWEM is the leading independent Chartered professional body for water and environmental professionals, promoting excellence within the sector. The Institution provides independent comment on a wide range of issues related to water and environmental management, environmental resilience and sustainable development.

Summary

CIWEM welcomes the opportunity to respond to the Government's Green Paper: *Building our Industrial Strategy* and welcomes the government's renewed focus on the industrial strategy. It has the potential to provide the pathway to a low carbon, resource efficient economy and provide a clear vision to steer the UK through what could be turbulent times ahead, as we leave the regulatory stability of the EU single market.

The UK has numerous economic successes and is the fifth biggest economy in the world. However this headline masks our weaknesses: Our productivity lags behind European and US competitors, we are 24th in the Global Competitiveness infrastructure rankings and the UK has the second highest level of inequality in the G7. CIWEM considers that the Green Paper could increase its ambition to tackle these weaknesses. For example, the Industrial Strategy:

- Should align with the targets and indicators of the UN Sustainable Development Goals.
- Should have resource efficiency as a central theme.
- Must complement the forthcoming Emissions Reduction Plan to help maximise opportunities to develop a low carbon economy.
- Must address the potential implications for the UK after exiting the EU.

The Sustainable Development Goals (SDGs) are not mentioned in the Green Paper although they should be the catalyst for any long term plans. Specifically SDG 4 (quality education), 5 (gender equality), 7 (affordable and clean energy), 8 (decent work and economic growth), 9 (industry, innovation and infrastructure), 12 (responsible consumption and production) 13 (climate action) should all be prioritised. Businesses are starting to use the SDGs as a framework to shape their long-term future and the government should also be leading on this front.

Resource efficiency, although mentioned, could play a much more prominent role. Resource productivity should be given the same attention as labour productivity to help the UK to be

more competitive. The Green Paper references Defra's 25 year environment plan for England as providing the vision for a more resource efficiency and resilient economy. Yet this may not be released until the end of this parliament. We consider resource efficiency must be driven throughout the whole economy and the Department for Business, Energy and Industrial Strategy should be the natural home for this work. Resilience to climate change impacts is only mentioned in the infrastructure section, but equally all areas of the economy will need to plan to adapt and become climate resilient.

Aligning with the Emissions Reduction Plan will ensure we that we invest in research, skills and technologies to develop a truly low carbon economy. The government must publish this overdue plan as soon as possible to demonstrate ongoing commitment to the Climate Change Act and to drive investment in clean infrastructure and technology.

There is little mention of the possible impacts of EU exit in the Green Paper, yet industry, investors and businesses craves long term stability. The strategy must address fundamental questions regarding state aid rules, trade, investment and research. Whilst we welcome the announcement of increased funding for R&D, a long term commitment (post 2021) to research funding should be included. This should represent 3 per cent of GDP, in line with global leaders in innovation (e.g. Japan, South Korea, and Sweden) rather than specifying short term cash sums.

The following sections address our views around the topics of EU exit, resource efficiency, energy, skills, infrastructure and investment.

EU Exit

The Green Paper contains little analysis of what Brexit might mean for the Industrial Strategy. State aid rules, trade, investment and research could all be affected and could all present opportunities, but instead they are ignored. The reality is that most businesses, certainly the most forward thinking, do not regard regulation as a great burden. They plan for it and adapt to it, investing accordingly and will typically be more resilient as a result. The stability of EU policy and regulation has helped deliver against environmental needs and businesses will be looking for a clear steer along similar lines from UK government going forwards.

Outside of the Single Market, businesses will no longer be able sell their products into the EU without incurring tariffs unless a trade deal is agreed. In January 2017, exports to the EU were worth £12.8 billion, whereas UK imports from the EU totalled £19.5 billion. Motor vehicles, medicines and mechanical appliances were in the top exports from the UK to the EU in January 2017, and other EU members may try to entice producers of these products to resettle in their countries as they can guarantee them tariff-free access to the world's largest Single Market.

EU exit will change the internal political, economic and environmental balance of the EU as a whole and affect its stance on certain issues. For example, it may well change the balance of power between EU's more "Protectionist" and "Free Trade" blocs. There could also be a range of impacts on EU positions and decisions. For example, without the UK's influence there could be reduced ambition in relation to setting certain standards, particularly climate targets, and reforming the Common Agricultural Policy; but more willingness to accept regulatory solutions, for example in promoting a more circular economy.

Resource efficiency

For years, technological, economic and social innovation has enabled us to minimise our labour input into our industrial processes; yet this has usually required the use of more energy and more materials. To reduce our reliance on fossil fuels, it is clear that we urgently need to decarbonise the energy system and reduce our energy use; but we also need to look at our material inputs and manage materials more effectively within the economy.

The increasing global demand for goods is leading to strains on supplies of some raw materials, contributing to sustained high resource prices and enhancing geopolitical risk. Commodity prices are currently at their most volatile since the oil shock of the 1970s. In all years since 1990, the UK has imported more than it has exported. Our imports currently include a quarter of our minerals and half of our biomass. Technological developments such as electric car batteries (lithium), solar energy (indium) and defence technologies are often tied to imported raw materials. Outside of the EU, our high rate of imports leaves us exposed to risk from currency devaluation and trade tariffs.

This strategy should be an opportunity to move towards a more resource efficient, circular economy that will not only preserve the natural environment and our supply of resources, but enable us to build a resilient and dynamic economy with strong international competitiveness. The Industrial Strategy needs to plan strategically, (taking trade into account) so that critical resources can be recovered and reused within our economy, reducing the need for virgin materials and increasing our resilience to price and supply volatility.

Energy

The fastest growing sector of the UK economy through the recession has been low carbon goods and services, which has been growing at between four and six per cent per year¹. Major investors such as pension funds are looking at the long term return and value of their investments. It is welcome that the Green Paper puts emphasis on the importance of the transition to low carbon energy but greater actions may be needed, and expected from the department which also has energy and climate change within its brief. We look forward to more detail in the Emissions Reduction Plan, for example on how we will decarbonise heat and whether the government will commit to developing carbon capture and storage technology.

The Green Paper also rightly identifies low cost energy and clean growth as a critical part of the picture and needs to send strong signals to investors and supply chains that the UK continues along this path. However behind the scenes, we know that new onshore wind is being blocked through planning although it is now commercially competitive and subsidy cuts and a lack of long term targets have seriously affected the development of solar and offshore wind. We welcome the move to combine business, energy and climate change into one government department, however we are concerned that climate change, as it is no longer reflected in the department's title, may take a back seat. The Industrial Strategy is a chance to put climate change and the low carbon at the forefront of the government's plans.

CIWEM supports the move to require energy suppliers to offer interactive smart meters to every household and small business by 2020. Demand for power varies during the day and between days, sometimes by a factor of about two. This gap is generally covered by fossil fuel. To minimise fossil fuel use it would be appropriate to store renewable energy for use in

peak times and when renewable energy is insufficient. CIWEM considers there needs to be far greater emphasis on the more efficient use of energy through insulation, efficiency and demand management, alongside dispersed storage across the grid to mitigate peak electrical loads. We support the review of the case for a new research institution to act as a focal point for work on battery technology, energy storage and grid storage technology and welcome the investment in new battery technology.

Vehicles could be part of the storage system by storing electricity in the batteries of electric cars. However there are several potential problems with this. At times when the grid would want to withdraw the energy to meet peak demand, generally in the evening, the cars may not be connected to the grid and most electrical loads in houses and businesses occur when people arrive (often having just exited a vehicle), so the process that gives rise to demand is not coincident with the need to charge vehicles. This needs careful thought on how it could be implemented. There has been a concern that charging will overload the grid, however this is false; provided charging is staggered and synchronised it is entirely possible to charge with little impact on peak demand.

Infrastructure and investment

Although the Green Paper states the UK is the number one country for attracting private infrastructure investment, with an innovative business environment and high rates of private participation, this position will be at risk after EU Exit.

The UK's status in relation to the European Investment Bank (EIB) is not guaranteed after EU exit. The EIB invested €29bn between 2011 and 2015, acting as an anchor investor mostly in infrastructure projects such as the Thames Tideway Tunnel. Receiving funds from the EIB is not contingent on being an EU member state but being a shareholder in the Bank is and shareholders receive the vast majority of investment. Norway and Switzerland have struggled to gain access for funds unless they are for inter-connector projects. Therefore, there is an urgent need to clarify the UK's status post-Brexit and develop appropriate contingencies.

In the UK, the development and operation of infrastructure is largely the responsibility of the private sector. Private funding accounts for about 50 per cent of the total planned investment between 2016-17 and 2020-21. 43 per cent comes from the public sector, and a mix of public and private money funds the remainder. EU exit has the potential to alter levels of investment in infrastructure, at least in the short term. Public funding for infrastructure, particularly at the local and regional level, is also expected to remain constrained in the near to medium term. Therefore, while considering value for money, new financing streams will be required to deliver growth through infrastructure.

In this regard it is unfortunate that the government has chosen to sell off the Green Investment Bank which could have been used to mobilise much needed funds. The bank has achieved £12 billion investment in offshore wind, waste disposal and energy efficiency projects. If the new owners of the bank do not continue its 'green' remit, new methods of raising funds for hard-to-finance green projects will need to be found.

In the flood risk management sector, since 2012 the Flood and Coastal Erosion Resilience Partnership Funding model has been used to encourage the provision of external funding for flood defence schemes. However, despite its laudable aim for beneficiaries to support schemes, the present contribution of partnership funding from private sources is small. The

Environment Food and Rural Affairs Committee found a £600m shortfall from private investors to meet the government's six year investment ambitions (£2.5bn by 2021). CIWEM's report 'Breaking the bank'ⁱⁱ suggests that the principle is sound but further incentives may be needed to encourage the private sector to contribute.

The Green Paper notes the 2016 National Flood Resilience Review which sets out the expectations of key infrastructure providers to ensure assets are flood resilient, minimising the impact on immediate and wider communities and business. However this review did not consider surface water or groundwater flooding so it cannot present the full picture of risk or resilience.

Skills, research and development

CIWEM welcomes the Green Paper's recognition of skills needs from basic skills through to post-16 options, technician and professional engineering education, re-skilling and upskilling the workforce and lifelong learning.

For a successful strategy the ability to continue to attract highly skilled individuals from overseas will be essential. For example engineering has a particularly mobile workforce; this is true in both industry and academia, and across all skills levels. The Royal Academy of Engineering has found that the pace of technology development combined with the length of time it takes to fully train qualified engineers and engineering technicians, means that it is impossible to fill all engineering skills gaps and shortages in the near term by increasing the UK pipeline. While boosting the supply of UK home grown talent to tackle the skills crisis is essential, inward migration of skilled engineers will still be required. After EU exit the government will need to commit to securing the positions of EU researchers and practitioners across STEM areas.

There will also be implications for science and research funding post EU exit. Under the current Horizon 2020 (2014-2020) programme, the UK has to date secured €2.63 billion. This is the second highest level of funding received and it is unlikely that we will be able to continue to participate in the programme.

The UK invests 1.7 per cent of GDP in private and public funds on research and development. This is below the OECD average of 2.4 per cent¹⁶. We welcome the additional £2 billion a year of science and research funding announced in the Autumn Statement last year. However including the £2bn increases promised, our current gross domestic spend on research and development (R&D) equates to about 2 per cent of GDP (although this is based on current GDP, and assuming a ratio of public to private R&D spend of 1:2)ⁱⁱⁱ. We support the science institutions' recognised view that the government should commit to ensuring 3 per cent of GDP is invested in R&D to technology, engineering and science and believe the Industrial Strategy is well placed to make this commitment.

ⁱ Baroness Brown of Cambridge DBE FREng, Chair, Committee on Climate Change's Adaptation Sub-Committee

ⁱⁱ CIWEM. 2014. Breaking the Bank. <http://www.ciwem.org/flooding>

ⁱⁱⁱ Campaign for Science and Engineering <http://www.sciencecampaign.org.uk/our-work/investment/r-d-investment-factsheet.html>