

Response ID ANON-TP8E-9EMT-Z

Submitted to **Building our Industrial Strategy**

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About you

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Are you happy to be contacted if we have any questions about your response?

Yes

Are you happy for your response to be published?

Yes

Comments:

Postcode

Postcode:

NN1 1SX

Are you answering on behalf of:

an organisation (in an official capacity)

About you - organisations

What is the name of your organisation?

Name:

CIWM

Approximately how many employees are there in your organisation?

50-249

What type of organisation is it?

Voluntary sector

Voluntary sector

What type of voluntary sector organisation is this?

Charity

Other (please describe):

Professional institution

Responding to this consultation

Introduction

1 Does this document identify the right areas of focus: extending our strengths; closing the gaps; and making the UK one of the most competitive places to start or grow a business?

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CIWM is the professional body which represents almost 6,000 resource and waste management professionals, predominantly in the UK but also overseas. CIWM

sets the professional standards for individuals working in the waste management industry and has various grades of membership determined by education, qualification and experience.

Broadly the Green Paper identifies the essential areas where action is needed to revitalise UK industry with one major exception. Labour productivity is a core theme throughout the consultation but CIWM is disappointed that so little mention of resource productivity in all its forms – raw materials, water, energy, land use – is made in the Green Paper, in addition to the value of secondary raw materials to future UK growth.

A report published by the European Commission in 2012 (Mapping resource prices: the past and the future,

http://ec.europa.eu/environment/enveco/resource_efficiency/pdf/summary_mapping_resource_prices.pdf) estimates that:

“resource prices for metals, minerals, fuels, fish, timber and biomass generally decreased until 1998 (an overall decrease of 55% in real prices during 1980-1998), after which they have been steadily increasing. Our aggregated price index shows that on average real prices increased by more than 300% between 1998 and 2011. A big jump occurred between 1998 and 2000 when prices more than doubled (i.e. a 125% increase in real prices), but even after 2000 prices have increased further by almost 6% per annum in real terms”. It also found that resource price volatility has increased in the last 10 years.

On their own, these are important indicators of the need to incorporate resource planning into future industrial strategy, but Brexit now adds a further element of risk in terms of the impact of leaving the EU on the UK’s access to and price negotiating power for commodities in the future.

The UK, along with the EU as a whole, is a net importer of raw materials, and has the third largest trade deficit in raw materials across the 28 Member States (‘International trade in raw materials’, EU statistical briefing, http://ec.europa.eu/eurostat/statistics-explained/index.php/International_trade_in_raw_materials

It is imperative, therefore, that resource productivity plays an integral role in any long term strategy for the future of UK industry. Access to materials and feedstocks (and water) is an essential part of delivering industrial competitiveness, sustainable economic growth and long term business security. Resource availability and security has for some years been identified by UK plc as a potential future risk; according to the manufacturers association EEF “UK manufacturers have consistently highlighted that high material prices and security of supply is a threat to growth” (Materials for manufacturing; safeguarding supply (July 2014), <https://www.eef.org.uk/resources-and-knowledge/research-and-intelligence/industry-reports/materials-for-manufacturing-safeguarding-supply>). BIS and Defra’s Resource Security Action Plan, published in 2012

(<https://www.gov.uk/government/publications/resource-security-action-plan-making-the-most-of-valuable-materials>), also noted that growing competition for resources was already having an impact on UK businesses, with 29% of profit warnings issued by FTSE350 companies in 2011 attributed to rising resource prices.

Additional related risks that have become more evident in the last few years include significantly increased price volatility in some commodity markets, and moves by a number of leading economies to lock in exclusive access to some minerals, for example China is recently reported to be planning to stockpile large volumes of minerals for which demand is expected to rise (<http://www.indmin.com/Article/3645694/China-to-stockpile-large-volumes-of-minerals-under-new-plan.html>).

A further consideration is the potential impact of Brexit on the availability or price of material resources needed by the UK economy; this is a factor that must be assessed and included in the development of the strategy.

In addition to being a dynamic growth sector in itself, with over 100 000 jobs and almost £7bn GVA, the waste and secondary resource management industry has an important role to play in improving resource availability and security in the UK through the supply of the quality secondary raw materials and feedstocks including:

- Steel, aluminium, plastics, paper, and glass from household and business waste (the use of which often deliver significant energy savings in the manufacturing process compared to virgin feedstocks)
- rare and expensive metals and minerals from waste electronic and electrical equipment;
- electricity, heat, and biofuels through a range of different energy-from-waste technologies;
- soil conditioners and fertilisers through a range of biodegradable waste treatment processes;
- feedstocks for other aspects of the bioeconomy.

For the priority growth industries in the UK, an assessment of the resource implications is essential; for example raw materials are the biggest cost driver in the automotive industry, more than double the cost of labour. Raw materials contribute about 47% to the cost of a vehicle (on average 47% steel, 8% iron, 8% plastic, 7% aluminium, and 3% glass and 27% other materials). In comparison, labour costs represents around 21% of the total cost. See example of Jaguar Land Rover project under Q6.

2 Are the 10 pillars suggested the right ones to tackle low productivity and unbalanced growth? If not, which areas are missing?

Free text field:

Once again, a focus on resource productivity and planning better for waste and waste-derived resources has the potential to help in the drive to improve growth around the country. The economic and low carbon benefits of secondary resources derived from waste could be better realised and exploited in local economic development planning – whether as biofertilisers in agricultural areas, heat for appropriate industry clusters, or recovered paper for paper mills. In turn, industrial growth and new housing requires appropriate waste management services and infrastructure, which can also enhance the economic prospects and job opportunities in traditional low growth/high unemployment areas. There is also evidence to suggest that moving to a more efficient use of resources can stimulate net job growth, especially in regions where unemployment is higher, such as the North East and West Midlands, and among low to mid skilled occupations, where a higher rate of job losses are projected for the future (<http://www.green-alliance.org.uk/employment-and-the-circular-economy.php>).

3 Are the right central government and local institutions in place to deliver an effective industrial strategy? If not, how should they be reformed? Are the types of measures to strengthen local institutions set out here the right ones?

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The Green Paper identifies the key role that local authorities can play in supporting industrial growth, providing new incentives through the full retention of business rates and emphasising their co-ordination role with other institutions over policies like transport, inward investment and skills. It also reinforces the role of Local Enterprise Partnerships in creating “strategic plans for wider areas, including entire cities, and give businesses a direct role in shaping the future of their local communities”. Comment on the need to review the role and remit of LEPs is covered under Q36.

Optimising resource productivity requires strategic planning at a variety of levels and CIWM has not been alone in highlighting concerns about the absence of some form of regional planning approach. In its 2011 report on the Abolition of Regional Spatial Strategies

(<https://www.publications.parliament.uk/pa/cm201011/cmselect/cmcomloc/517/517.pdf>), which included planning for minerals and waste, the Communities and Local Government Committee’s conclusion on strategic planning says: “The evidence that we received showed a widespread concern about the proposed absence of planning at a level between the national and the local. There is a real risk of local authorities, individually or in combination, failing to address

important planning issues in an effective and co-ordinated manner. There needs to be a way of ensuring effective planning at a larger-than-local level.” Regional spatial strategies (RSSs) were intended to provide a framework for private investment, public sector planning, and “an evidence-driven, strategic focus for spatial planning decisions”. In the context of UK resource productivity, therefore, they could have been a useful tool for planning and delivering appropriate waste and recycling infrastructure capacity, realising optimum economies of scale, and providing a structure to help align the recovery of material and energy resources with local economic development strategies. RSSs have been replaced by a ‘Duty to Co-operate’ and some of their activities picked up by LEPs, but it is not clear that this has created an effective alternative framework for robust strategic planning. On the ground, decisions on resource and waste management infrastructure are still too often based on arbitrary political boundaries by authorities not focused on the value of resources to the national economy. This has led the industry to suggest the creation of regional networks for resource and waste management (<https://blog.viridor.co.uk/wp-content/uploads/2016/01/VIRIDOR-ENGLISH-RESOURCE-NETWORKS.pdf>).

4 Are there important lessons we can learn from the industrial policies of other countries which are not reflected in these 10 pillars?

Free text field:

Yes. A report by Defra in 2012 entitled ‘A Review of National Resource Strategies and Research’

(https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69526/pb13722-national-resource-strategies-review.pdf) documents that China, USA, Holland, France, Japan, Germany, South Korea and Holland are among the countries to have put in place materials and resource security strategies, some more holistic than others. EEF’s ‘Materials for manufacturing’ report

(<https://www.eef.org.uk/resources-and-knowledge/research-and-intelligence/industry-reports/materials-for-manufacturing-safeguarding-supply>) updates some of this data and has a useful table demonstrating how that the UK has is lagging behind in terms of strategic planning for future resource security.

Closer to home, Scotland and Wales have developed a far more integrated suite of policies that tie waste, resources, carbon and climate change, and energy together. In Scotland, for example, a whole host of strategies and legislation focus attention on resource use, availability and security:

- Climate Change (Scotland) Act (2009)
- Scotland’s Zero Waste Plan (2010)
- Waste (Scotland) Regulations (2012)
- Low Carbon Scotland (2013)
- Safeguarding Scotland’s Resources (2013)
- Towards a Litter-Free Scotland (2014)
- Towards Decarbonising Heat (2014)
- Government Economic Strategy (2015)
- Heat Policy Statement (2015)
- Making Things Last: Scotland’s Circular Economy Strategy (2016)
- ERDF Operational Programme 2014 – 2020.

Investing in science, research and innovation

5 What should be the priority areas for science, research and innovation investment?

Free text field:

Improving UK resource productivity and securing valuable secondary feedstocks for UK plc requires research and innovation across a number of areas at different points in the product supply chain.

Design and product modelling, lifecycle analysis, material sciences and remanufacturing will all be critical to improve the design, use and recovery of products from a full lifecycle perspective, and to ensure that the embedded resource value – energy, water and land use as well as materials – is not lost or downgraded at the point of discard. Remanufacturing, for example, was estimated in a 2014 study to be worth £2.4 billion to the UK economy, with the potential for this figure to rise to £5.6 billion if key barriers could be addressed by the government (‘Remanufacturing towards a resource efficient economy’

http://www.policyconnect.org.uk/apsrg/sites/site_apsrg/files/apsrg_-_remanufacturing_report.pdf). Scottish Government has already acted to improve the opportunities for remanufacturing with the opening of the Scottish Institute for Remanufacture, which is the first of its kind in Europe.

Environmental economics, resource flow modelling and data capture, and behavioural science will also play important roles in building the ‘business case’ for resource productivity and shifting business and consumer attitudes.

Research into new materials and technologies – e.g. bioplastics, nanomaterials, carbon fibre and additive manufacturing – will continue to be important and again a ‘whole life’ approach needs to be encouraged that assesses not just the upfront benefits (including resource productivity opportunities) but also the end-of-life recycling and recovery opportunities.

At the end-of-pipe point, priorities include improving the quality of materials recovered from waste through research and innovation related to material identification and sorting processes, developing new technological processes to treat and derive value from waste (e.g. advanced gasification techniques), and developing new applications and end markets for recovered materials. It should be noted that higher quality recyclate offers greater opportunities for materials to be used in the UK and therefore for growth in the UK’s domestic reprocessing industry; poorer quality recyclate tends to go abroad where further processing to improve the quality is cheaper (notably in terms of labour costs).

Biofuels and industrial biotechnology are particular areas where significant opportunities could be explored and BEIS’ Bioeconomy Strategy should identify a number of priority areas for research.

6 Which challenge areas should the Industrial Challenge Strategy Fund focus on to drive maximum economic impact?

Free text field:

The Fund could usefully support collaborative research to identify how more secondary materials can become feedstocks for the UK’s key industrial sectors.

Jaguar Land Rover, for example, are developing a new alloy that can tolerate higher levels of impurities from aluminium scrap castings that were previously discarded, reducing the amount of aluminium sent to landfill, and cutting transport emissions as domestic rather than imported materials can be used.

In addition, the REALCAR closed loop value chain project between Jaguar Land Rover, Novelis, Innovate UK and other industrial, academic and funding partners has explored the creation of new materials and production systems to introduce closed-loop aluminium into Jaguar Land Rover cars with the aim of increasing the amount of recycled aluminium used in vehicle manufacture to 75% and therefore lowering the overall carbon footprint through both material and energy savings

(<http://www.cisl.cam.ac.uk/publications/publication-pdfs/cisl-closed-loop-case-study-web.pdf>).

7 What else can the UK do to create an environment that supports the commercialisation of ideas?

Free text field:

Alongside generic actions encouraging initiatives which bring industry and academia together, such as the Cambridge Forum for Sustainability and the Environment and the REBus project (www.rebus.eu.com), the UK could increase support for innovative resource and waste recovery technologies through the Innovate UK programme; recognise that research, training and education in the sector is part of the STEM set of topics; and strengthen attempts to de-risk investments in early stage green technologies through the innovative use of public procurement deals and business support.

8 How can we best support the next generation of research leaders and entrepreneurs?

Free text field:

Given the importance of resource productivity and efficiency to a wide range of industries, there is a strong case for new funding streams for industry-led research and development. This should bring together businesses, academics and professional Institutions over a range of levels up to post-graduate and beyond.

9 How can we best support research and innovation strengths in local areas?

Free text field:

The development of ways to link universities to local businesses and relevant Professional Institutions to support students and to ensure research is business relevant and shared, along with making universities open to people in full time employment to help with joint research projects are important here. For example, the MSc in Industrial Practice which is being proposed by University of Northampton will be delivered in partnership with CIWM, who will act as a conduit to the sector to make the research relevant and to link academic achievement and professional development using real industry projects.

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Developing skills

10 What more can we do to improve basic skills? How can we make a success of the new transition year? Should we change the way that those resitting basic qualifications study, to focus more on basic skills excellence?

Free text field:

The case for action both on basic skills and technical skills is compelling and CIWM welcomes the actions proposed in the consultation.

Teaching basic skills in a format that mirrors workplace and technical subject needs (e.g. apply maths to real engineering problems) at secondary level and above would help ensure learners are better able to make the transition to work. Setting these subjects within a context that the student has already shown an interest in may make learning easier and encourage better performance. Basic English should encompass essential communications skills including comprehension, verbal reasoning, report writing – anecdotal but growing evidence shows a lack of these skills among young people.

CIWM believes that the transition year should have a 'practical' element as well as being challenging in the basic skills, with links to local business and organisations encouraged and, where appropriate, supported through additional funding.

Small firms can struggle to access learning and development for existing staff, so additional support here – not just apprenticeships – would help.

11 Do you agree with the different elements of the vision for the new technical education system set out here? Are there further lessons we can learn from other countries systems?

Free text field:

CIWM broadly agrees with the proposals outlined but questions whether 15 core 'technical' routes is sufficient to meet the needs of a diverse range of employers. If this model is used, it will be important to ensure the 15 routes will provide sufficient 'competence' that can be built upon to allow access to a range of occupations beyond those that are defined. This will be equally important to optimise the ability to engage employers in work experience programmes and establish stronger links with Professional Institutions serving different sectors.

If technical education is to be 'generic' within a limited number of disciplines, sustainability and resource management, productivity and efficiency should be a core module across all the disciplines.

In establishing the new Institutes of Technology, CIWM believes that at least in some cases consideration should be given to tailoring their location to specific areas (both subject and location) – e.g. high tech automotive specialism in the Silverstone area, waste management in Northampton – so that appropriate links to industry, professional and academic organisations can be made.

CIWM also believes that there should be more emphasis after 18 on appropriate day release-based qualifications (e.g. the HNC approach) which allow for a mixture of practical work experience and academic learning. Existing HNCs give a good grounding for entry into the relevant professions at different levels and have worked well, certainly better than Foundation Degrees. The push for the latter, however, has at least partly led to a drop in the number of HNCs being offered.

While the introduction of a levy and new apprenticeships standards to boost the skills economy is broadly welcomed, with large employers both contributing and benefiting in equal measure it is difficult to see to what extent small and medium-sized employers will benefit.

12 How can we make the application process for further education colleges and apprenticeships clearer and simpler, drawing lessons from the higher education sector?

Free text field:

13 What skills shortages do we have or expect to have, in particular sectors or local areas, and how can we link the skills needs of industry to skills provision by educational institutions in local areas?

Free text field:

Transitioning to a resource efficient, low carbon economy will require a renewed focus on 'green skills' as part of the overall skills strategy.

BIS' 2011 strategy document 'Enabling the transition to a green economy'

(<https://www.gov.uk/government/publications/enabling-the-transition-to-a-green-economy>) notes that:

"The transition to a green economy requires a workforce with the right skills. This includes not only skills in the low carbon and environmental goods and services sector, but also those needed to help all businesses use natural resources efficiently and sustainably and to be resilient to climate change."

This requirement still stands; however the main action proposed in the strategy was for a 'skills for a green economy' grouping of Sector Skills Councils. Many of these have since ceased to be Sector Skills Councils, including the Energy and Utility Skills Council which was the most closely aligned with the resource and wastes agenda.

Skills related to low carbon growth, resource productivity and efficiency are increasingly important to most professions and supply chains from engineering through to architecture and manufacturing through to retail and hospitality. Their universality is acknowledged in BIS' 'Skills for a green economy' report (<https://www.gov.uk/government/statistics/skills-for-a-green-economy-report-on-the-evidence>), which accompanied the 2011 strategy and noted that:

"A review of all economic sectors indicates that there is a growing demand for skills in the context of the green economy. These skills are at all levels and of many types. There is evidence of demand for a workforce with generic green skills across all types of firms and sectors."

The report also says:

"Increased resource efficiency can increase profits and competitiveness, making UK industries stronger and more resilient. All workers will need the abilities and knowledge to respond effectively to the shift to greener business practices. FE and HE both have a role in embedding skills for a green economy in their courses and ensuring teachers, trainers, lecturers and assessors have the necessary capabilities to undertake this widening role."

CIWM would go one step further and suggest that topics such as sustainability and climate change are strengthened in the school curriculum

Table one in the green skills report provides a useful starting point to assess the skills needs in this area and the resource and waste management sector in particular needs a wide range of skills at different levels from engineers (civil, mechanical and electrical), scientists (biochemists, geologists), and communication specialists for awareness and behaviour change through to drivers, machine operators and street cleaning operatives. As the sector has moved from basic management of waste through landfill to managing resources and putting them back to work in the economy, the requirement for STEM skills has increased and this is likely to continue. However, no specific skills gaps have been identified in this sector at present.

14 How can we enable and encourage people to retrain and upskill throughout their working lives, particularly in places where industries are changing or declining? Are there particular sectors where this could be appropriate?

Free text field:

The resource and waste management sector is a prime example of a sector that needs people with transferable skills and where lifelong learning is important because of changing technology, legislation, regulatory controls etc. This is delivered both through Chartered Membership of CIWM, which encompasses a formal Continuing Professional Development (CPD) process, and through a regime of Technical Competence, linked to the environmental permitting regime, which has a Continuing Competence requirement.

That said, few sectors are standing still and while the concept and value of lifelong learning and CPD is upheld by professional institutions across a range of professions, it should be more formally incorporated into further and higher education courses.

At the operative and junior management level in the resource and waste sector, funding has been predominately focused on NVQ style qualifications, which were originally brought in to assess someone already doing the job at that level to recognise their attainment, but subsequently became viewed more as on-the-job training, although the format is not particularly suited to this function.

To support upskilling and reskilling, more flexible funding for different types of training will be needed across more 'platforms' to better reflect specific needs of more experienced and mature employees. Funding now is predominately apprenticeship focused but this may not be either an appropriate or desirable route for mature/ experienced employees and does not encourage reskilling/ upskilling or even the CPD-related learning and development needed to create a culture of lifelong learning and Professional Development. This additional funding need is particularly in small firms.

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Upgrading infrastructure

Call for evidence on UK infrastructure policy

15 Are there further actions we could take to support private investment in infrastructure?

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Yes.

1. Policy certainty

The resource and waste management sector is shaped and driven by policy and regulation. Clear medium to long term policy is need to support future investment in the sector, particularly as much of the investment (aside from the collection of municipal waste) is now expected to come from the private sector.

However, England currently lacks a formal strategy for waste, and any policy objectives still applicable from the 2007 Waste Strategy and the subsequent 2011 review (such as the 50% recycling target in the EU Waste Framework Directive) only extend to 2020. The 2011 review also removed statutory recycling targets on local authorities, weakening the case for public sector investment in recycling infrastructure. The delay in publishing Defra's 25 Year Environment Plan adds to this uncertainty and the impact cannot be overstated.

In addition, with landfill capacity falling rapidly, overseas markets for the UK's refuse derived fuel (RDF) showing signs of levelling out and long lead in times for alternative Energy from Waste facilities, private sector stakeholders are flagging up the potential for a capacity gap in residual waste treatment infrastructure post 2020.

An assessment made in 2016 by the trade body the Environmental Services Association ('Resourceful: delivering a strong and competitive UK resource economy', http://www.esauk.org/esa_reports/) suggests that there is almost no new public sector procurement of recycling infrastructure through their members currently in the pipeline for England. In a report published last year, the trade body observed that:

"Without action, we estimate that by 2020, waste could cost local authorities and businesses an extra £260 million to £485 million per annum. In addition, around 15% of the UK's current recycling capacity will close during this timeframe, reducing household recycling rates by 5% and leading to the loss of 8,000 jobs. This will result in the UK missing its recycling targets. Those issues will be compounded by population and economic growth given the expected 10 million increase in the population over the next 20 years along with 2% economic growth per annum."

Likewise, the developers of waste-derived renewable energy infrastructure have not been well served by frequent, significant and in some cases very sudden changes in the incentives framework, particularly the Renewable Heat Incentive (RHI) scheme.

The impact of policy uncertainty is acknowledged by government; as Defra noted in its 2015 'Resource Management: a catalyst for growth report' (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/401453/resource-management-catalyst-growth-productivity.pdf):

"...Decisions on investment in new infrastructure are made by market participants based on their assessment of future demand and supply and financial viability. Expectations about future Government policy, including in relation to waste and resource management, affects those assessments and therefore influence investment decisions. A key source of policy uncertainty concerns the framework for policy determined at European Union level."

While there is now more clarity on the policy framework likely to come for EU Member States in the shape of the EU Circular Economy package, Brexit has introduced a new source of uncertainty about the long term future of resource and waste policy in the UK, and future market conditions both for secondary raw materials (the UK exports well over 50% of its recovered paper and plastic (<http://www.wrap.org.uk/content/paper-packaging-recovery-and-recycling>, <http://www.wrap.org.uk/content/plastic>), and 3 million tonnes of refuse derived fuel [RDF]). Concerns over the future of these markets vis-à-vis Brexit is likely to pose a further constraint on investment.

Market risk and return on investment: In addition, particular challenges around the risk and return on investment are also constraining investment. Falling prices and increased price volatility in secondary materials markets in recent years have undermined the potential return on investment for recycling infrastructure and discouraged private sector companies from investing. Appropriate risk mitigation or risk sharing mechanisms have yet to be developed.

A further factor, as noted in the 2011 report 'Rubbish to resource: financing new waste infrastructure' by the Associate Parliamentary Sustainable Resource Group (http://www.policyconnect.org.uk/apsrg/sites/site_apsrg/files/report/332/fieldreportdownload/apsrg-rubbishtoresourcereport.pdf), is the "complexity of the inherent risks associated with waste infrastructure, including technology, planning, construction, policy, off-take and input tonnage".

Further actions required:

- A clear and long term policy road map for resource and waste management will be essential to unlock further private sector investment. Given the constraints of the Brexit process, at the very least Government should ensure that the major areas of policy currently under development:

- o the Industrial Strategy

- o the Defra 25 year Environment plan

- o the BEIS Bioeconomy Strategy

- o National Infrastructure Assessment

- o the carbon reduction plan/clean growth plan

as well as future renewable energy policy, are fully co-ordinated to unlock the potential economic, environmental and social benefits achievable through improved wastes and resources management.

- Deliver on the commitment put forward in the Industrial Strategy Green Paper "to promote well functioning markets for secondary materials".

- Clarify the current situation with regard to the sale of the Green Investment Bank and ensure that the original remit of the Green Investment Bank, which was to mobilise additional private investment in key green sectors, is maintained after its sale. CIWM notes the views of many observers that the Government should retain a significant stake in the bank to ensure the Bank can support its future ambitions.

- Consider other ways of leveraging additional private sector investment, particularly through the introduction of a more robust Extended Producer Responsibility framework which moves closer to full cost recovery from producers under the 'polluter pays' principle.

16 How can local infrastructure needs be incorporated within national UK infrastructure policy most effectively?

Free text field:

Planning and public investment:

If resource recovery and productivity are recognised as vital to the long term health of our economy, a sophisticated network of waste sorting and treatment infrastructure will be required, tailored to deliver secondary materials, energy or heat offtake to meet specific market demands which will vary from area to area. This will require planning at a local, regional and national scale. As outlined in the answer to Q3, this will require some form of structure to enable strategic planning at a larger-than-local level – a function which has been lost through the removal of the regional tier of government. In this context, the commitment outlined in this Green Paper to "align the planning of infrastructure more effectively with local growth priorities" is welcome so long as the regional and national link is also made.

In this context, the industrial strategy should also explore more fully the role and remit of LEPs in promoting resource productivity (see Q36) and linking industrial demand for materials and energy with local waste treatment infrastructure.

The ability of local authorities to invest in resource and waste management infrastructure is also a critical question for the future. The long-term reliability (e.g. guaranteed feedstock tonnages) and high value of MSW management contracts have traditionally underpinned investment in infrastructure for commercial and industrial waste, which relies more on a 'spot market' scenario, and has helped to lower the perceived risk and lever investment. The curtailment of new public sector procurement of recycling infrastructure as noted in Q15 above therefore has the potential to impact on UK recycling capacity across the board.

Heat generated from waste materials is a particular area where significant potential exists to realise economic and environment benefits at a local and national level. The development of heat networks coupled to energy from waste (EfW) plants (and other forms of waste heat) can provide part of the medium term solution to decarbonising heat in the UK and relatively modest cost. CIWM therefore welcomes the recent BEIS award of almost £6m to the Sheffield EfW/heat project. Anaerobic digestion can produce both biomethane and separately low grade heat. Properly managed landfills can also supply biomethane, as more futuristically could gasification (especially of biowaste/biomass) plants. In all of these cases, more needs to be done to help the private sector and local authorities work together to realise these benefits – at present the use of CHP technology and resulting heat offtake is not planned for in any consistent or strategic way.

Data gaps:

If the UK is to capitalise on the resource value of its waste, there are significant data gaps that will need to be addressed. In particular, commercial and industrial (C&I) waste remains the "known unknown" of the waste industry, with existing C&I datasets inadequate to support planning and investment in future waste

management infrastructure or to facilitate a strategic approach to utilising secondary resources to support future industrial growth. A study carried out for CIWM in 2013 ('Commercial and Industrial Waste in the UK and Republic of Ireland', <http://www.ciwm.co.uk/ciwm/knowledge/reports-and-research/ciwm/news-and-insight/reports-and-research.aspx?hkey=723cc30d-a9a7-4a11-9572-145dc6a2866a>) concluded:

"It is clear that available C&I waste data are insufficient to support strong business cases for new facilities. Uncertainties in forecasts of waste feedstocks undermine confidence in planning and financing of additional waste treatment infrastructure."

A further report on the subject by Ricardo AEA for the RWM Ambassadors in 2016 (Waste Data in the UK) also finds that the availability, accuracy and timeliness of waste data is an ongoing problem for the sector and the lack of reliable data has, in part, contributed to a uncertainty regarding key areas of decision making and policy such as the potential treatment capacity gap in the UK and waste infrastructure planning applications.

17 What further actions can we take to improve the performance of infrastructure towards international benchmarks? How can government work with industry to ensure we have the skills and supply chain needed to deliver strategic infrastructure in the UK?

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Supporting businesses to start and grow

18 What are the most important causes of lower rates of fixed capital investment in the UK compared to other countries, and how can this be addressed?

Free text field:

CIWM considers that policy uncertainty and lack of clarity is a significant hindrance to longer term investment decisions in the resource and waste management sector. The active presence of illegal operators is also a factor, as these undermine the investment case for the sector. Finally, the absence of good data for many waste streams (especially commercial and industrial waste, which is twice the volume of household) makes it all the harder to judge whether an investment in a particular facility makes economic sense.

19 What are the most important factors which constrain quoted companies and fund managers from making longer term investment decisions, and how can we best address these factors?

Free text field:

See Q18.

20 Given public sector investment already accounts for a large share of equity deals in some regions, how can we best catalyse uptake of equity capital outside the South East?

Free text field:

21 How can we drive the adoption of new funding opportunities like crowdfunding across the country?

Free text field:

22 What are the barriers faced by those businesses that have the potential to scale-up and achieve greater growth, and how can we address these barriers? Where are there outstanding examples of business networks for fast growing firms which we could learn from or spread?

Free text field:

Starting and growing businesses is clearly a fundamental part of a vibrant capitalist society. However, in the resource and waste management sector the situation is more nuanced. There is an important balance to be achieved between stimulating economic growth and business and protecting human health and the environment, and while CIWM understands the Government's objective of eliminating any unnecessary burden on business, resource and waste management is an area where appropriate and well-designed regulation should not be considered a de facto barrier.

One of the biggest problems the sector faces is that of poor or illegal waste handling. Very often, this is carried out by smaller operators who do not have the competence or capacity to manage their waste properly, or whose initial business model does not pan out, leading to abandonment of waste. This then costs others money to clear up, equates to lost Exchequer revenue (landfill tax, VAT, etc) and undermines legitimate business investment. Therefore, a sensible regulatory regime and its appropriate enforcement by a strong and well-funded regulator are vital to ensure the right kinds of companies start up and grow in this sector.

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Improving procurement

23 Are there further steps that the government can take to support innovation through public procurement?

Free text field:

Yes. Public procurement can be used to help de-risk green technologies such as resource and waste management treatment, recycling and recovery, through establishing mutually beneficial partnerships. Procurement standards can drive markets: the central government requirement for copier paper to be recycled is an excellent example. Procurement approaches can also help prevent waste, for example Public Health Wales' recent building move (<http://www.rypeoffice.com/project/nhs-cardiff/>): 94% of the over 2,500 items of furniture were either remanufactured or refurbished.

In addition, Government has a clear role to play in supporting resource productivity and efficiency through the development of standards for sustainable procurement across UK industry, for example through the further development of BSI standards related to resource efficiency. The built environment is one area where considerable benefits can be realised through the inclusion of material resource, water and energy efficiency. Additionally, government should ensure that the future policy and legislative framework for resource and waste management encourages reuse, remanufacture and the development of new products from waste materials. A particular challenge that operates in this area is the definition of waste as it applies to end-of-waste, which can add additional regulation and cost that discourages reuse and the development of innovative new waste-derived products.

Scenario analysis carried out by WRAP (WRAP's vision for the UK circular economy to 2020 (2013),

<http://www.wrap.org.uk/content/wraps-vision-uk-circular-economy-2020>) indicates that substantial progress in recycling, repair and remanufacturing, together with major development in reuse and new business models in the UK could by 2030 avoid the use of circa 20 million tonnes of material and divert 40 million tonnes to economically productive uses. This could generate additional economic value of around £75 billion, create around 500,000 gross jobs and permanently lower unemployment by around 100,000.

The EU Circular Economy package has highlighted reuse and remanufacture as areas where further action is needed through a range of channels, including through the Ecodesign Directive, through Extended Producer Responsibility, and through work on ensuring that warranties and guarantees do not act as an obstacle to items having a second life. Given the international nature of markets and supply chains, CIWM believes that UK industrial and waste policy in this area will need to mirror these developing areas of European policy to ensure that UK products can continue to be sold into European markets.

A renewed focus on reuse and remanufacturing offers potential benefits in terms of both resource security and skills and employment too. A 2013 report by the Government Office for Science and Foresight (What role does Government procurement play in manufacturing in the UK and internationally and how might this change in the future? (October 2013), <https://www.gov.uk/government/publications/future-manufacturing-role-of-government-procurement>) highlights the potential for the UK manufacturing, stating:

"Stakeholders also saw greater opportunities in the future for UK public procurement to gain advantages from reuse and remanufacturing, particularly of scarce materials, linking this to the possible development of a skills base as part of a future UK economy. The development of skills in reuse, refurbishment and remanufacture is seen as critical to attracting employment opportunities back to the UK."

24 What further steps can be taken to use public procurement to drive the industrial strategy in areas where government is the main client, such as healthcare and defence? Do we have the right institutions and policies in place in these sectors to exploit government's purchasing power to drive economic growth?**Free text field:**

See Q 23

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Encouraging trade and inward investment**25 What can the government do improve our support for firms wanting to start exporting? What can the government do to improve support for firms in increasing their exports?****Free text field:**

The UK resource and waste management industry exported materials worth £5 billion in 2012. Over half of the paper and plastics recovered from the household and commercial waste streams are exported and, in addition, over 3 millions tonnes of refuse derived fuel (RDF).

In its 2015 Resource management: a catalyst for growth and productivity report

(https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/401453/resource-management-catalyst-growth-productivity.pdf), Defra assesses that:

"The UK therefore relies to varying extents on export markets to absorb the recovered materials it does not use at home. This also contributes to improving the UK trade balance compared to not collecting/recycling the material. In 2013, the UK exported 13 million tonnes of key recovered materials (metals, paper, plastics, and textiles) worth £4.35bn. This accounted for 8% by weight of all UK exports of goods, supporting economic activity in the shipping and ports sector and providing a source of revenue for vessels that might otherwise be leaving the UK empty. Given the UK imports relatively few recovered materials (0.8 million tonnes), the direct net positive contribution to the UK trade balance is worth £3.9bn."

It is essential, therefore, that UK access to these markets is not jeopardised once we leave the EU or compromised as a result of tariff barriers as in addition to lost revenue, there is not the domestic infrastructure or demand for these recovered resources.

That said, the Industrial Strategy should assess what value these materials could add to the UK economy in the future, and their potential as feedstocks for new and growing industrial activity. The quality of UK recovered materials is an important factor in building domestic capacity. For example, in 2010, Coca-Cola Enterprises Ltd was sourcing recycled plastic from Europe, while at the same time most of the UK's used plastic packaging was exported for reprocessing. To address this, Coca-Cola Enterprises worked with ECO Plastics to increase domestic supply of plastic suitable for use in packaging for products sold in the UK. This allowed Coca-Cola Enterprises to achieve their target of including 25% recycled plastic in all their plastic packaging by 2012, and between 2010 and 2013, UK reprocessing of PET (polyethylene terephthalate) plastic bottles grew from 35,000 to 85,000 tonnes.

RDF could also be a valuable feedstock for baseload energy generation through energy-from-waste technologies.

26 What can we learn from other countries to improve our support for inward investment and how we measure its success? Should we put more emphasis on measuring the impact of Foreign Direct Investment (FDI) on growth?

Free text field:

Inward investment in the UK resource and waste sector, and the environmental services sector more widely, is dependent on clear and long term policy frameworks – see answer to Q15.

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Delivering affordable energy and clean growth**27 What are the most important steps the government should take to limit energy costs over the long-term?****Free text field:**

See Q16 regarding the potential to decarbonise heat at a relatively modest cost by developing heat networks linked to energy from waste (EfW) plants (and other forms of waste heat).

28 How can we move towards a position in which energy is supplied by competitive markets without the requirement for on-going subsidy?**Free text field:**

The role of enabling frameworks and long term price signals to move the UK towards lower carbon and renewable energy options remains important, both in terms of delivering on climate change commitments and to improve domestic energy security. Future UK energy strategy, as an integral part of delivering growth, must recognise that in and of itself, the 'market' has little or no obligation to address long-term energy security or environmental challenges as these costs are external to the market system.

29 How can government, business and researchers work together to develop the competitive opportunities from innovation in energy and our existing industrial strengths?**Free text field:****30 How can government support businesses in realising cost savings through greater resource and energy efficiency?****Free text field:**

It is important that the Industrial Strategy in its final form explicitly recognises the size of the 'prize' in terms of business resource productivity and efficiency and there is ample evidence to support significant bottom line benefits to business from more proactive circular economic approaches.

- A report prepared for Defra by Oakdene Hollins in 2011 (The Further Benefits of Business Resource Efficiency, <http://randd.defra.gov.uk/Default.aspx?Module=More&Location=None&ProjectID=16943>) estimated the no cost / low cost savings opportunity associated with resource productivity and efficiency in the UK to be around £23 billion, with £18 billion savings related to waste and around £4 billion in energy saving opportunities. Savings opportunities with a payback greater than one year have been estimated at around £33 billion, giving a total opportunity of around £55 billion.
- According to estimates reported by WRAP in 2013, wide-scale adoption of a resource efficient circular economy could help the EU private sector save £330 billion and avoid 500 million tonnes of CO2 equivalent
- In 2015, an Ellen MacArthur Foundation report suggested that Europe could benefit by €1.8 trillion (£1.27 trillion) by 2030 from enabling a more proactive circular economy approach, translating into an 11% increase in GDP by 2030 compared to today, with only a 4% increase on the current development path ('Growth within: A circular economy vision for a competitive Europe', www.mckinsey.com)
- A report published in 2016 by consultancy firm Eunomia for private sector waste firm SUEZ UK ('A Resourceful Future – Expanding the UK Economy', <http://www.eunomia.co.uk/reports-tools/a-resourceful-future-expanding-the-uk-economy/>) estimates that £9 billion could be added to the UK economy by integrating circular economy principles into the country's emerging industrial strategy
- Research published in January this year by business alliance the Aldersgate Group ('Amplifying action on resource efficiency', https://gallery.mailchimp.com/c0baca4990b9062dd6688dd4f/files/UK_Edition_Amplifying_action_on_resource_efficiency.pdf) suggests that the UK economy could grow by nearly £80 billion if the country adopts resource-efficient business models by 2030.

All of these reports, however, highlight the important role of government policy, legislation and other enabling frameworks to allow these opportunities to be realised.

CIWM's key recommendations as a way forward for Government to support businesses to realise these opportunities are:

- o Adopt a clear, co-ordinated and long-term policy framework
- o Put in place a co-ordinated approach to integrate resource productivity and efficiency across all government policy areas.
- o Continue to negotiate constructively on the development of the EU's Circular Economy Package, and then (subject to the final result) adopt it in the UK
- o remain committed to meeting EU ecodesign standards and working with the EU to develop further standards to support more resource efficient products
- o support for businesses of all sizes (including funding and expertise) to help them understand their resource use and improve their resource productivity and efficiency
- o develop and apply procurement practices to boost demand for resource efficient goods and services, including promoting reuse and remanufacture
- o introduce incentives, such as reduced VAT rates or minimum recycled content rules, to promote resource efficient products and services
- o ensure new and existing rules do not hinder the development of service based business models (e.g. the 'sharing economy') or the re-use and the uptake of secondary materials
- o improve the availability of good quality data needed to inform and drive opportunities in resource management.

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Cultivating world-leading sectors**31 How can the government and industry help sectors come together to identify the opportunities for a 'sector deal' to address - especially where industries are fragmented or not well defined?****Free text field:**

The resource and waste management industry is a dynamic growth sector that is essential to continued and sustainable economic growth. It is not a homogeneous sector, however, and CIWM will be working with other groups to draw different supply chain stakeholders together to develop a sector deal. In this context, the potential of this industry to contribute has been outlined in detail by Defra ('Resource management: a catalyst for growth and productivity' (February 2015), and shows the value of this sector to the economy, for example:

- in 2012, the value of UK household dry recovered material is estimated to have been worth £0.3bn to £0.5bn, with several billions of pounds of value recovered additionally from commercial, industrial, construction and demolition waste;
- in 2012, the waste industry added almost £41 of GVA for each tonne it treated;
- the value realised through energy recovery from waste was estimated in 2013 to be £447.4m of electricity (9005 GWh), of which £155.5m (3130 GWh) was generated through residual waste treatment, £35.1m (707 GWh) through Anaerobic Digestion (AD), and £256.8m (5169 GWh) through the capture of landfill gas; and
- the aGVA per hour worked in 2012 was approximately £31 per hour, above the UK whole economy average of £27.8 per hour. The labour productivity of the waste sector was also above the national average for each of the 4 years preceding 2012.

Other contributions by the private waste management sector according to the ESA include:

- a contribution of over £1bn in Landfill Tax to the Treasury annually;
- support for 106,000 jobs across the country; and
- an annual turnover of over £11bn, with a GVA of almost £5bn.

Based on industry estimates, the ESA also asserts that a further £10bn investment in the sector would create 50,000 new jobs for the economy and boost GDP by £3bn

(http://www.esauk.org/reports_press_releases/esa_reports/20160801_RESOURCEFUL_Delivering_a_strong_and_competitive_UK_resource_economy.pdf)

32 How can the government ensure that 'sector deals' promote competition and incorporate the interests of new entrants?**Free text field:****33 How can the government and industry collaborate to enable growth in new sectors of the future that emerge around new technologies and new business models?****Free text field:**

See Q31 above. A sector deal for the resource and waste management industry is critical in better defining and reinforcing its role in helping UK plc to develop more resource efficiency businesses models and for the opportunity that it presents to stimulate the development of new technologies to extract value from UK waste streams.

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Driving growth across the whole country**34 Do you agree the principles set out in this section are the right ones? If not what is missing?****Free text field:**

CIWM considers that resource productivity and efficiency should form an integral part of the UK's industrial strategy. It sees merit in the House of Commons Business, Energy and Industrial Strategy Committee (<https://www.publications.parliament.uk/pa/cm201617/cmselect/cmbeis/616/616.pdf>) idea of specific 'missions' to meet UK-wide and local public policy challenges and asserts strongly that improving resource productivity and efficiency across the economy as a whole is a worthy mission for the final Industrial Strategy to adopt.

In assessing options to promote geographically inclusive growth, the potential offered by the resource and waste management sector should be noted. Waste and resource management services and infrastructure are required across the country, and as one of the most dynamic sectors and one of the few to grow during the recent economic downturn, this sector offers significant opportunities for employment at all skills levels and across a range of disciplines.

Defra's recent assessment of the sector ('Resource management: a catalyst for growth and productivity' (February 2015),

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/401453/resource-management-catalyst-growth-productivity.pdf), states that:

"Material recovery and landfill diversion have also generated economic benefits that are reflected in the labour market – they support jobs which are dispersed geographically and by occupation and skill/pay levels. These jobs compare favourably with other sectors of the economy. In 2012, the aGVA per hour worked was approximately £31 per hour, above the UK whole economy average of £27.8 per hour. The labour productivity of the waste sector was also above the national average for each of the 4 years preceding 2012."

35 What are the most important new approaches to raising skill levels in areas where they are lower? Where could investments in connectivity or innovation do most to help drive growth across the country?

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Creating the right institutions to bring together sectors and places

36 Recognising the need for local initiative and leadership, how should we best work with local areas to create and strengthen key local institutions?

Free text field:

In addition to an enabling framework at a national level, resource productivity and efficiency is also industry and location specific and in this context the role and remit of LEPs should be reviewed and steps taken to ensure that they can support local economic growth in a consistent and sustainable way.

In a 2015 review of LEPs ('Planning for Growth: The Role of Local Enterprise Partnerships in England',

http://www.rtpi.org.uk/media/1400949/rtpi_research_report_planning_for_growth_final_report_9_july_2015.pdf) the Royal Town Planning Institute identified a number of strengths and weakness and a significant degree of variation with the current system. While it found that LEPs played a greater role in driving local growth in 2015 than originally envisaged in 2010, their remit and 'official status' continues to be opaque, a lack of resources is a common feature, and there is a lack of clarity with regard to their role in the planning system. Relationships with local planning authorities are varied, and Strategic Economic Plans (SEPs) are not formally part of the plan-led system. Again the scope of SEPs varies, from being simple bidding documents to taking a more holistic approach that take them closer to being strategic spatial economic plans. There is no consistent definition of growth and RTPI found that many SEPs ignored the social and environmental ramifications of growth.

With regard to the future role of LEPs, the RTPI recommends that:

"If (some) LEPs are to evolve into economic/business advisory boards, informing the decisions of combined authorities and others bodies, it is critical that more thought is also given to the mechanisms required to empower the social and environmental dimensions of sustainable development otherwise strategic priorities will continue to be overridden by economic growth concerns."

37 What are the most important institutions which we need to upgrade or support to back growth in particular areas?

Free text field:

Economic growth must not come at the expense of the environment. The Environment Agency and other UK regulators fulfil a critical role in safeguarding the environment and ensuring that waste generated by UK industry is handled safely and legally in accordance with Duty of Care requirements, and with due regard to the Waste Hierarchy. During the last ten years, CIWM and other stakeholders have repeatedly raised concerns about cuts to the Agency's budget. Of particular concern is the impact on the Agency's remit to tackle waste crime, which is estimated by the Environmental Services Association to cost the UK around £500 million a year and must continue to be considered a priority as there is evidence of a growing link between waste and organised crime.

38 Are there institutions missing in certain areas which we could help create or strengthen to support local growth?

Free text field:

See the answer to Q3 on regional planning capacity.

I have also uploaded a Word version of our complete response attached to this section.

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