

# building a bright green economy

an agenda for action on  
resource productivity

“green alliance...

'Building A Bright Green Economy: An agenda for action on resource productivity' was written by Ben Shaw and edited by Rebecca Willis.

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## Green Alliance

Green Alliance is one of the UK's foremost environmental groups. An independent charity, its mission is to promote sustainable development by ensuring that the environment is at the heart of decision-making. It works with senior people in government, parliament, business and the environmental movement to encourage new ideas, dialogue and constructive solutions.

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## executive summary

Improving resource productivity – gaining more economic benefit from less environmental input – is essential if we are to reconcile the UK’s economic and environmental objectives. The UK Government recognises this and is committed to the agenda. It has been addressed in a Performance and Innovation Unit (PIU) report, and is a key theme of the Department of Trade and Industry (DTI) sustainable development strategy. However, despite this commitment, there has been little action so far to deliver improved resource productivity.

This report puts forward an agenda for action on resource productivity, setting out what each part of government should contribute. Of course, business and consumers will need to act too – but government must set the framework. The report puts forward three themes to be addressed in improving resource productivity, each based on a seminar held by Green Alliance: creating a policy framework to move from theory to practice; promoting new business models to encourage innovation; and driving consumer-led resource productivity. It then puts forward a set of recommendations for government, to create an action plan on resource productivity and use this to frame and guide progress.

### **theme one: from theory to practice – building a bright green economy**

This theme discusses the strategic factors that influence the UK’s ability to move towards a resource-productive economy. It sets out the need for a long-term vision, with clear and ambitious targets for resource productivity, backed up by economic analysis that acknowledges the need to achieve change over a much longer timeframe. It puts forward a ‘vision’ for a resource-productive chemicals sector and freight sector, as an example of the way forward.

### **theme two: new business models – the shift from products to services**

This theme looks at the potential for new business models, based on services not products, to improve resource productivity. Looking at the service provided by an activity or product is a powerful model for stimulating change. The key to such benefits is the shift in incentive structures – the incentive is to deliver a given service as efficiently as possible, rather than to sell as much product as possible. The example of chemicals services in the US is given, and the potential for this model to be applied in the UK is discussed.

### **theme three: consumer-led resource productivity – marketing green products**

This theme addresses the difficult issue of consumption – how to bring about a shift in consumption patterns that will increase resource productivity.

It focuses on the example of green energy products, and highlights three key factors in extending the uptake of green energy: a good quality product that appeals to consumers; a regulatory framework that allows these products to compete, and appropriate marketing strategies for the products.

### **an agenda for action on resource productivity**

The final section puts forward recommendations for action on resource productivity, which could be adopted by government in its response to the PIU report. There is an appetite for action to improve resource productivity and a range of measures that could be implemented now. Resource productivity is a cross-cutting issue, and involves a re-framing and re-emphasis of existing policies – from innovation policy to taxation policy. It should be used as a concept to frame specific policy initiatives, which become linked by a shared understanding and structure. Different parts of government all have a role to play. The following recommendations are made:

**Resource productivity is an issue for all of government:** the primary task for government is to articulate a vision for a resource-productive economy and to implement a framework that drives change from other actors. The government as a whole should state a clear commitment to resource productivity and should develop and communicate a headline indicator, linked to a target. The links between the resource productivity action plan and specific policies – for example, on energy and waste – should be made clear. Resource productivity is a complex subject, and more research is needed into measuring and managing it, but there is a need to avoid paralysis by analysis. Uncertainty should not be used to prevent action.

**The role of DEFRA:** The Department for Environment, Food and Rural Affairs' (DEFRA) responsibility for promoting sustainable development across government makes its role in resource productivity crucial. Its sustainable development unit should take a lead through offering advice and expertise. The waste strategy, currently being reviewed, provides an early opportunity for DEFRA to apply the concept to a specific policy area. DEFRA should also initiate a programme of communication on resource productivity, building on existing initiatives.

**The role of DTI:** DTI should be working with business to develop sector-specific indicators, targets and action. It can do this through sectoral sustainability strategies, reached through negotiated agreements and backed up by the possibility of regulation if targets are not met. There is also a need to make resource productivity an explicit goal of business support initiatives, such as LINK and the Small Business Service. DTI should lead on policy to drive environmental innovation – not just technological innovation, but innovative business models such as the service model. This can be done through long-term targets, and better co-ordinated regulation, which provides greater certainty for business. Lastly, DTI's energy white paper must see energy policy through the lens of resource productivity, and put in place bold policies to promote energy efficiency and renewable energy – the most resource-productive options.

**The role of the Treasury:** getting the prices right must form the backbone of any resource productivity action plan. The Treasury needs to re-state its commitment to shifting the burden of taxation from labour to resource use. Environmental taxation should be promoted within a framework of resource efficiency. The Treasury should also build an understanding of resource productivity into the evaluation tools used to appraise investment and spending decisions. It should state explicitly that improving the productivity of the UK economy depends on making improvements in resource productivity, and should report on progress in budgets and pre-budget reports.

## introduction: the state of play

Improving resource productivity – gaining more economic benefit from less environmental input - is essential if we are to reconcile the UK's economic and environmental objectives. By improving resource productivity, we can, to an extent, have our cake and eat it. Without improvements in resource productivity, it is likely that society will soon run up against environmental limits – or we will have to reduce levels of consumption significantly. This analysis applies to resource inputs – water, timber, metals and so on – but also, and more importantly, to the resources provided by the environment to absorb waste and pollution.

Since 2000, the UK Government has adopted the concept of resource productivity. The Prime Minister has endorsed it<sup>1</sup>, and DTI has made it a headline objective of their sustainable development strategy<sup>2</sup>. The PIU (now renamed the Strategy Unit) produced a framework analysis for resource productivity in November 2001, and this has been applied to energy<sup>3</sup>. Another report from the Strategy Unit, to be launched in Autumn 2002, will look at waste.

This shows considerable progress in developing thinking on resource productivity. However, this is not currently matched by action. A government action plan on resource productivity is urgently required. This plan must demonstrate that the UK is serious about improving resource productivity, and that all parts of government are committed. It must acknowledge that fundamental change will be required, and it needs to inject urgency into the debate.

There is, of course, considerable debate over how best to deliver resource productivity improvements, particularly in the longer term. But there are also plenty of measures that can be introduced now that will start improving resource productivity immediately. Resolving longer-term uncertainties appears to be holding back any action, even in the short term, from the government.

**“A government action plan on resource productivity is urgently required”**

This report examines progress to date on resource productivity and explains why the current approach does not go nearly far enough. It is based upon a series of seminars that Green Alliance held on these issues. Each seminar examined a key area that needs to be addressed if we are to see genuine progress on resource productivity. As well as these seminars, a number of meetings and interviews were held with individuals in business, government and academia, to discuss ideas and seek ways forward on the issues.

This report seeks to demonstrate a clear consensus for action on resource productivity from policy-makers, business and academia. It argues that much can be done, now rather than later, and puts forward a series of recommendations for policy-makers to drive the agenda forward. It is clear from our work that there is a desire for the progress made so far to be translated into concrete policies which will actually start impacting on the UK's resource productivity.

### **what is resource productivity?**

Improving resource productivity means doing more with less. It means achieving more in economic terms with less environmental impact. It links economic outputs to the resource or environmental inputs required to create them. This is what makes it an attractive policy objective to governments. It sites economic growth and environmental impacts within the same analytical framework, and allows the relationship between the two to be understood and influenced.

Beyond this simple formulation of 'doing more with less', there are a range of contested issues that need to be resolved, and some significant gaps in theoretical understanding. Can economic objectives be aligned with environmental objectives, or are trade-offs inevitable? If they are, how is the balance between economic and environmental objectives to be struck? By how much must we improve resource productivity, and for which resources? Can these goals be achieved through technological development alone or will more fundamental changes in the way society and the economy operates be required?

Beyond these discussions, there is also the crucial distinction between absolute and relative resource productivity. Resource productivity per unit of economic growth may improve whilst absolute resource use increases, due to increases in economic activity. To achieve absolute reductions in resource use, improvements in efficiency of resource use must be greater than economic growth. These improvements must not be achieved through the export of resources or pollution, and any measure of resource productivity needs to account for this.

In the long term, the goal must be to reduce absolute environmental impacts. In the short term, there is a need for action that starts moving resource productivity in the right direction, setting us on course to achieve an absolute reduction in environmental degradation in the medium to long term.

## theme one: from theory to practice - building a bright green economy

The first seminar discussed the strategic and structural factors that influence the UK's ability to move towards a 'bright green economy', characterised by greater resource productivity. Key questions discussed included:

- Is it just a matter of getting the right combination of policy tools, or do we need broader institutional and cultural reform to realise a bright green economy?
- Is the Government's approach basically right, or is there a need for a fundamentally different analysis?
- Are new policy instruments and analysis frameworks needed to drive and assess progress towards improved resource productivity?

### seminar one, 25 July 2001

#### from theory to practice - making the bright green economy a reality

**Chair:** Rebecca Willis, Green Alliance.

**Speakers:** Catriona Laing, Performance and Innovation Unit (PIU); Frans Berkhout, SPRU, University of Sussex; Stephen Potter, Open University; Nicola Ellen, Safeway; Judith Hackitt, Chemical Industries Association; Jim Skea, Policy Studies Institute; Nick Eyre, PIU.

The seminar brought together thinkers and practitioners from government, academia, business and NGOs. The Government's general approach to resource productivity was discussed, and breakout sessions brainstormed visions of what a resource-productive freight sector and chemicals sector could look like in 30 years' time.

### a vision for the chemicals sector

In 30 years, the sector should be based to a greater degree on renewable inputs, biodegradable chemicals and closed-loop processes. Dissipative use of chemicals such as pesticides, plastics and solvents will have been addressed. The values of the sector need to have been transformed so that it is seen as being transparent, accountable and responsible. This may mean much more widespread producer responsibility for chemicals. More fundamentally, the focus will be on delivering the benefits that chemicals provide, rather than selling chemicals – the focus may shift to service delivery. Realising this vision will depend on the right policy frameworks, a suitable skills base and an ability to innovate.



### a vision for the freight sector

The freight sector offers a stark illustration of the challenge of resource productivity. Given current trends in population, tonnes of freight lifted per person, journey length and vehicle utilisation, there is a need for almost a factor four improvement in the technical efficiency of vehicles just to remain at current levels of environmental impact, let alone reducing this impact. This suggests that technical solutions on their own will not be enough. Discussion focussed around a vision based on reducing the demand for freight. This would include a move from economies of scale to economies of location – that is, a move from a small number of very large distribution centres with high transport demands, based on very low transport costs, to more numerous, smaller-scale regional operations. Low or zero emissions vehicles would be necessary. Policy signals would be objective-led, rather than demand-led, with a focus on demand management.

A clear, recurrent theme at the seminar – expressed by NGOs and businesses alike – is that there is a need for a radical, long-term vision with clear and ambitious targets for improving resource productivity. Such a vision would apply at both the sectoral level and the national level.

Many participants stressed the need to move beyond existing economic analysis and decision-making frameworks, to complement this vision. Existing economic models tend to neglect non-economic benefits, relying, for example, on measures of GDP rather than measures of quality of life. There is also a need for a dynamic approach which stresses the need to achieve change over a long time-horizon, rather than focusing on short-term equilibrium or efficiency.

A further problem is that current economic models place undue emphasis on capital investment in infrastructure, and tend to overlook the knowledge or systems innovation which is crucial in achieving resource productivity gain. For example, current evaluation methods favour large scale, capital-intensive incineration plants over more resource-productive kerbside recycling systems, which require investment of knowledge and revenue funding but are not dependent on large injections of capital.

This points to a broader response to the problem. Improving resource productivity will require whole new sectors to be developed, some of which barely exist at the moment – such as the kerbside recycling systems described above. There is a role for government in nurturing these new sectors.

**“there is a need for a radical, long-term vision with clear and ambitious targets for improving resource productivity”**

If government is to work toward a consensual, long-term vision for resource productivity, there is much that can be learned from the Dutch model of environmental planning and action<sup>4</sup>. The Dutch have developed National Environmental Policy Plans (NEPP) that set out a detailed strategy to achieve quantified pollution reduction targets, and involve negotiation with business and other interest groups.

The PIU report, *Resource Productivity: making more with less*, is a significant development in government thinking, and puts forward useful recommendations on issues such as government responsibility on procurement and the development of better market-based instruments to promote resource productivity. However, the report did not put forward a clear course of action, based on the need to tackle environmental constraints. There is a need to go beyond the PIU's recommendations, to outline a vision for a bright green economy, and to set out a path to achieve it.

## recommendations

- The Government must respond quickly to the PIU's resource productivity report with a clear and ambitious strategy for improving the UK's resource productivity. This needs a clear vision, ambitious targets related to environmental limits, and a set of actions that can start to be implemented now.
- The limitations of existing valuation tools need to be acknowledged, and alternatives developed. The Treasury's review of policy appraisal<sup>5</sup> is a clear opportunity to increase the importance of environment and resource productivity in decision-making, and to integrate it better with economic evaluation methodologies.
- The Treasury's productivity unit should be charged with examining how the concept of resource productivity could be incorporated into current models of productivity, which are based around labour productivity; and with recommending policy measures to improve the resource productivity of the economy. The PIU report made recommendations in this area which the Treasury must address, including the need to work with other departments to internalise external costs through environmental taxation.
- Environmental constraints must be the driver of policy. The experience from countries such as The Netherlands should be drawn on. In the Dutch model, the Government sets targets based on environmental goals, and then develops action plans to deliver them, in consultation with all sectors, and with clear allocation of responsibilities between these sectors.

## theme two: new business models – the shift from products to services

The second seminar in our series looked at the potential for new business models, based on services not products, to improve resource productivity.

### **seminar two, 25 October 2001 realising the environmental benefits of 'servicising' in the UK**

**Chair:** Rebecca Willis, Green Alliance.

**Speakers:** Dr Tom Votta, Chemical Strategies Partnerships/Tellus Institute; Dr Alistair Keddie, DTI; Dr Stan Higgins, Specialised Organic Chemicals Sector Association; Dr Michael Warhurst, Friends of the Earth.

Improving efficiency in the manufacturing and use of products is one way of improving resource productivity. For example, cars can be made less polluting, and electrical products more efficient. Technological improvements will be vital in delivering improved resource productivity. However, focusing on products alone overlooks the possibilities that can be derived from a broader look at the benefits we derive from products, and how the benefits could be obtained in different ways. A car, for example, provides us with mobility, but it may be possible to deliver this mobility more effectively and efficiently through a combination of car-share schemes and public transport. Looking beyond mobility, what we really want is access to work, education, health, entertainment, shopping and other social facilities. Access to these may be best delivered through planning developments so that the need to travel is eliminated, or taking the service to people through, for example, home delivery services.

Looking at the service provided by an activity or product is a powerful model for stimulating and driving change. Focusing on the system the product is used within, rather than the product itself, may allow change to happen faster, as it may be quicker to change the system rather than to develop new products. A shift from selling products to selling services – heating services, mobility services and so on – could bring relatively quick resource productivity gains.

At the seminar, presentations showed that this shift, from products to services, has been applied to a wide range of products and sectors including transport, chemicals, energy and waste. It has delivered notable environmental and economic benefits in the chemicals sector in the United States. Chemicals companies have moved from being suppliers of materials, i.e. paint for cars or degreasing chemicals, to suppliers of services, e.g. car painting or degreasing. This initiative has been spearheaded by a non-profit organisation, the Tellus Institute, which has created the Chemical Strategies Partnership to promote understanding and uptake of this model in the US<sup>6</sup>.

The seminar highlighted that there are clear benefits to be derived from this approach, and that action to deliver these can start now. The key to such benefits is the shift in incentive structures. Whereas, previously, a chemicals company had an incentive to sell more product, under a service arrangement the incentive is to deliver the service as efficiently as possible. Environmental efficiency gains include reduced chemicals consumption, less waste, smaller ranges of chemicals being used and a move to less hazardous chemicals. These benefits translate into general productivity gains with reduced staff and management costs, lower overheads, less downtime and better delivery performance. Regulatory costs can also be reduced through the elimination of particular chemicals or usage falling below reporting limits.

The service approach does not guarantee environmental benefits. Environmental objectives have to be planned from the outset. The approach also requires a new type of relationship between supplier and client, with much greater levels of trust and communication and a focus on aligning incentives through new reward structures and contractual arrangements.

Cost is a primary driver of the service approach. If chemical inputs and waste disposal costs become more expensive, there will be more incentive for companies to act. These costs can be largely controlled by government through taxes on raw materials, energy and waste disposal, and also through regulation that requires more stringent environmental standards. It was also suggested that service approaches could be developed through sectoral sustainability strategies, using negotiated or voluntary agreements to specify performance targets.

Dissemination of information about this approach was considered important to increased uptake. This will involve further research on how to apply the model as well as networking and dissemination activities. In the US, the Chemical Strategies Partnership<sup>7</sup> was essential in driving the model, as it was an independent third party that could gain the trust of both supplier and client company. An organisation along these lines may be required in Europe.

In the US, the approach has been driven by large companies. General Motors started using the approach at one of its plants and with a handful of chemicals, but it now has service contracts at over 90 per cent of its plants worldwide, resulting in a 30 per cent reduction in both chemical use and costs. British industry and government should work together to identify large UK firms who could benefit from the approach and drive its more widespread adoption.

Whilst the general approach is applicable to a broad range of companies, there is not a one-size-fits-all solution to providing services. Chemicals services may be a success story but other service approaches such as mobility services, or the use of information technology to dematerialise the economy, have resulted in less clear environmental benefits. This is discussed in a separate Green Alliance report, *Service innovation for sustainability: A new option for UK environmental policy?*<sup>8</sup> (see recommendation two).

“The service approach does not guarantee environmental benefits. Environmental objectives have to be planned from the outset”

## recommendations

- The Government needs to give better signals through the tax and regulatory framework, to deliver greater uptake of servicising. A particularly important focus for this in the chemicals sector is the cost of disposal of waste chemicals. The Environment Agency has a role to play in using environmental authorisations to encourage service approaches. The waste reduction requirements of Integrated Pollution, Prevention and Control (IPPC) could also be used to drive progress.
- A dissemination programme for best practice is needed. An organisation such as Envirowise<sup>9</sup> should provide overview information of the general approach and benefits to business. The benefits of developing a UK or European equivalent of Chemical Strategies Partnership which would develop the approach in a specific sector should be evaluated. Green Alliance has set up a network, *Service Innovation for Sustainability*, to promote development of ideas and implementation of further service approaches in the UK<sup>8</sup>.
- Collaboration is required between the Government and the chemicals industry to drive the service model forward. This could be specified in a sectoral sustainability strategy, and made concrete through negotiated agreements. Alternatively, the input of one large player in the sector could be the catalyst for wider adoption of the model. The Government and trade bodies should work together to achieve this.

## theme three: consumer-led resource productivity - marketing green products

The third seminar addressed the difficult issue of consumption – how to bring about a shift in consumption patterns that will increase resource productivity. It was based around a case study of marketing green energy products.

### seminar three, 30 April 2002 marketing green products and understanding consumers

**Chair:** Ben Shaw, Green Alliance.

**Speakers:** Blair Swezey, National Renewable Energy Laboratory, USA; John McElroy, Innogy plc; Margot Marshall, Energy Saving Trust.

Since deregulation, 40 per cent of UK consumers have changed gas and electricity suppliers. 67,000 gas customers and 100,000 electricity customers change supplier each week<sup>10</sup>. Yet the uptake of green energy products is still tiny. There are only a few countries where more than one per cent of consumers are buying green energy<sup>11</sup>. If customers are prepared to change their energy supplier, how can they be persuaded to sign up to greener options?

The seminar, addressed by Blair Swezey of the United States' National Renewable Energy Laboratory (NREL), focused on the marketing of green energy products. It highlighted three key factors in extending the uptake of green energy. Firstly, there is a need for good quality products that appeal to consumers. This must be accompanied by a regulatory framework that allows these products to be brought to the market economically, and by appropriate marketing strategies for the products.

Green products need to be designed to appeal to the whole range of consumers and market segments, not just consumers with an active green interest. This may mean emphasising the non-environmental benefits of the products. Products must be simple to understand and take up. Engaging large high-profile customers can add credibility to products and stimulate demand. The companies selling products need to raise awareness and be persistent in communicating messages to consumers.

Many seminar participants felt that the regulatory and financial structures in the UK make it hard to bring viable products to the market. The market is immature and driven by price, with little space for green issues. Shareholder pressure prevents company investment in high cost marketing strategies for green energy, due to the

“Green products need to be designed to appeal to the whole range of consumers and market segments, not just consumers with an active green interest”

small market share for green products. This creates a vicious circle: no market because there is no investment, and no investment because there is no market. In addition, the new obligations placed upon utilities to deliver energy efficiency and renewable energy goals<sup>12</sup> mean that there is little appetite to develop additional voluntary green products.

The seminar discussed strategies for developing market share for green products. Different strategies will need to be used to target the early adopters, who form about 10-15 per cent of consumers. There is considerable public confusion about renewables, the energy sector and environmental issues in general. There is a role for government and the industry to develop communication and education strategies to address this. Labelling and advertising need to be used more widely in communication. Branding may also have a role to play in developing green products beyond niche markets. This is discussed in the recent Green Alliance publication *Brand Green: mainstream or forever niche*<sup>13</sup>. A government programme advocating the generic benefits of green energy tariffs could significantly add to the effectiveness of individual companies' efforts on specific products.

## recommendations

- The energy regulator needs to create a regulatory framework that encourages the development of a more diverse range of green energy products.
- The Government should develop further awareness-raising campaigns to support the adoption of new green energy products and other developing technologies in energy and other sectors. Government communication stressing the benefits of green energy tariffs could complement efforts by individual companies. More broadly, a communication strategy needs to be developed to explain the need for resource productivity or environmental efficiency, in simple terms.
- The US model of signing up large, high-profile energy users to drive market development of green products could be used in the UK. Large companies have been used to develop the service model and green energy products. Government should create incentives such as tax benefits to encourage greater business involvement.
- Energy suppliers need to develop a wider range of green energy products tailored to the interests of different market segments. Green energy products and the costs of their development and marketing need to be integrated into general development and marketing costs.

## conclusion: an agenda for action on resource productivity

Green Alliance’s seminars show that there is an appetite for action on resource productivity. They also show that there is a range of measures that could be acted on now, with quick economic and environmental paybacks.

Fundamental change will be required in the long term. The clearest example is the 60 per cent reduction in carbon emissions required by 2050, according to the Royal Commission on Environmental Pollution<sup>14</sup>. There is also an urgent need to apply resource productivity in other areas including waste, water, transport, agriculture and land-use.

Resource productivity is not a sectoral issue – it is not something that can be tackled through one specific set of policies whilst leaving other areas unchanged. It is, instead, a cross-cutting issue, with relevance across

government and across sectors. Tackling resource productivity will not involve specific new policies, but a gradual re-framing and re-emphasis of existing ones – from innovation policy to taxation policy. This makes the development of a shared understanding and commitment to resource productivity absolutely vital. It should be used as a concept to frame specific policy initiatives, which then become linked by a shared understanding and framework.

The recommendations set out here build on the PIU report, *Resource Productivity: Making More With Less*. Government has committed to replying to this report by the end of 2002, and these recommendations could be addressed in the context of the Government reply.

The recommendations below are based on discussions at all three Green Alliance seminars, and the meetings and interviews we held. They are mainly focused on government. This should not be taken as suggesting that Government is solely responsible for improving the UK’s resource productivity. Resource productivity will also be delivered by business developing new ways of doing things and by consumers through their choices. However, without a framework that drives investment in innovation and stimulates change across sectors, sufficient change will not happen.

“The primary task for government is to articulate a vision for a resource-productive economy, and to implement a framework that drives change from other actors”

### resource productivity is an issue for all of government

The primary task for government is to articulate a vision for a resource-productive economy, and to implement a framework that drives change from other actors. In responding to the PIU report, the Government should establish an action plan on resource productivity. Such a plan should be agreed across government, and should be led by the three departments most



closely involved: DEFRA, DTI, and the Treasury. While each of these departments has their own contribution to make, it should also be made clear that government as a whole buys into the following:

### **a statement of government commitment to resource productivity**

The Government's response to the PIU report should state, clearly and publicly, its vision for improving the resource productivity of the UK economy. It should focus on absolute, not relative, improvements in resource productivity. It should set out the links to the Government's commitment to sustainable development, and to corporate social responsibility. This statement should be backed up through high-profile support from senior ministers, including the Prime Minister, who has supported this concept in his speeches on environmental issues, most recently at the Johannesburg Summit<sup>15</sup>. These speeches acknowledged that we must reduce our environmental footprint and that existing commitments such as Kyoto, while important, are not radical enough to deal with the scale of the problems we are facing.

### **a headline indicator of resource productivity, linked to a target**

The indicator should be simple and easily communicable, and linked to an aspirational long-term target based on environmental limits. This indicator should not be seen as the final word on measuring resource productivity – it could be supplemented by more specific targets covering specific environmental impacts or sectors. These supplementary indicators would be used for management, rather than communication, of resource productivity. This approach was recommended at the DTI/Green Alliance seminar in February 2001 on indicators to measure progress on improving resource productivity<sup>16</sup>. The German sustainable development strategy provides a clear example of a way forward. It includes the target to double energy productivity by 2020 - and to achieve a factor 4 productivity increase in the long run and to double renewable energy consumption by 2010<sup>17</sup>.

### **a clear link between a resource productivity action plan and specific policies**

These should be both 'issue-based' policies, i.e. energy, waste, transport and agriculture and cross-cutting policies, i.e. support for business development and innovation, and the Treasury's environmental tax strategy. It should be made clear that resource productivity provides an overall framework to guide action in each of these areas.

### **avoiding paralysis by analysis**

It is clear that our understanding of resource productivity is far from complete. There is considerable uncertainty surrounding even the basic principles – such as how to measure it. There is also an incomplete understanding of the relationship between resource productivity and the overall productivity of the economy. It is vital that these uncertainties are addressed, through further research and analysis. However, uncertainty should not be used as a reason for inaction – there is enough shared understanding of resource productivity, and consensus about the need for

improvement, to begin action to improve it now, rather than waiting until the evidence base is complete. The precautionary principle makes clear that inaction in the face of uncertainty is not an option when dealing with long-term environmental change.

## the role of DEFRA

DEFRA has clear responsibility for promoting sustainable development across government, and this encompasses promoting resource productivity. DEFRA's specific commitment to the agenda should include:

### a lead from the sustainable development unit

As the unit responsible for supporting departmental initiatives on sustainable development, it should take a lead on this agenda, encouraging resource productivity across government, and providing the expertise and advice necessary for this.

### showing the way with waste

The waste strategy, currently being reviewed, along with the forthcoming Energy White Paper, provides one of the first opportunities for the Government to apply the concept of resource productivity to a specific policy area. The new waste strategy should have a clear goal of achieving greater resource productivity, and this should be reflected in the policies put forward. For example, together with the Treasury, DEFRA should alter price signals to reflect the resource productivity of different waste disposal options – making the least 'productive' options, such as landfill and incineration, the most expensive<sup>18</sup>.

### communicating resource productivity

As the PIU acknowledged, and our seminar showed, a clear programme of communication about resource productivity will be needed. This will be helped by the adoption of a simple headline indicator – as described above. Communication should build on DEFRA's existing 'are you doing your bit' initiative. A model that could be followed is a communication strategy that emphasises the benefits of, for example, green energy tariffs in general, which would be backed up by individual companies' efforts. The US approach of signing up large high-profile energy users to green products, which helps to raise profile greatly, could also be applied in the UK context.

## the role of DTI

Given DTI's new aim to "generate higher levels of sustainable growth and productivity"<sup>19</sup>, it has a key role to play in encouraging business to achieve resource productivity. Its particular responsibility is as follows:

### working with business to develop sector-specific indicators, targets and action

A simple headline target for resource productivity will not, on its own, drive change in particular sectors. There is a need for a sectoral approach too. Tackling resource productivity should involve change throughout the production chain – not just through ‘end-of-pipe’ environmental technologies. Sectoral sustainability strategies could play a role. Sectoral targets for resource productivity could be drawn up through negotiated agreements between business and government, backed up by the possibility of regulatory or fiscal policy if the agreements do not deliver<sup>20</sup>. A framework for extended producer responsibility – building on the initiatives at European level – would also encourage greater resource productivity.

### making resource productivity an explicit goal of business support initiatives

Programmes to support business, such as LINK, the Small Business Service and the Faraday Partnerships<sup>21</sup>, should explicitly support greater resource productivity. Although many of these initiatives do offer support for environmental initiatives, this is not put into the context of a strategic framework. It is essential to do this if mainstream business is to understand and respond to the resource productivity challenge.

### driving policy for environmental innovation

As well as building resource productivity into mainstream business support, there is a need for specific policy to drive environmental innovation. This should support not just innovative technology, but innovative business models, too – such as the service model described earlier. Innovation policy should focus on setting ambitious long-term targets that can only be achieved through radical innovation in the way we use materials and energy. Clear signals, providing long-term certainty, can make business more willing to innovate. For example, in California the major driver of waste policy has been a target to divert 50 per cent of waste from disposal to reuse and recycling. Certainty, together with stiff penalties for failure, has been enough to drive private sector investment in new recycling infrastructure and systems. However, innovation can also be stimulated through tougher, and more coherent, regulatory and tax frameworks. Research shows that such measures can enhance, rather than reduce, competitiveness, as costs are reduced through innovation<sup>22</sup>.

“Tackling resource productivity should involve change throughout the production chain – not just through ‘end-of-pipe’ environmental technologies”

## shaping energy policy

The PIU's energy policy review, published in February 2002, explicitly put energy policy within the context of resource productivity. Given the challenge of climate change, action on energy must be absolutely central to tackling resource productivity. It is a clear advantage that energy and carbon use is one of the best-understood and best-measured resources. In its energy white paper, DTI must maintain the PIU's approach of seeing energy policy through the lens of resource productivity, and put in place bold policies to promote energy efficiency and renewable energy – the most resource-productive energy options.

## the role of the Treasury

There is a clear consensus amongst stakeholders that price signals are crucial in improving resource productivity. The Treasury's responsibility for tax and spending decisions makes it central to the resource productivity debate.

## getting the prices right

The Treasury's 'statement of intent on environmental taxation', published in 1997, was an important statement of the principle of shifting taxation from labour to resource use. There is now a need to restate this commitment, and place environmental taxation within a framework of resource efficiency. This framework should be used to explain and justify taxes on inefficient resource use, with revenues earmarked for environmental improvement.

Given the current review of waste policy, waste taxation will provide an early opportunity to do this.

**“The Treasury's responsibility for tax and spending decisions makes it central to the resource productivity debate”**

## supporting good policy appraisal

The Treasury's Green Book on policy appraisal sets out the evaluation tools used to appraise investment and spending decisions. Improving resource productivity should be a clear aim of the appraisal process.

## widening definitions of productivity

One of the Treasury's stated aims is to improve the productivity of the UK economy. This should explicitly include resource productivity, rather than the narrower definition of labour productivity. For example, the analysis of productivity contained in each budget report should include an analysis of resource productivity. This could provide a commentary on progress on the issue, measured against the indicators and targets established.

## the European dimension

The European Commission will shortly be publishing a Communication on its Resource Strategy<sup>23</sup>. A European consensus on resource productivity, with shared policies and initiatives, would greatly help to drive change, given the interdependence of European economies. The Commission's work presents an opportunity for the UK Government to demonstrate its commitment to, and expertise in, resource productivity, to press for ambitious measures to improve resource productivity across the EU and beyond.

## notes and references

1. See, for example, *Richer and Greener*: a speech by the Prime Minister, the Rt Hon Tony Blair MP to the CBI/Green Alliance Conference on the Environment, 24 October 2000. Available from [www.green-alliance.org.uk/Event.htm](http://www.green-alliance.org.uk/Event.htm) or the Prime Minister's foreword to *Resource Productivity: making more with less*, Performance and Innovation Unit, November 2001.
2. *DTI Sustainable Development Strategy*, DTI 2000. Available from: [www.dti.gov.uk/sustainability/index.htm](http://www.dti.gov.uk/sustainability/index.htm)
3. *Resource Productivity: making more with less*, Performance and Innovation Unit, November 2001 and *The Energy Review*, Performance and Innovation Unit, February 2002. Available from the Strategy Unit website: [www.cabinet-office.gov.uk/innovation/2001/resource/report/default.htm](http://www.cabinet-office.gov.uk/innovation/2001/resource/report/default.htm)
4. For more information see page 10 *Signed sealed and delivered? the role of negotiated agreements in the UK*. Green Alliance April 2001. Available from: [www.green-alliance.org.uk/Publications\\_PolicyReports.htm](http://www.green-alliance.org.uk/Publications_PolicyReports.htm)
5. *Appraisal and Evaluation in Central Government ('The Green Book') Consultation*, see: [www.hm-treasury.gov.uk/economic\\_data\\_and\\_tools/greenbook/data\\_greenbook\\_index.cfm](http://www.hm-treasury.gov.uk/economic_data_and_tools/greenbook/data_greenbook_index.cfm)
6. See [www.chemicalstrategies.org](http://www.chemicalstrategies.org) for further details of the work of the Chemicals Strategies Partnership.
7. See note 6.
8. See [www.green-alliance.org.uk/Programmes\\_ServiceInnovation.htm](http://www.green-alliance.org.uk/Programmes_ServiceInnovation.htm) for further details.
9. Envirowise is a government programme offering free, independent advice on practical ways to minimise waste and convert turnover into profit. See [www.envirowise.gov.uk](http://www.envirowise.gov.uk)
10. Figures from OFGEM Factsheet 7: Future regulation of domestic gas and electricity supply markets.
11. *Green Power Marketing Abroad: Recent Experience and Trends*, Lori Bird, Rolf Wüstenhagen, Jørn Aabakken, National Renewable Energy Laboratory, April 2002, NREL/TP-620-32155. Available from [www.nrel.gov](http://www.nrel.gov)
12. The Renewables Obligation requires power suppliers to derive a specified proportion of the electricity they supply to their customers from renewables. The Energy Efficiency Commitment for 2002 to 2005 (EEC) requires electricity and gas suppliers to achieve targets for the promotion of improvements in domestic energy efficiency. See DTI and DEFRA websites for further details. ([www.dti.gov.uk](http://www.dti.gov.uk) and [www.defra.gov.uk](http://www.defra.gov.uk))
13. Wendy Gordon, *Brand Green: mainstream or forever niche*, Green Alliance 2002. [www.green-alliance.org.uk/Publications\\_Pamphlets.htm](http://www.green-alliance.org.uk/Publications_Pamphlets.htm)
14. Royal Commission on Environmental Pollution, Twenty-second Report, *Energy – The Changing Climate*, Cm 4794, June 2000, HMSO.
15. See the speeches given by the Prime Minister, the Rt Hon Tony Blair MP to the World Summit on Sustainable Development in Johannesburg, South Africa, 2 September 2002 and in Maputo, Mozambique, 1 September 2002, both available from [www.pm.gov.uk](http://www.pm.gov.uk).
16. *Revolutionising resource use: Measuring radical improvements in resource productivity*, summarises the outcomes of a joint DTI/Green Alliance conference on measuring resource productivity held in February 2001. Available from: [www.green-alliance.org.uk/EventsMeasuringResourceProductivity.htm](http://www.green-alliance.org.uk/EventsMeasuringResourceProductivity.htm)
17. The full strategy is available from The German Council of Environmental Advisors at: [www.umweltrat.de](http://www.umweltrat.de)
18. A large increase in the landfill tax – possibly a tripling – and a range of other policy recommendations to drive a more resource productive waste strategy in the UK are presented in the Green Alliance project report *Creative Policy Packages for Waste: Lessons for the UK*. Available from: [www.green-alliance.org.uk/Programmes\\_CreativePolicyPackagesWaste.htm](http://www.green-alliance.org.uk/Programmes_CreativePolicyPackagesWaste.htm)
19. See [www.dti.gov.uk/about\\_dti\\_aims\\_activities.html](http://www.dti.gov.uk/about_dti_aims_activities.html) for further details of DTI's aims and objectives.
20. For further information on the role that negotiated agreements could play in delivering environmental goals and the conditions that need to be fulfilled if they are to be successful see *Signed Sealed and Delivered? the role of negotiated agreements in the UK and Negotiated Agreements best practice checklist*, Green Alliance 2001. [www.green-alliance.org.uk/Publications\\_PolicyReports.htm](http://www.green-alliance.org.uk/Publications_PolicyReports.htm)
21. Further details of all these programmes are available from DTI's website [www.dti.gov.uk](http://www.dti.gov.uk)
22. See, for example, Anderson, D. et al, *Innovation and the Environment: Challenges and policy options for the UK*, 2001, published by Imperial College, Fabian Society and ESRC.
23. See [www.europa.eu.int/comm/environment/natres/index.htm](http://www.europa.eu.int/comm/environment/natres/index.htm)



