



Stronger Resource Efficiency for desirable communities:

How local innovation in asset stewardship ensures a green and prosperous economy



Stronger Resource Efficiency for desirable communities:

**How local innovation in asset stewardship
ensures a green and prosperous economy**

An APSE report prepared by Infrangilis

February 2013



The Association for Public Service Excellence (APSE) is a not-for-profit local government body working with over 300 councils throughout the UK promoting excellence in public services. APSE is the foremost specialist in local authority frontline service providers in areas such as waste and refuse collection, parks and environmental services, leisure, school meals, cleaning, housing and building maintenance.



Infrangilis is part strategy consultancy and part think-tank. A values-driven enterprise, Infrangilis works globally with the public sector, businesses, multi-lateral agencies, NGOs and academia to instigate or accelerate innovative solutions on the interface between the green economy and sustainable urban development

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Foreword

In these times of austerity it is important that councils maximise sustainable benefits from their assets to ensure 'value for money', in all sense of the phrase, for local communities. This is why the concept of 'resource efficiency' becomes so critical.

It is local government that provides much of the infrastructure for local business to flourish, and with such an emphasis on economic recovery at present, decisions on allocation of scarce resources has never been more vital. The sustainability of these decisions could be crucial for generations to come.

This APSE report clarifies how everyone can contribute and join together to ensure greater efficiency of resource stewardship in policy and practice, by raising awareness for elected members and corporate management about their clear leadership role in this agenda and showing specific services what they can do in practice.

We call on Government to recognise this vital ensuring role that local government has to play and to reinvigorate national policy to help councils to achieve even more.

Cllr John Kerr-Brown, Warrington Borough Council,

National Chair of APSE



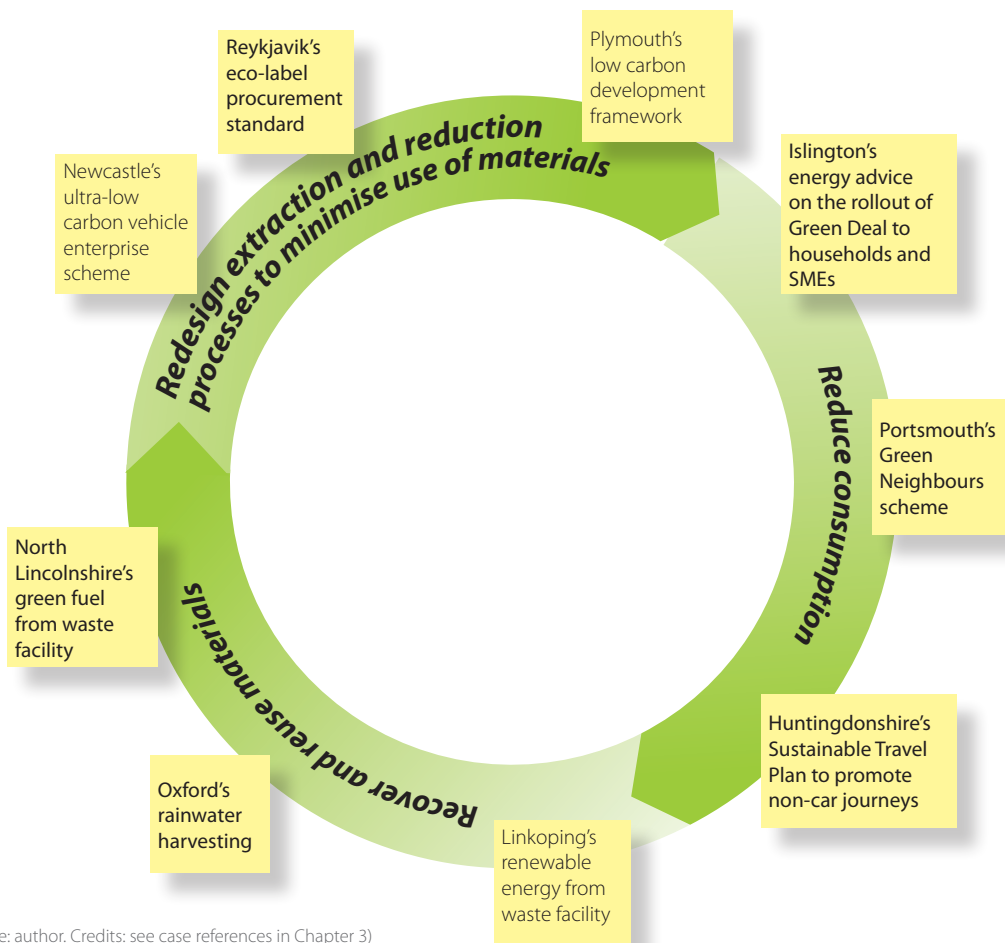
Executive Summary

Local government faces the perfect storm: a 'funding cliff' at a time when residents and local businesses are looking to councils for increased support. In such challenging circumstances the optimal stewardship of local assets is of paramount importance for councils. This publication provides a practical guide for APSE members on good practice in stronger resource efficiency across council functions to help elected members and service leaders to navigate this perfect storm. This guide lists key interventions to reduce operating costs and plug huge gaps in shrinking service budgets. However, more than this, the toolkit shares innovative ways to seize the enormous opportunity to regenerate local economies by stimulating investment and job creation in low carbon industries, and to shape places to create desirable communities.

It is clear that resource efficiency supports plans to return to a prosperous economy. DEFRA has calculated that low-cost resource efficiency 'quick wins' alone could save UK business £23 billion. The Confederation of British Industry (CBI) has also concluded that despite trying economic times, the UK's green business industry continued to grow in real terms during 2010/11 by 2.3% - carving out a £122 billion share of a global market worth £3.3 trillion. At the same time, a recent survey by the manufacturers organisation EEF found that 80% of senior manufacturing executives believe limited access to raw materials is already a business risk and a threat to growth.

APSE believes however that making the current 'linear' industrial model of take-use-dump more efficient is simply poor economic policy. This only slows unsustainable consumption and is a terrible use of limited resources. Instead, APSE supports an approach to resource efficiency that focuses on a 'circular' method (whereby, through good stewardship, no waste is generated as all materials are valued) that best aids the transition to a green and prosperous economy. Crucially, APSE also believes that local authorities are pivotal to the delivery of resource efficiency as every aspect of their role shapes how people live their lives – from spatial planning and waste collection through to neighbourhood management and education. Examples of local authority intervention in creating a circular economy are depicted in the figure below.

Local interventions for stronger resource efficiency in a circular economy

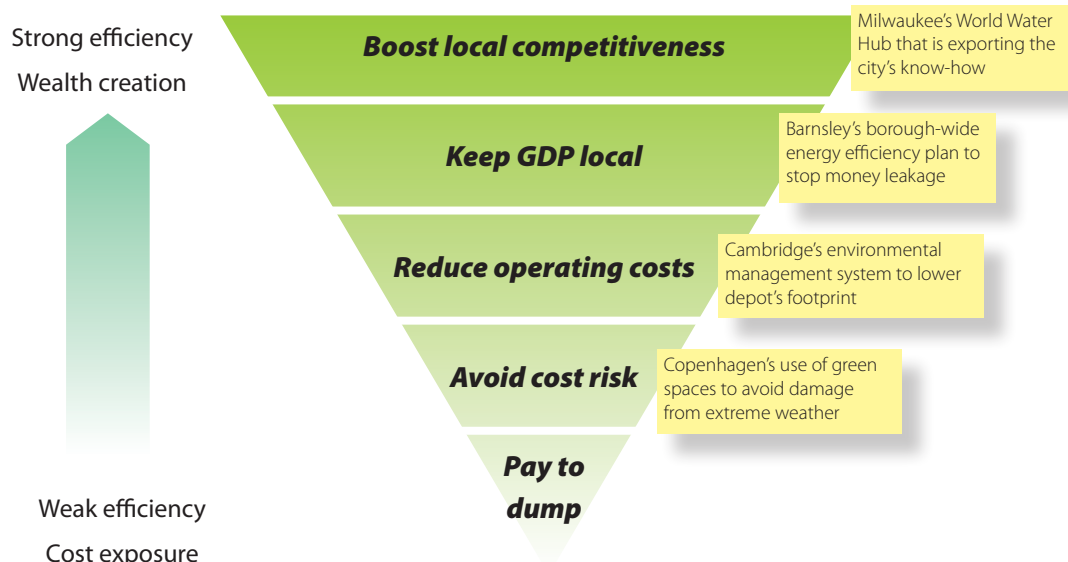


(Source: author. Credits: see case references in Chapter 3)

Importantly, APSE also believes that securing supplies of scarce materials should not be considered an end goal in itself. Rather, it is about liberating area-wide assets – financial, built, natural and people networks - to empower community leaders to do more with less in order to create prosperous, healthy and green local places. By making change *desirable* in this way, it will better boost both local and national resilience. This report shows how APSE members and other councils are also realising the local economic opportunity of asset stewardship: which takes resource efficiency above and beyond immediate cost saving needs. Examples of how local authorities are innovating to seize this opportunity are depicted in the figure below. This is intended as a useful tool to help members map where they are on the hierarchy for a particular service, project or decision.

Seizing the regeneration opportunity of efficiency: resource-innovation hierarchy for councils

Source: author. Credits: see case references in Chapter 3)



By doing so, APSE argues, local authority innovation in resource efficiency (products, processes, services, or technologies) can actually *boost* competitiveness and also drive growth by enhancing productive capacity and creating investment and export demand. This is particularly critical during austere times, when Government spending is much less of a contributing factor in growth.

Councils need to adopt a suitable approach to deal with these complexities and APSE believes the process of service redesign provides a useful framework. Service redesign refers to how a small shift in one thing can produce big changes elsewhere. The interventions, or so called 'leverage points' identified in a service redesign approach, allow us to identify the best places to make tweaks and changes within the system.

Depending on a local authority's particular context, their ability to control or influence each of these directly, indirectly, or if at all, will vary. So, it is a matter of each local authority doing the best it can to deal with the *whole* system, given the circumstances, and to understand what possible key interventions can be made by each service lead – from asset management and transport infrastructure planning; through to education and neighbourhood liaison. Furthermore, this APSE study provides key insights into how UK local authorities can do, and are doing, amazing work to promote stronger resource efficiency across every function of the whole system. The table below details a route map of over 60 case studies and reference points contained within this document and which highlight how each and every function within a local authority can make an important contribution. International cases are also included to share insights from new and innovative measures in resource efficiency that are not current practice in the UK but from which there may be transferable learning.

| Local authority function | Case studies and reference points | UK Example | International Example | Page |
|-----------------------------------|--|---|---|------|
| Leadership | One organisation's waste becoming another's key resource | Cambridgeshire County Council | Kalundborg, Denmark | 20 |
| | Low carbon development frameworks to create new wealth | Northumberland County Council Plymouth City Council | Jilin City, China Gauteng, South Africa | 20 |
| | Removing unhelpful choices at scale in a positive way | London Borough of Hounslow Middlesborough Borough Council Brighton & Hove City Council | Clonburris District Council, Dublin | 22 |
| Regeneration and spatial planning | Smart use of land to increase developer value | Essex County Council | Tararua District Council, NZ Incheon, South Korea Stockholm, Sweden | 22 |
| | Keeping GDP local through area-wide efficiency | Barnsley Metropolitan Borough | New York, USA Portland, USA | 23 |
| | Turning a scarcity problem into a competitive advantage | Newcastle City Council | Kitakyushu, Japan Milwaukee County Council, USA | 25 |
| Transport and logistics | Changing people's travel behaviour | Huntingdonshire District Council Highland Council | Amsterdam, The Netherlands | 26 |
| | Rollout of electric vehicle charging so they can compete with their diesel counterparts | Eastleigh Borough Council Milton Keynes Borough Council | | 28 |
| | Green vehicle fuel from waste | North Lincolnshire Council | Linkoping, Sweden | |
| Asset management and procurement | Revolving funds for street lighting, water and energy reduction | Aberdeen City Council South Ayrshire Council Oxford City Council Swansea City and County Council | | 29 |
| | Pioneering financial mechanisms to liberate assets | Glasgow City Council Greater Manchester Pension Fund Southampton City Council | California, USA Ontario, USA | 30 |
| | Environmental supply standards in office cleaning and kerbside recycling collections to save money | Cambridge City Council Sunderland City Council | Reykjavik, Iceland | 31 |
| Environmental services | An integrated approach to waste management to avoid unnecessary infrastructure investment | London Borough of Brent Leicester City Council | Flensburg, Germany Yokohama, Japan | 32 |
| | Building industry capacity through voluntary standards and empowerment | Great Yarmouth Borough Council | Florida, USA Copenhagen, Denmark Washington DC, USA | 33 |
| | Green spaces to avoid costs of weather damage and reduce utility bills | London Borough of Newham | | 34 |

| | | | | |
|--------------------------|---|--|---|----|
| Neighbourhood management | Shaping places to what residents want them to look like | London Borough of Islington | Seattle, USA | 35 |
| | Collaborative consumption in the community | Knowsley Metropolitan Borough Council Monmouthshire County Council | Tokyo Metropolitan Government, Japan | 37 |
| | Collective switching to help hard-to-reach households | Cornwall Council Surrey County Council London Borough of Lambeth | | 37 |
| Education and schools | Celebrating the 'art of the possible' | Portsmouth City Council Belfast City Council | Krakow, Poland Government of Munich, Germany | 38 |
| | Green skills to support next generation entrepreneurs and workforce | Sheffield City Council Newry & Mourne District Council | Chicago, USA | 39 |
| | School teachers and children doing their bit | Reading Borough Council Wirral Borough Council | | 40 |

This study makes it clear that APSE members across England, Northern Ireland, Scotland and Wales are committed to innovation when partnering with business and residents to green their local economies. This ranges from Plymouth City Council's pioneering *Local Carbon Framework* through to Portsmouth City Council's novel *Green Neighbours* challenge. Taken together across the UK, this kind of leadership is not just protecting or creating a vast number of jobs and building people's capacity for self-help, but, as is the case with London Borough of Islington's *Season Health and Affordable Warm Strategy*, is also helping to lift rafts of vulnerable people out of poverty.

Regardless of these achievements, the Government's *Resource Security Action Plan* does not attach any great significance to the vital role of local government. Whilst APSE welcomes the Government clarifying its position on resource management, this oversight is bad news for everyone. Such a fragmented approach undermines collaborative efforts and is damaging to the public purse during an age of austerity.

Given this, APSE is calling on the Government to recognise the pivotal contribution of local government in its national strategising on resource efficiency and to assist local authorities in achieving even more on this - ranging from establishing a *Water Outcomes Fund* to kick-start the municipal bond market in water conservation and flood prevention, through to providing greater direction on data access and training qualifications to allow knowledge sharing and skills development to keep pace with industry needs. In doing this, everyone wins – as well as helping the nation boost its resilience to future commodity price shocks and shortages, it ensures the UK will bounce back from an economic downturn to become more competitive. It represents more effective public expenditure and it connects communities to build the futures they desire.

This study follows earlier work by APSE in 2012, namely *The Transition to a Green Economy: The Vital Role of the Ensuring Council* which looked to deliver a set of techniques for UK local authorities to proactively assist strategy and practice on greening local economies. This research underpins a major focus of APSE's work – developing a sustainable long-term strategy for the future of local government and the services it provides in a difficult financial climate. APSE is advancing this through the development of a new model of the 'Ensuring Council' - the local authority of the future that is:

- Leaner but not hollowed out;
- One that retains a strong core of services and capacity to co-ordinate policy;
- That has the ability to intervene on behalf of local communities and secure broader strategic goals;
- That ensures local economies are resilient; and
- That is innovative and maintains a spirit of municipal entrepreneurship.

1. Why is stronger resource efficiency so important to creating desirable communities?

An efficiency imperative

In a world of finite resources, it is clear that greater resource efficiency underpins plans to move to a prosperous and green economy¹. Resource efficiency helps to insulate an economy against commodity price shocks and concerns around security of supply.² According to McKinsey, improvements in resource productivity could meet 30% of global resource demands by 2030 by making savings worth £1.9 trillion³. At the same time, a recent survey by the manufacturers organisation EEF found that 80% of senior manufacturing executives cite limited access to raw materials as an existing business risk and a threat to growth, with one in three saying it is their top risk.⁴ It is not surprising then during austere times, with profits being squeezed by high global commodity prices, that in March 2012 HM Government set out through its Resource Security Action Plan⁵, how low-cost resource efficiency 'quick wins' could save UK business £23 billion annually.⁶ This is particularly timely given that 2010-11 was a landmark year for the UK green economy according to leading business organisation CBI (as detailed in Box 1).

Box 1: UK green exports to half the trade deficit?

A study by the CBI in July 2012 concluded that despite trying economic times, the UK's green business industry continued to grow in real terms during 2010/11 by 2.3%, carving out a £122 billion share of a global market worth £3.3 trillion.⁷ This meant that the green business industry contributed to over one third of total UK economic growth, employing close to 1 million people (more than the telecommunications sector). Furthermore, the CBI calculates that by 2014/15, the green economy is expected to roughly halve the UK's trade deficit. However, getting it wrong on the low-carbon transition (e.g. failing to address skills shortages, obstacles to accessing finance), the CBI warn that could lead to slower green growth, with a risk of losing almost £0.4 billion in net exports in 2014/15.

So, is the motivation to become more resource efficient to vastly reduce operating costs, enhance resource security and develop one's green credentials? Or does it mean different things to different people?

There are an increasing number of business groups⁸ and think-tanks⁹ in the UK who argue that making the current 'linear' industrial model of 'take-use-dump' (as depicted in figure 1) more efficient is simply poor economic policy. This only slows unsustainable consumption, rather than reversing it by decoupling use of natural resources from growth.

Figure 1: The linear economy



¹ The United Nations defines the term green economy as 'One that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities'. UNEP (2011) *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication – A Synthesis for Policy Makers* (Paris: UNEP).

² HM Government calculates that by 2020 the UK could be importing more than 70% of its gas, at a time when global demand is expected to rise in a rapidly populating world, leading to supply constraints and price spikes. HM Government (2011) *Enabling the Transition to a Green Economy: Government and Business Working Together* (London: HM Government).

³ McKinsey & Company (2011) *Resource Revolution: Meeting the World's Energy, Materials, Food, and Water Needs* (Seoul: McKinsey).

⁴ The Environmentalist (2012) 'UK given resource warning', *The Environmentalist* (September: 05).

⁵ BIS and DEFRA (2012) *Resource Security Action Plan: Making the Most of Valuable Materials* (London: HM Government).

⁶ ENDS (2011) 'Doing more with less: the real green economy', *ENDS Report* (440: 40).

⁷ CBI (2012) *The Colour of Growth: Maximising the Potential of Green Business* (London: CBI).

⁸ Aldersgate Group (2012) *Resilience in the Round: Seizing the Growth Opportunities of a Circular Economy* (London: Aldersgate Group).

⁹ Ellen Macarthur Foundation (2012) *Towards the Circular Economy: Economic and Business Rationale for an Accelerated Transition* (London: Ellen Macarthur Foundation).

Instead, institutions call for an approach to resource efficiency that focuses on a 'closed loop' or 'circular' method (whereby, through good stewardship, no waste is generated as all technical and biological materials are valued) that best aids the transition to a green economy. This is as depicted in figure 2 below.

Figure 2: The circular economy

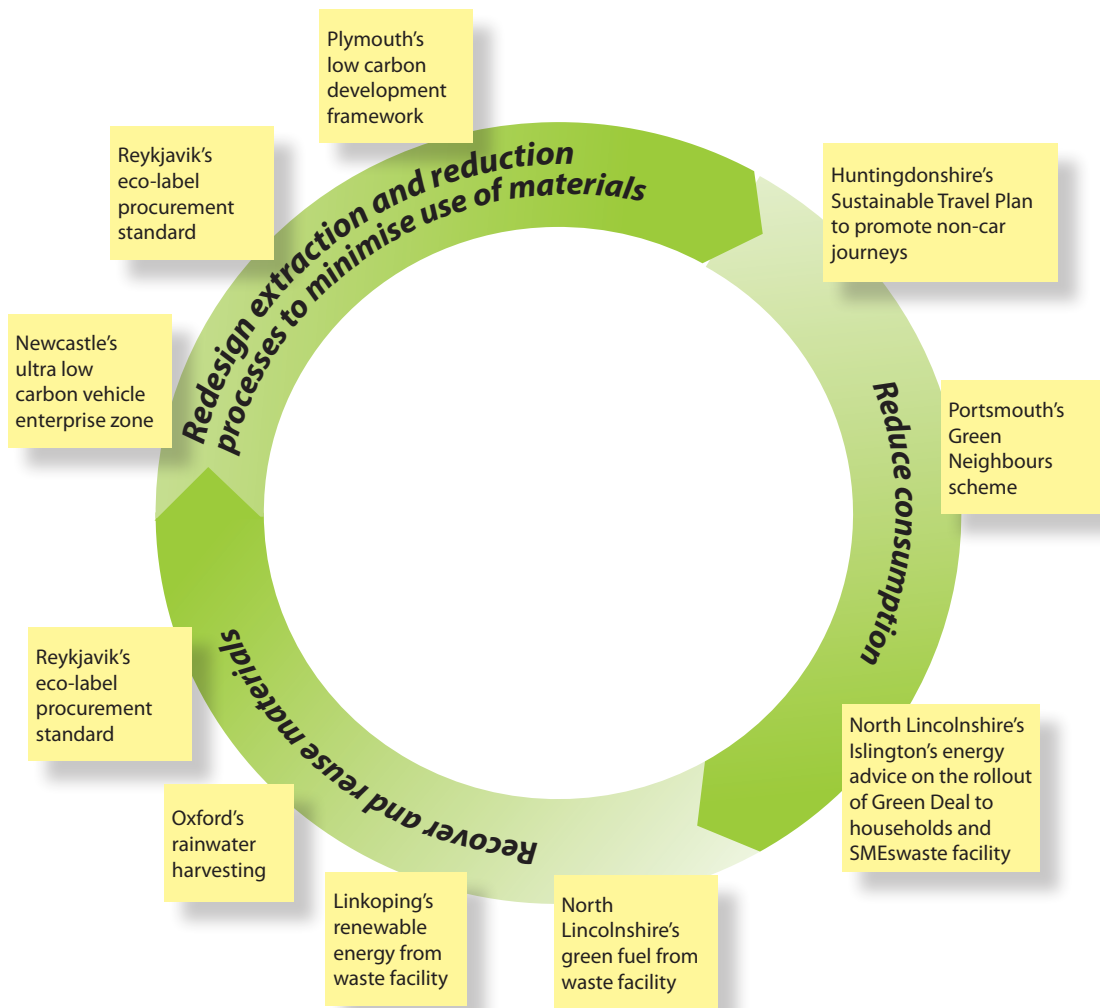


The motivation to act goes beyond ensuring existing resource-intensive industries remain competitive. It is about boosting national resilience through stimulating innovation in low-carbon and environmental goods to drive growth, keeping money circulating in local economies, and contributing to community cohesion, whilst respecting the environment. In short, it is about wealth creation in its broadest sense.

Creating desirable communities as the end goal

APSE believes that local authorities are pivotal to the delivery of the Government's vision for stronger resource efficiency that underpins the move to a green economy. Every aspect of a local authority's role shapes how people live, work and play - from regeneration and spatial planning through to education and waste collection and so are all key in the circular economy. Examples of local authority intervention in creating a circular economy are depicted in figure 3 below.

Figure 3: Local interventions for stronger resource efficiency in a circular economy



(Source: author. Credits: see case references in Chapter 3)

More than this, APSE also believes that securing supplies of metals and minerals should not be considered an end goal in itself. Rather, it is about liberating area-wide assets – financial, built, natural and people networks - to empower community leaders to do more with less in order to generate local jobs and create healthy and green local places. By making change desirable in this way, it will better boost local and national resilience.

2. The aim of this document and how local innovation in asset stewardship ensures a green economy

APSE and the Green Economy

Given the major economic footprint of local authorities, they have a huge role in ensuring stronger resource efficiency underpins the transition to a greener UK economy - both in terms of the financial assets and constitutional powers at their disposal. With this massive footprint also comes an enormous economic opportunity.

For instance, each year local governments spend £42 billion on external contracts alone (e.g. £13 billion is spent on constructing and maintaining buildings and roads and £3 billion is spent on waste services)¹⁰; the value of local government pension funds in 2012 was £120 billion; and it is estimated that local authorities are responsible for £250 billion worth of property.¹¹ Also, to varying degrees across the UK, local authorities have the power to control or stimulate investment in low carbon business through regeneration and spatial planning strategies (e.g. Local Enterprise Partnerships). Councils also have significant scope to influence residents' behaviour through the education system (e.g. green skills training) and neighbourhood management schemes (e.g. financial rewards or penalties).

Consequently, the aim of this research is to build on APSE's body of work to date and to deliver a set of techniques for UK local authorities to proactively assist strategy and practice on greening local economies. APSE's ongoing portfolio of research on this important topic includes:

- establishing the vital role of the ensuring council in delivering the UK green economy, including developing a framework to help local authorities manage the transition¹²
- producing a sustainable procurement policy toolkit, as a resource for members when determining how to factor low-carbon considerations into their purchasing process¹³
- publishing a guide on how to create a revolving fund for local authority solar energy, through smart use of the Government's Feed in Tariff (FIT)¹⁴
- proposing a solution on how to remove barriers to the uptake of sustainable and energy projects, such as changes to the national skills development programme¹⁵, in partnership with the UK public sector trade union UNISON
- undertaking an assessment of how sustainable energy projects contribute to local economic development, such as through the provision of new employment and services¹⁶.

More specifically, this research follows on from a 2012 APSE¹⁷ report *The Transition to a Green Economy: The Vital Role of the Ensuring Council* to assist knowledge transfer between APSE members and Government on how local authorities across the UK are already assisting the transition to a green economy and how national policy should be developed to allow the sector to achieve even more.

Stronger Resource Efficiency for desirable communities also contributes a major focus of APSE's wider work over the past two years - developing a long-term strategy for the future of local government and the services it provides in a difficult financial climate. APSE is currently developing its own model of the 'ensuring council' (with De Montfort University and other partners). The ensuring council is a local authority of the future with the vision, political leadership and strength to deliver on behalf of the

10 Regional Centres of Excellence (2007) *Delivering Efficiency Now...Laying the Foundations for the Future*, <http://www.rcoe.gov.uk/rce/core/page.do?pagelid=22790> (website accessed January 2012).

11 Westminster Sustainable Business Forum (2012) *Leaner and Greener: Delivering Effective Estate Management* (London: WSBF).

12 APSE (2012) *The Transition to a Green Economy: The Vital Role of the Ensuring Council* (Manchester: APSE).

13 APSE (2011) *Towards Sustainable Procurement for Local Authorities* (Manchester: APSE).

14 APSE (2011) *The Virtuous Green Circle: Creating a Revolving Fund for Local Authority Solar Energy* (Manchester: APSE).

15 Unison and APSE (2011) *Sustainable Energy Stymied* (12 October: Press Release).

16 APSE and CLES (2012) *Powerful Impacts: Exploring the Economic and Social Benefits of Renewable Energy Schemes* (Manchester: APSE).

17 Ibid.

local area, without having to rely on insufficient levers of influence and negotiation to achieve this.¹⁸ This means a local authority that is:

- Leaner but not hollowed out;
- One that retains a strong core of services and capacity to co-ordinate policy;
- That has the ability to intervene on behalf of local communities and secure broader strategic goals;
- That ensures local economies are resilient; and
- That is innovative and maintains a spirit of municipal entrepreneurship.

Local Action and Policy context

The *Transition to a Green Economy* report suggested action for local government in response to the Government's commitments to the green economy, which surprisingly did not make any reference to the role of the local authority sector in this big transition (as shown in Table 1).¹⁹ This *Stronger Resource Efficiency for desirable communities* report is an extension of this work, moving to the next level of analysis in terms of how APSE members are underpinning the move to a green economy through stronger resource efficiency. This report also highlights what can be done to help local government do even more which is again timely as Government commitments set out in the new *Resource Security Action Plan*²⁰ also fail to acknowledge the vital role of the sector in stronger resource efficiency. Whilst APSE welcomes the Government clarifying its' position on resource efficiency, this omission is bad news for everyone and especially damaging to the public purse during an age of austerity, as it undermines collaborate efforts between the Government, business and local authorities to make the UK competitive in the global low carbon technologies market and to adapt to weather extremes through greater resource efficiency.

The Appendix to this report sets out a useful summary of the wider resource efficiency policy context in which UK local authorities operate, ranging from international accords and national strategy through to local agreements.

Table 1: Local authority commitments to support a green economy

| Government will develop a green policy framework which: | Business should work with Government to: | Local authorities shall establish a strategic vision for the greening of the economy in their area which: |
|---|--|---|
| is effective, clear, stable and as streamlined and minimally burdensome as possible encourages investment protects existing investments, where possible, through use of 'grandfathering' (protecting pre-existing rights) | explore voluntary approaches to greening products and services identify areas of green policy and regulation which can be streamlined whilst remaining effective invest in greener products, services and production processes | provides local leadership fosters partnership working with government and business identifies areas for investment in low carbon regeneration (e.g. offering clear direction via Local Development Framework and Regeneration Strategy) |
| promote the UK as a global leader in green exports and encourage green inward investment | Help Government publicise the skills and expertise of UK-based business | helps Government publicise the skills and expertise of UK-based business (e.g. showcase achievements through APSE publications and events) |

¹⁸ APSE (2011) *APSE Annual Report 2011* (Manchester: APSE).

¹⁹ Adapted from Page 11, HM Government (2011) *Enabling the Transition to a Green Economy: Government and Business Working Together* (London: HM Government).

²⁰ Ibid.

| | | |
|--|---|--|
| provide accessible advice and support to enable business to increase their resource efficiency, resource security and resilience to climate change | become increasingly resource efficient and build risks of energy/resource security and climate change into future business planning | become increasingly resource efficient and build in the risks of energy/resource security and climate change into future business planning (e.g. developing a carbon management plan) |
| ensure that Government 'green' policies take into account the competitiveness of UK-based companies, including Energy Intense Industries and develop measures to support businesses most hit by transitional costs | continue to explore production processes and business models which reduce use of resources and carbon emissions | help local businesses to explore production processes and business models which reduce use of resources and carbon emissions (e.g. launching a low carbon business network in partnership with the local chamber of commerce) |
| ensure the skills system responds to the demand for skills created by a shift to green economy | help articulate skills demand through involvement in LEPs, and Sector Skills Councils | help articulate skills demand through involvement in Local Enterprise Partnerships (LEP), and Sector Skills Councils |
| support the development of greener products, services, and technologies, through continued support for R&D and innovation | design, develop and promote greener products and services, including enabling technologies | design, develop and promote greener products and services, including enabling technologies (e.g. piloting smart electricity grids and trialling cutting-edge street lighting techniques) |
| encourage investment in infrastructure supports the green economy, including through the Green Investment Bank | invest in infrastructure that will support the green economy | invest in infrastructure that will support the green economy (e.g. green spaces, local transport networks and district energy systems) |
| enable UK-based businesses to compete in green, low carbon supply chains where the UK has expertise | work together, where possible, to help build UK-based supply chains | work together, where possible, to help build UK-based supply chains (e.g. establishing a Low Carbon Enterprise Zone with business clusters) |
| produce products that meet cost-effective sustainability standards | adopt sustainability standards for their procurement | Adopt sustainability standards for their procurement (e.g. adopt the APSE Sustainable Procurement Toolkit). |
| help businesses understand the value of and their impact on the natural environment | consider the value of the natural environment to their business | help businesses understand the value of and their impact on the natural environment (e.g. developing a climate change action plan for the local area that business are asked to sign up to through the Local Strategic Partnership or LEP) |

Recognising the crucial role of local innovation in asset stewardship

Taking resource efficiency above and beyond immediate cost savings by councils requires local innovation in 'asset stewardship'. This means responsible management and planning of resources – financial, built, natural and people networks – on an area-wide basis across all processes and functions.

Aside from asset stewardship and the green economy, the public sector has long been key to innovation and growth - both with regard to policy, and also by providing support and investment.

At the national level, some of the greatest innovations by the world's most successful companies – ranging from Apple to Google – were made possible through funding and support from the public sector. Research by Demos and the Open University stated that these experiences provide an important lesson, especially during austere times when the state is being cut back to make space for private-sector led entrepreneurs.²¹ This forces us to remember that with regard to UK growth we need to properly value the role of the entrepreneurial state as the catalyst for a knowledge economy.

Local governments have also played a part. Unfairly, they are often characterised as lacking the spirit

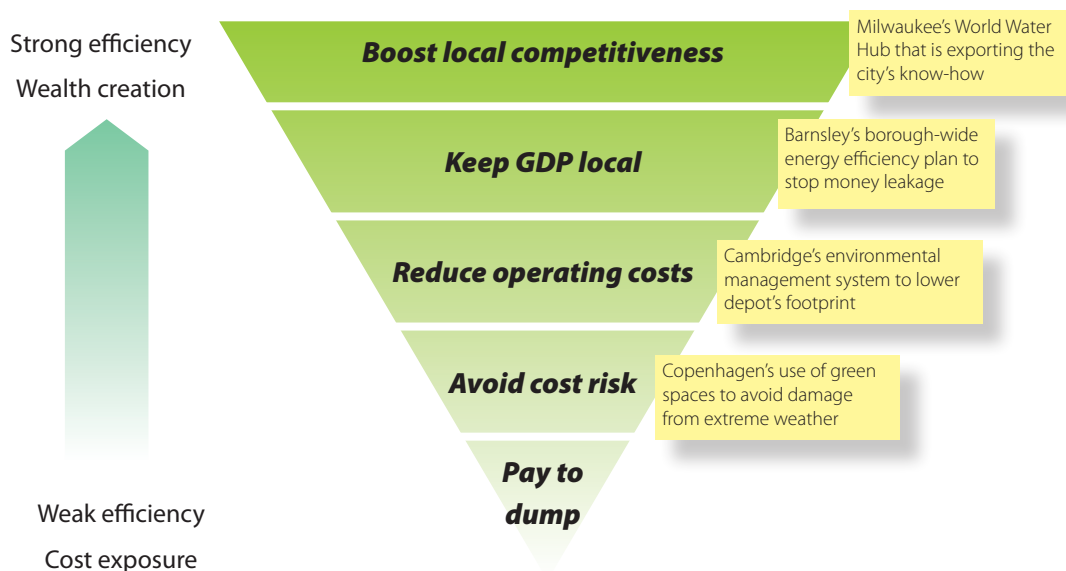
²¹ Mazzucato, M. (2011) *The Entrepreneurial State* (London: Demos and the Open University).

of entrepreneurship. The reality is that many local authorities are taking innovative, albeit managed, risks that will benefit their local communities and help stimulate national economic recovery. The 2012 APSE report *Municipal Entrepreneurship* found many examples of local authorities who were pushing boundaries to improve services and delivery within their areas.²²

Further research by APSE (2012) highlighted how such municipal entrepreneurship extends to the realm of the green economy too.²³ Indeed, local government across the globe has a track record as a 'green' innovator. This ranges from Southampton's district energy scheme which, as the largest commercially developed one in the country, is a pioneer in geothermal energy; through to Tokyo 'stepping up' to force local business to develop carbon reduction plans to retain the city's competitive advantage.

Stronger Resource Efficiency for desirable communities intends to show how APSE members and other councils, both in the UK and overseas, are also realising the local economic opportunity of asset stewardship: that takes resource efficiency above and beyond immediate cost saving needs. Examples of how local authorities are innovating to seize this opportunity are depicted in figure 4 below. This is intended as a useful tool to help members map where they are on the hierarchy for a particular service, project or decision.

Figure 4: Seizing the regeneration opportunity of efficiency: resource-innovation hierarchy for councils



(Source: author. Credits: see case references in Chapter 3)

Crucially, APSE believes that local authority innovation in resource efficiency (products, processes, services, or technologies) can actually boost competitiveness and also drive growth by enhancing productive capacity and creating investment and export demand. This is particularly critical during austere times, when Government spending is much less of a contributing factor in growth.

In making this case, APSE appreciates that the system in which local authorities operate is complex, and will naturally vary according to each particular context. So for instance, whilst the policy agenda set by the Coalition Government impacts significantly on both the resources and responsibilities of all UK local authorities, devolution means that councils in Scotland, Wales and Northern Ireland may be on quite a different journey when it comes to resource efficiency or growth. Even within these countries, some may have extra powers. For example, since 2010, two waves of 'City Deals' in England to unlock growth outside of London have resulted in power and money being devolved to the fastest growing cities - ranging from Bristol and Sheffield through to Preston and Sunderland – such as the transfer of transport and skills budgets, along with the ability to borrow against future tax receipts.²⁴

Consequently, what is needed is the adoption of a suitable approach to deal with these complexities.

²² APSE (2012) *Municipal Entrepreneurship* (Manchester: ASPE).

²³ Ibid.

²⁴ Boffey, D. (2012) 'Clegg warns recovery will be 'fitful' as he sets out a plan to breath life into cities', *The Observer* (28 September: 06).

'Systems-thinking' refers to how a small shift in one thing can produce big changes elsewhere. The interventions, or so called 'leverage points', allow us to identify the best places to make tweaks and changes within the system. These can include resource constraints, buffers and other stabilising stocks, information flows, rules of the system and power distribution. Depending on a local authority's particular context, their ability to control or influence each of these directly, indirectly, or if at all, will vary. So, it is a matter of each local authority doing the best it can, given the circumstances, whilst respecting that two points are universally important. First, it is crucial for a local authority to clarify its role and responsibilities in respect of national government(s), businesses, residents and/or other key partners. What a local authority *influences* may be of less importance than what the local authority controls. Secondly, it is vital for local authorities to understand what possible key interventions can be made by each service or functional lead – from asset management and transport infrastructure planning; through to education and neighbourhood liaison. Again, whilst resource efficiency is obviously desirable, the end goal should also always be creating more resilient communities and to achieve this means being able to deal with the whole system.

One particular added value of adopting 'whole systems thinking' is the avoidance of a so-called 'rebound effect'. This means for instance, if resource efficiency improvements cut local business costs and reduce pricing, then more products and services will eventually end up being sold to consumers, with some of the resource savings lost as a result. Local authority targets need to be set to take into account any lost savings from rebound.²⁵

How to use this resource

Written with a public sector audience in mind, this resource can be used as follows:

- **Chapter 3** highlights how UK local authorities are already helping to underpin the green economy through stronger resource efficiency. This includes over 60 case study interviews and other informative examples from peers in Brent, Brighton & Hove, Cambridge, Eastleigh, Essex, Glasgow, Great Yarmouth, Huntingdonshire, Hounslow, Islington, Lambeth, Monmouthshire, Newham, Oxford, Portsmouth, Plymouth, and Reading, amongst others. This is complimented by numerous international examples of good and innovative practice. For alignment with many local authority functions, guidance is tailored towards the following specific areas:
 - Leadership
 - Regeneration and spatial planning
 - Transport and logistics
 - Asset management and procurement
 - Environmental services
 - Neighbourhood management
 - Schools and education.
- **Chapter 4** suggests ways that national government can help local government to do even more when it comes to stronger resource efficiency.
- **Chapter 5** sets out a guide for how the ensuring council can deliver stronger resource efficiency. This includes a checklist of potential interventions based on key leverage points.

The primary object of the publication is to provide a practical toolkit for APSE members on good practice when it comes to stronger resource efficiency (chapters 3 and 5), in terms of councils seeing how peers are being successful in this agenda and suggesting ways to define or enhance their community leadership position for resource efficiency. A secondary objective is to encourage national government to develop new policy to help UK local authorities to do even more (chapter 4).

²⁵ ENDS (2011) 'Doing more with less: the real green economy', *ENDS Report* (440: 40).

3. How are councils instigating and accelerating the green economy transition through stronger resource efficiency?

3.1 Leadership

Understanding what needs to be done is one thing, but having the will to act is another. The political will to lead requires a clear and compelling business case to act when confronted with life's other myriad of struggles. Inspirational and high quality leadership by local government is essential for stronger resource efficiency that supports the big transition to a green economy. There is a major difference between what is *important* and what is a *priority*. Many issues can be important but not all of them can be a priority. Critical here is an understanding of how to mobilise action on resource efficiency in an attractive way to ensure it is a top political priority, on a par with dealing with youth unemployment, violent crime, or even dog fouling in public parks.

Applying this effectively means showing how the agenda is aligned to and supports 'close to home' issues such as the retention and creation of local employment, attracting investment and keeping money circulating in the local economy, as well as helping to reduce operating costs and protecting the local natural environment. This means that driving efficiency is not the final destination, but rather, it is another form of place-based leadership²⁶ a route by which to transform local areas and connect communities to create more desirable livelihoods for everyone. As box 2 on Material Flow Analysis (MFA) highlights, whilst quality data is always useful, more important is how this is applied.

Box 2: Going with the flow, or swimming against the tide?

MFA is a powerful method of ecological footprinting that is used for environmental conservation and prevention of industrial bottlenecks or efficiencies. It can, and has been, applied in the lean manufacturing of products and organisation-wide waste management strategies through to policy-making for urban infrastructure investment. Cities like York (UK) as well as others such as Hanover (Germany) and Paris (France) have all made use of this method. MFA is basically the systematic accounting of the flows and stocks of materials within a system defined in space and time. It connects the sources, the pathways, and the intermediate and final sinks of a material. Given the law of conservation of matter (i.e. energy cannot be created or destroyed), the results of an MFA can be controlled by a simple material balance comparing all inputs, stocks, and outputs of a process. A unit of measure is consumption of natural resources by tonnes per capita.

As far back as 2003, Paris undertook a MFA to determine what and how all resources come into the city-region (e.g. fossil fuels, biomass, metallic minerals, air and water); how these are used (e.g. manufacturing feedstock, utilities, consumer products); and how they leave the area (e.g. emissions to air, waste disposed, exports).²⁷ Nearly a decade later, questions arise about the extent the results of the MFA were applied and difficulties in doing so, how it was linked to creating desirable communities in the city, and whether Paris is closer to operating a local circular economy as a result. A 2010 comparison of Paris' profile against other cities suggests that Paris' patterns of resource consumption are lower than some other developed cities such as Boston (USA) and Sydney (Australia) but are higher than those of Lisbon (Portugal) and London.

Many UK local authorities are already stepping up to the challenge of stronger resource efficiency for desirable communities. Although they all take different forms, cite different language or operate at different levels (e.g. project initiative to industrial to the level of city planning), what is clear is the level of leadership they all demonstrate in resource stewardship.

As noted in chapter 1, industrial symbiosis (IS) is the process by which an organisation's waste – materials, energy, water, expertise and so on – become resources for another organisation. A UK example of this is Cambridgeshire County Council's Guided Busway scheme, which once built will

²⁶ Maddock, S. (2012) 'Public leadership: motivated by values not bonuses', *International Journal of Leadership in Public Services* (8)3, 212-120.

²⁷ International Resource Panel (forthcoming 2013) *City-level Decoupling: Urban Resource Flows and the Governance of Infrastructure Transitions* (Paris: UNEP).

be the world's longest busway covering a distance of more than 25km.²⁸ Working through the UK's National Industrial Symbiosis Programme (NISP), the scheme set out to re-use 'waste' material and shredded tyres were chosen to provide good drainage to fill the 40,000 cubic metres of space between the tracks. (A mixture of soil, seed and ballast was then added to help the grass grow). Using the tyres as virgin aggregate was an obvious choice as not only would they provide adequate drainage, but were also in plentiful supply and were legally required to be reprocessed. Approximately 45 used tyres were needed per cubic metre—and so a total of around 1.8 million tyres have been re-used. In addition to realising significant savings on the project; 60,000 tonnes of virgin materials use been avoided; 6,120 tonnes of CO2 have been reduced; and 1,440 tonnes of water were saved.

As well as at the project level from Cambridgeshire, the IS method can similarly be taken to an industrial scale. The municipality of Kalundborg (near Copenhagen in Denmark)²⁹ boasts that internal collaboration between industries on exchanging resources has amounted to cost savings of £100 million since 1998. Established in the 1970's, Kalundborg's IS comprises seven companies including DONG Energy Asnæs Power Station, Statoil-Hydro Refinery, and pharmaceutical company Novo Nordisk, in addition to Kalundborg Municipality. Each company is bound to each other via an intricate network of flows of steam, gas, water, gypsum, fly ash and sludge.

Other councils are attempting to mainstream resource efficiency at an even greater scale - on a whole city or area basis - through low carbon plans. In simple terms, a low carbon plan is an over-arching method for councils to integrate resource efficient measures into all core activities in their area, using carbon as key metric. Significantly, they also create new wealth in the process.

Low carbon plans take many different forms. One popular instance is the European Commission's Covenant of Mayors initiative which 33 UK cities have signed up to; with 20 of these having gone on to produce a Sustainable Energy Action Plan (SEAP).³⁰ Signatory cities undertake a baseline emissions inventory to quantify and identify principal sources of emissions, they then produce a SEAP setting out how the authority will meet a minimum of 20% CO2 reductions by 2020. The SEAP quantifies the measures needed in specific aspects where the local authority has a specific role to play and sets out timeframes, responsibilities and funding opportunities. Progress is reported every two years. Northumberland County Council is one local authority to have signed the Covenant of Mayors and through its The Heat is On strategy has quantified the measures that will need to be installed in housing and transport by 2020 to achieve its 20.5% reduction target based on the 2005 baseline (e.g. 3,200 solar thermal installation on housing in 2020 compared to 200 installed in 2010).

A variation of the SEAP approach to developing a low carbon plan is the Local Carbon Framework (LCF). The LCF approach involves aligning a local carbon budget to the growth of the green economy. A pioneer of the LCF concept is Plymouth City Council.³¹

Plymouth City Council

Climate Wealth and the City is Plymouth's LCF delivery plan between 2011-2020. The LCF includes examining the size and value of the green economy in Plymouth and provides a forecast of its future growth and it also offers an analysis of both current and future resource and skills needs (most notably in respect of its contribution to a new Marine Energy Park for the South West of England). The outcomes of the work are being reported to the Local Enterprise Partnership (LEP) with the aim of incorporating the intelligence into regional growth plans as well as using it as evidence for the new Core Strategy and Local Plan.

Jackie Young, Plymouth's Sustainable Development Co-ordinator, explains:

"Resource efficiency is a priority for the council, because it is a priority for local business. This has been particularly the case over the past four years due to cost, legal and investment reasons. It is about

²⁸ National Industrial Symbiosis Programme (2012) 'Guided busway never tyres of being green', <http://www.nispnetwork.com/> (website accessed November 2012).

²⁹ Green Futures (2012) 'Industrial symbiosis: a thing worth backing', <http://www.forumforthefuture.org/greenfutures/> (website accessed November 2012).

³⁰ Committee on Climate Change (2012) *How Local Authorities Can Reduce Emissions and Manage Climate Risk* (London: CCC).

³¹ Case interview with Jackie Young, Plymouth City Council (16 November 2012).

resilience. Energy price rises and the Carbon Reduction Commitment are concerns for the local Chamber of Commerce as well as the City Council. At the same time, there is a tremendous regeneration opportunity in terms of inward investment, research and jobs in the wind power supply chain from the marine energy park. Research commissioned for the LCF forecasts that this will create 880 new jobs and add contribute £127million Gross Value Add (GVA) by 2020. So it is important we have a 'framework' to guide the city's transition."

From the 2005 baseline of 1,501,000 tonnes of CO2 Plymouth has adopted the following emission reduction targets:

- A reduction of 15 to 20% by 2013
- A reduction of 35 % by 2020
- A reduction of 35 to 60% by 2035
- A reduction of 60 to 80% by 2050.

One key element to achieving these targets is the development of an energy services company (ESCo). The ESCo will invest in, deliver, manage and expand a district energy network in Plymouth, generating and distributing low carbon heat and electricity to key energy users in the area.

Another vital component of the delivery plan is collaborative working with local partners through its Climate Change Commission and the NI 186 Low Carbon Network (whose current membership includes over 280 businesses). This is in part a recognition that the council only accounts for about 12% of all the city's emissions, but also that other partners are already actively engaged on the topic. For example, other public bodies including the police, fire service and hospitals all have established Carbon Management Programmes and that these agencies are also keen to collaborate on how resource efficiency contributes to social welfare agendas including health, vulnerability and affordable housing.

Stressing the importance of collaborative working inside and outside of the council, Young continues:

"The biggest lesson we learnt is how to develop a smart business case for resource efficiency. You need to focus on core business concerns and to translate this into language that business understands – cost savings, risks over the next two years etc. Good leadership means being able to listen, including internally. So, for example, when we spoke with the Children and Adult Social Care department in the Council it was clear that we could help more vulnerable people if we made efficiencies in the management of resources."

"At the same time, the council recognises its need to do even more, in terms of leading by example, public awareness and business continuity: by counting the cost and simultaneously unlocking the potential." concludes Young.

Application of the LCF concept, or variations of it, is not confined to the UK. *The Low Carbon Development Road Map* for Jilin City (China) – a municipal area the size of Belgium – sets out a plan to improve carbon intensity by 58% by 2020 through a number of measures including increasing building efficiency by 65% with a 30-year pay back period³². Another example cited by UN-Habitat (2012)³³ was in 2009, when South Africa's country's smallest yet most densely populated region, Gauteng, made the first of series of policy and strategic commitments towards a greener economy, and adopted the *Developmental Green Economy Strategy for Gauteng*. This 'green jobs' strategy prioritised sustainable development, it argued for over-arching investments in nontraditional sectors of food, energy and water security, zero waste and sustainable mobility, all in-turn underpinned by programmes for sustainable human settlements through resource efficiency. According to the strategy's 2025 baseline estimate, the potential energy cost savings are £1.3 billion per annum while up to £49.3 million in revenue could be added to the economy each year.

Some councils have adopted a different approach to eradicating wasteful behaviour in their service delivery and the wider community – which look beyond carbon as the key metric - by removing unhelpful choices at source. This is a novel approach to managing resource flows. An example of this

³² Chatham House et al (2010) *Low Carbon Development Road Map for Jilin City* (London: Chatham House).

³³ Ibid.

is in the London Borough of Hounslow which has established a **Green Standard**, designed to measure the green credentials of all the Borough's targets, policies and projects (this has been supported by a green 'toolkit' to measure activities against)³⁴. Similarly, in Clonburris, a new district of Dublin in Ireland, the local authority aims to implement several technological innovations and encourage behavioural changes among resident. During the building phase of the district, recycled and sustainable materials will be used. Energy efficiency and renewable energy will be standard requirements for all new buildings. Local food production will be encouraged through the provision of allotments to all residents and sustainable lifestyles will be further promoted by, for instance, banning tumble dryers and providing communal areas for drying clothes.³⁵

A few councils are even attempting to remove all unhelpful choices to the extent that it reverses historical patterns of unsustainable consumption. In 2011, Middlesbrough Borough Council launched its **One Planet Living Sustainability Action Plan** after public consultation. The plan covered the council's own activities as well as those of its suppliers and the wider community. Through improved energy efficiency and low carbon transport policies and other measures, it aims to achieve a net reduction of CO2 emissions of at least 90% by 2025. A goal of 'zero waste' has been set, to be delivered through improved recycling and composting facilities. Water consumption will be reduced across the city by at least 1.5% per annum. Residents are also be encouraged to purchase local, seasonal, and organic food. Similar to Middlesbrough, Brighton & Hove City Council is currently developing a **One Planet Living** initiative for the city.³⁶ The council states that creating a more sustainable city is one of the council's top five priorities as set out in the Corporate Plan for 2011-15. To realise that vision, the council is intending to create a future where it is easy, attractive and affordable for all of residents to lead happy and healthy lives within a fair share of the earth's resources. This initial three-year programme forms the basis of a twenty five year long term vision to reduce the ecological footprint of the city.

It is evident from these examples of leadership from UK local authorities Plymouth, Cambridgeshire, Northumberland, Hounslow, Middlesborough and Brighton & Hove as well as other councils that the drivers to move to a resource efficient place have very little, if anything, to do with complying with the legal minimum. Powerful business cases have been crafted in local authorities that focus on community well-being, business resilience to resource cost concerns, or adding money to the local economy. Paramount in each business case is that area-wide plans involve the local authority leading by example and taking a long-term view.

3.2 Regeneration and spatial planning

Councils up and down the UK from Barnsley to Essex are rethinking their traditional approaches to resource efficiency, having made a new connection between this and economic development. Approaches range from harnessing resource efficiency, increasing the value of land, to keeping money circulating in the local economy which would otherwise 'leak' to other areas. Going a step further and turning a resource scarcity problem into an export industry able to compete in the £3.3 trillion global market for low carbon goods and services, is an exciting proposition.

Essex County Council is one of a number of forward thinking local authorities that has remodelled its use of land, resulting in greater resource efficiency increases to developer value. Essex is finding more productive uses for its industrial space by filling supply chain gaps for Chinese wind turbine manufacturers. This spatial plan is as a result of us researching and putting together a very specific clustering offer around certain supply chain gaps in the offshore wind industry (for example, quantities and specifications etc).³⁷

There are similar examples from overseas too. Tararua District Council (New Zealand) has examined the options for the alternative use of agricultural land, in terms of growing higher-yield food crops whilst installing wind turbines at the same time. New Songdo City in Incheon (South Korea) is a newly constructed eco-city that has a number of IT-enabled facilities such as high-speed networks

³⁴ London Borough of Hounslow (2012) 'Hounslow sets the standard on sustainability', <http://www.hounslow.gov.uk/> (website accessed November 2012).

³⁵ Joss, S., Tomozeiu, D., Cowley, R. (2011) *Eco-Cities – A Global Survey 2011*, International Eco-Cities Initiative (Westminster: University of Westminster).

³⁶ Brighton & Hove Council (2012) 'One planet city', <http://www.brighton-hove.gov.uk/> (website accessed November 2012).

³⁷ The Guardian Local Government Network Blog (2012) <http://www.guardian.co.uk/local-government-network/>(website accessed November 2012).

and videoconferencing in homes as well as offices, to allow direct access to healthcare, education, or council services.³⁸ Developed in partnership with Cisco, Incheon Municipal Council says this additional 'urban services layer' is generating significant additional returns for developers, ranging from an extra £1.9 per m² up to an extra £8.1 per m², in which services are integrated at the very beginning of a project.

Eco-districts are another example, and are underpinned by the idea that integrated solutions (e.g. in construction, heating, water and waste) are best delivered at the scale of entire districts.³⁹ As part of the Mayor's vision for Stockholm to be fossil fuel free by 2020, the council has invested in new eco-districts, such as Hammarby, which allow the scaling-up of sustainability benefits from individual buildings to whole neighbourhoods. The economic benefits of Stockholm's eco-districts have required substantial investment. For instance, about US \$0.9 billion to 1.1 billion has been invested in Hammarby to date (costs associated with decontaminating the land were particularly high). However, Stockholm is receiving a partial return through land-leasing and selling. Selling the land at the market price of around £1,200 per m² should result in the project being close to break even on the investment in public finance terms. If realised, the wider economic, environmental and social benefits for Stockholm will have been achieved at a relatively low cost. Developers and other companies report that they have also benefited from Stockholm's brand as a 'green leader', capitalising on the export potential of ideas and technologies developed for eco-districts through Symbiocity, a Swedish Trade Council agency.

Some councils are also recognising the wider benefits of an investment in whole area energy efficiency, moving beyond the traditional return from lowering utility bills (i.e. reduced operating costs, affordable heating for residents), to appreciating how it can prevent a significant amount of GDP leaving an area, whilst stimulating job creation too. Barnsley Metropolitan Borough Council is one such example.

Box 3: Preventing money leaking from Barnsley's economy through area-wide energy efficiency

A 2012 study of the Barnsley area (which has an economy worth £2.9 billion a year and an energy bill of £418 million a year) shows it could cut costs by millions through exploiting commercially attractive opportunities in energy and carbon management.⁴⁰ Investments in energy efficiency could be made in homes, public and commercial buildings, as well as to industry and transport, which would pay for themselves in commercial terms over a 4 to 8 year period.

The Barnsley study also finds that around 10% of GDP at the city scale leaves the local economy each year through payment of energy costs and that this will rise substantially over the next decade as energy costs soar. However, it also concluded that by 2022 an area such as Barnsley, by investing 1% of GDP for ten years, would typically lead to cuts in the energy bill worth 1.6% of GDP every year. Moreover, this would cut emissions (based on 1990 levels) by up to 41%. Crucially this would also create jobs, improve energy security and tackle fuel poverty. So for instance, it would lead to the generation of 500 new jobs over the next ten years and add to GVA growth of £53 million each year.

Bespoke efficiency measures include: efficient electronic products and A++ rated white goods; window glazing – single to new; insulated doors; efficient lighting; and reduced household heating by 1°C. This is in conjunction with renewable energy measures such as: mini-wind turbines with Feed in Tariff; and biomass boilers with the Renewable Heat Incentive.

At such an enormous scale as this, questions about where the upfront investment would come from would be obvious. It could be a combination of Energy Company Obligations (ECO), institutional investors such through Energy Efficiency Municipal Bonds, or in the near future through the Green Deal and the Green Investment Bank. The APSE research also suggests that another major source of investment should be local government's own pension funds. The next section looks at this and municipal bonds in more detail.

Barnsley is not unique in this regard, either in the UK or internationally. Portland, is a leader in the US green building industry, has concluded that its initiatives to increase the energy efficiency of buildings in the area have brought a range of economic gains, even during the recent recession. According to

³⁸ Arup (2010) *Smart Cities: Transforming the 21st Century City via the Creative Use of Technology* (London: Arup).

³⁹ LSE Cities et al (2012) *Going Green: How Cities are Leading the Next Economy* (London: LSE).

⁴⁰ Gouldson, A., Kerr, N., Kuylenstierna, J., Topi, C., Dawkins, E., Pearce, R. (2012) *A Mini-Stern for Barnsley: The Economics of Low Carbon Development* (Leeds: Centre for Low Carbon Futures).

the London School of Economics (2012)⁴¹ a five-year analysis of Portland's architects, engineers and other contractors finds that those working on green projects and energy efficient building standards have been more resilient in the downturn and paid higher wages than the peers in the development field.

Delivering urban infrastructure on the scale and level of complexity envisaged by Barnsley and Portland, it is argued by The Climate Group and others, necessitates a new breed of so-called 'smart cities' - ones that deploy smart technologies in key areas such as electricity grids, transport and buildings to unlock information, ideas and energies that create more sustainable modes of living and working. In doing so, up to 15% of world emissions could be cut by 2020 with business also making a financial saving of £574 billion a year.⁴² New York is one test bed for this notion. New York's *Greener, Greater Buildings Plan* showed that 17,000 jobs could be maintained or created while saving the municipality £468 million a year in energy costs. Since 2012, every building in the city over 50,000 square feet will be required to annually benchmark and disclose its energy use. This is one of 132 initiatives in **PlaNYC**, Mayor Bloomberg's data-driven strategy to create a greener, greater New York.

Impressively, a handful of councils in the UK and around the world are realising the 'upside of down', by even turning a resource scarcity problem into a competitive advantage. Most notably through the rise of city-led low carbon Special Enterprise Zones (SEZs) – ranging from waste recycling in Kitakyushu (Japan) and water treatment in Milwaukee (USA) through to ultra-low carbon vehicles in Newcastle (UK). A SEZ is a geographically defined area offering certain incentives (e.g. tax incentives or grants) to businesses that chose to physically locate within the zone. The SEZ is usually one part of an overall economic growth strategy aimed at enhancing the competitiveness of manufacturers and service providers. It is also intended to realise agglomeration benefits from concentrating industries in one geographical area (e.g. efficiencies in government supervision of enterprises, provision of off-site infrastructure, improved environmental controls and increased supply and sub-contracting relationships among industries).

The project in Kitakyushu is an industrial park that has become known for its expertise in waste minimisation. UN-Habitat (2012)⁴³ says that since 1997, the park has aimed to achieve zero emissions and produce zero waste by using all waste as materials in other industries, thus closing resource loops within the park. Taking advantage the area being a cluster of different recycling and reuse factories, residue from one factory is, in turn, used as inputs for others. Unusable industrial wastes are processed for re-use or used to generate electricity. It is estimated to have generated £0.8 billion in direct and indirect investments, and created 6,470 jobs.

In 2010, Newcastle and the wider North East region of England has been designated as an ultra-low carbon vehicle area and it is envisaged that the automotive sector and its related supply chain could soon be worth close to £1 billion in the region. Indeed there are already 430 companies in the region that focus on alternatively-fuelled vehicles.⁴⁴ For instance, it was chosen by Nissan as the location of the mother plant for the company's electric car battery production in Europe.

Another intriguing SEZ example is Milwaukee in terms of pioneering work on water treatment. Milwaukee's story is set out in Box 4.

41 Ibid.

42 The Climate Group *et al* (2012) *Information Marketplaces: The New Economics of Cities* (London: The Climate Group).

43 Ibid.

44 The Environmentalist (2012) 'North east flies higher', *The Environmentalist* (November 2012: 14-16).

Box 4: Upside of down for Milwaukee – from a resource scarcity dilemma to a competitive advantage.

Milwaukee is fast establishing itself as a **World Water Hub** working across every aspect of water management to build a new economic base for the area, as well as to improve the local environment and water systems and enhance residents' quality of life.⁴⁵ Facilitated by Milwaukee County Council, the **World Water Hub** works through collaboration and partnership across the business community – specifically through building a coalition of water technology businesses and services; partnering with State universities in applied research and education of new professionals; improving water quality and sanitation with governance and regulatory systems and most recently, educating and engaging the general public. Despite only being established in 2009, the World Water Hub is already home to 130 water technology companies.

In terms of an export growth opportunity, working in Milwaukee's favour is the global crisis of water scarcity - more than 1 billion people (nearly one-fifth of the world's population) lack access to safe drinking water, according to the UN. It comes as no surprise then that the total value of global water industry is £257 billion.

Milwaukee's expertise is drawn from its own, unique experience. The Great Lakes Ecosystem, in which Milwaukee sits, is under significant, system altering stress. The region faces a variety of water resource problems including ground water overdrafts, chemical pollution from mercury and other contaminants, new sources of contamination by pharmaceuticals and personal care products, to invasive species and exotic pathogens, and widespread beach closing combined sewer overflows and Great Lakes diversions.

It is widely recognised in the scientific community that to advance our understanding of the complex problems that are at the heart of freshwater issues, a multi-disciplinary approach is needed. Built on broad inter-sectoral partnerships the Milwaukee's **World Water Hub** has been formed to actively address this challenge, aimed at maintaining and improving water quality.

Milwaukee's case is particularly fascinating as it raises intriguing questions for UK local authorities. What expertise have they accumulated they can sell on? For instance, with the extremes of flooding the UK is increasingly experiencing, will a council step forward to become this country's first water-related SEZ? Further, will a forward thinking council become the world's first water related SEZ that deals with too much water (i.e. flood alleviation), as opposed to too little water? After all, trade in flood management equipment, technical advisory services and insurance products is surely a significant and booming trade opportunity.

3.3 Transport and logistics

Travel patterns are one of the biggest planning issues local authorities grapple with when it comes to smart use of local resources. This is not just in terms of the fossil fuels consumed to make journeys for domestic, business or recreational purposes (transport accounts for about 14% of all emissions arising from various economic activities⁴⁶), but also with respect to the huge economic losses resulting from traffic congestion (it is estimated to cost 1% of GDP in the EU ⁴⁷).

Given this, a key focus of transport policy in many councils ranging from Eastleigh and Huntingdonshire through to North Lincolnshire has been in relation to i) 'compactness' - the densification of places to help change behaviour and to people feeling able to leave their car at home; ii) the electrification of public travel - a move towards plug-in vehicles; and iii) the greening of municipal fleets (i.e. replacing older polluting vehicles with more modern efficient ones).

Advancing sustainable transport in the UK is a huge undertaking. As statistics from the Department of Transport⁴⁸ show, getting UK citizens to use their car less is a priority when it comes to reducing emissions – 58.3% of domestic travel emissions are produced from cars. Yet, at the same time it represents a formidable challenge too. Consider for instance the mode of travel used for commuting – as depicted in figure 5, walking, using a public bus or car sharing are marginal in comparison to car

⁴⁵ UN Compact Global Cities Programme (2012) 'Milwaukee: maintaining and improving water quality' <http://citiesprogramme.com/> (website accessed November 2012).

⁴⁶ Stern, N. (2006) *Stern Review on the Economics of Climate Change* (London: HM Treasury).

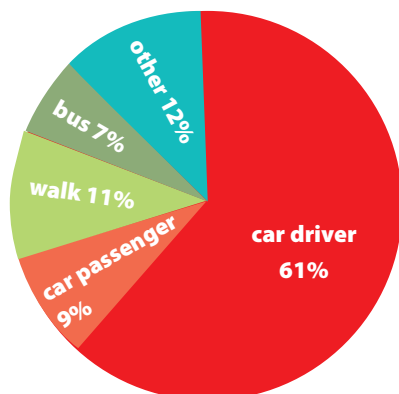
⁴⁷ Global Alliance for EcoMobility (2010) <http://www.ecomobility.org> (website accessed April 2010).

⁴⁸ Department of Transport (2009) *A Carbon Strategy for Transport* (London: Department of Transport).

driving.⁴⁹ To put this dilemma further in context, it is helpful to compare the UK with other European nations in terms of the proportion of journeys made by cycle - the UK is ranked towards the bottom of a league table below The Netherlands, Denmark, Sweden, Germany and France, amongst others.⁵⁰

Given that The Netherlands tops this European league table, it is perhaps not surprising then that in 2007 Amsterdam became the first Western industrialised city where the number of journeys taken by bicycle exceeded those by cars⁵¹ The primary reason for this is the existence of extensive rights-of-way, along with ample bicycle parking, full integration with public transport and comprehensive education and training of cyclists and motorists - all of which serves to make driving less attractive than cycling in the city centre.

Figure 5: Mode of travel used for commuting in the UK



(Source: Department of Transport, 2006)

Whilst the UK legal and cultural context is somewhat different to that of The Netherlands, there are a number of local authorities advancing creative approaches to more sustainable travel planning to encourage people to leave their cars at home. Naturally, this begins with a council practising what it preaches. For instance, Highland Council has reduced the business travel of its 12,000 staff by 27% over four years through its carbon management programme.⁵² A key element of this is a move towards increased use of telephone and video conferencing equipment including training for council staff. The results show that as well as carbon savings, the total costs avoided (in terms of fuel and car use) amount to £119,183. In addition, Highland Council saved £158,000 by incentivising staff to car share). Another example is Huntingdonshire’s sustainable travel planning that is applying similar and other resource efficiency principles on an area-wide basis⁵³

Huntingdonshire District Council

Huntingdonshire District Council is working to implement and translate Cambridgeshire County Council’s third Local Transport Plan (LTP) (2011-2026) at the district level. The aim of the LTP is to reduce car use, increase public transport and active travel, enhance social inclusion, improve staff recruitment and retention, bring financial savings and reduce noise, congestion and pollution. Huntingdonshire intends to lead by example through its corporate Sustainable Travel Plan, which details how the council will implement sustainable travel initiatives amongst its employees, the idea being to encourage local employers to follow suit in travel planning with a wider influence on the residents of the district. This is part of wider strategy to meet the council’s goal of becoming a resource-efficient council as set out in *Growing Awareness - A Plan for Our Environment*.

“Encouraging sustainable travel patterns in Huntingdonshire is a matter of national importance as well as local importance. We are host to the A14 passing through our District, which is part of the Trans-

49 Department of Transport (2006) *National Travel Survey* (London: Department of Transport).

50 The Guardian (2010) ‘How we compare with the rest of Europe’, *The Guardian* (April 2010: 17-18). Credit: European Conference of Ministers for Transport (2004)

51 Brown, L. (2009) *Plan B 4.0: Mobilizing to Save Civilization* (Washington DC: Earth Policy Institute).

52 SD Scene (2012) ‘Reducing Highland Council’s business travel’ (23 October 2012).

53 Case interview with Stuart Bell, Chris Jablonski and Rebecca Webb, Huntingdonshire District Council (23 November 2012).

European Network and, as such, the Cambridge Sub-Region is considered an area fundamental to unlocking UK growth. Yet at the same time, parts of the current infrastructure are unable to cope. It is one of most congested sections of the A14 between the M6 and the East Coast Ports, with frequent delays causing severe disruption to business commuters and international traffic passing through.” explains Stuart Bell, Transport Team Leader, Huntingdonshire District Council.

In addition to the significant economic costs arising from congestion and the contribution of transport to greenhouse gas emissions, at the local level congestion has increased the concentrations of a variety of air pollutants and led to the designation of four Air Quality Management Areas across the district. It has also raised concerns over public safety given the number of road accidents recorded on the route.

This challenge could be intensified following the designation of an Enterprise Zone at ‘Alconbury Weald’ immediately northwest of Huntingdon. A former Ministry of Defence airfield, the site is located at the junction of the A1, which runs north-south, and the A14 running east-west and is at the crossroads to the East of England. Although it has the potential to create 8,000 new jobs, and 5,000 new homes and also benefits from being co-located on the East Coast Main Line, it is a fundamental priority that this is a low-carbon, sustainable development which provides realistic alternatives to the car. “Given this local context and the current austere times, Huntingdonshire’s efforts to reduce reliance on single occupancy car travel and encourage the use of more sustainable travel modes, is focused on a couple of high-impact corridors. A successful bid by Cambridgeshire County Council to the government’s Local Sustainable Transport Fund will allow partners to build capacity to deliver a range of sustainable alternatives, which historically has been a challenge. For instance, our participation in the ‘Travel for Work Partnership, which is run by an independent group based at Cambridgeshire County Council and consists of a network of employers across the county working together to take forward the sustainable travel agenda. In addition, we are also part of a more local ‘Huntingdon cluster’ of employers from the surrounding area. This cluster focuses on a number of large employers located near to each other such as industrial parks, the chamber of commerce, NHS Trust or schools. Here we promote walking and cycling networks, car sharing schemes, and shared car parking season tickets and discounted ticket offers for public transport along key routes (e.g. a Stagecoach route between the rail station and hospital and into Cambridge). So, our role as local planning authority is key to this work.” says Bell.

“To get people in these business clusters to participate, we, alongside Travel to Work, go out to local businesses showcasing what we as a council have done ourselves in this regard. For instance, installing electric vehicle charging points at selected public car parks across the District. Again, this is about leading by example, but also about showing what is possible.” adds Chris Jablonski, the council’s Environment Team Leader.

Another key area of focus is to place an obligation on developers to bring forward a travel plan in their building applications that supports sustainable travel patterns – so there is a ‘net positive impact’ in terms of relieving congestion. For instance, in terms of a planned development at ‘Northbridge’, also on the north-west side of Huntingdon, the transport impact would be such that the developer would be required to retrofit new bus services into existing housing estates and to link key nodes (town centre, rail station, hospital, schools) in order to free up journeys on the highway network. At ‘Alconbury Weald’ the developer aspires to design the development such that a goal of 30% of house dwellers working from home 2 days per week by 2036 will be achieved. Such developments are likely to have penalties imposed by the council if the developer fails to meet travel plan targets per specific number of homes built, which are monitored and remedial targets set. An ultimate penalty can be set whereby a planning permission would restrict the final number of properties to be built for a failing travel plan. This is a massive incentive for the developer as margins dictate that profit is only made on the whole scheme being completed, particularly where infrastructure is all built-out.

Jablonski continues: “Promoting sustainable travel is not just confined to the A14 area. The same principles that underpin our environment strategy plan are being applied across all the four market towns too (St Ives, St Neots, Ramsey and Huntingdon where, working with the County Council, we have Market Town Transport Strategies in place.). In terms of a hierarchy of mode of travel in accordance with the Cambridgeshire LTP3, the pedestrian, cyclist and public transport user are the higher priority, not the car, when it comes to quality of life in Huntingdonshire. This approach has seen a shift away from the car so that walking, cycling and public transport use as a proportion of journeys made is up 18.5% (from just

6%) as an average across the four market towns.”

Huntingdonshire's Environment Strategy Growing Awareness focuses on five impact areas that contribute to managing a resource efficient council: energy, water, travel, procurement and waste. A range of other measures include installing 1,170 PV (photovoltaic) panels on the roof of its main operational depot at Eastfield House, Huntingdon, to generate 166,000 kWh of electricity per year (providing one third of the electricity required for the site) and securing £0.325m income from the government's Feed-In Tariff over the next 25 years. This is part of a wider Carbon Management Plan that will reduce the council's footprint by 30% over a five-year period to 2013/14.

Clearly, it is not just about people leaving their cars at home as this is not always practical, especially for residents with mobility issues or families. Electric cars have no tail pipe emissions and it is estimated could emit between 15% and 40% per cent less CO₂ over its lifetime than a similar sized petrol car⁵⁴. To accelerate the mainstreaming of electric vehicles in the UK, the Government launched the *Plugged-In Places* initiative and local councils are helping with the rollout. In addition, they are also innovating with local business to amplify the results and make best use of limited resources. Eastleigh Borough Council has installed an electric vehicle charging station in its Mitchell Road Multi Storey Car Park to provide free 'top-ups' to local users and encourage uptake, as part of a national charging point network. In conjunction with this, Eastleigh Borough Council is also one of the first local authorities in the UK to get actively involved in the development of a 'pay-as-you-go' electric car club which allows users to book a car over the phone or through the internet, for a minimum of half an hour up to however long the car is needed, paying only for the time the vehicle is in use with Ford Fiesta EOnetic vehicles are available for use by local residents, businesses and visitors to the Borough.⁵⁵ This innovation does not just apply to private vehicles, either. It includes public transport too. From 2013, diesel-powered buses operating a key route in Milton Keynes will be replaced by eight electric buses that can recharge their batteries wirelessly.⁵⁶ This technological innovation means that, for the first time, electric buses will be capable of the equivalent load of their diesel counterparts, removing 500 tonnes of tailpipe emissions each year as well as 45 tonnes of noxious emissions.

As part of 'leading by example' to ensure frontline services are resource efficient, an increasing number of councils have instigated a green fleet review. Such reviews typically looks at four key areas i) vehicle replacement, ii) choice of fuel, iii) use of grey fleet and iv) smarter driving in relation to waste collection wagons, street cleansing vans and business-use cars. A major motivation here for green fleet is obviously savings on fuel costs by reducing car journeys, as highlighted as the Highland Council example above.

Another area of focus is diverting waste from landfill by reclaiming and reusing organic materials as form of vehicle fuel. North Lincolnshire Council is one local authority that has been exploring the option of suitable technology and waste collection contracts that could produce *vehicle grade fuel* for its refuse vehicles.⁵⁷ This is in the form of bio methane from household organic waste. According to United Nations Environment Programme (UNEP) (2012)⁵⁸ Linköping in Sweden is well advanced in this regard - it operates a public transportation system that constitutes a circular, closed loop energy and nutrient cycling system. The bus system is run on biogas obtained from wastewater treatment plants, landfill and a biogas production facility that utilises agricultural crop residues and manure. The entire public bus fleet has run on bio-methane since 2002. (In addition, fertiliser is manufactured as a by-product for use in local farmland).

⁵⁴ Department for Transport (2012) <http://www.dft.gov.uk/topics/sustainable/olev/recharging-electric-vehicles/> (website accessed January 2012).

⁵⁵ Eastleigh Borough Council (2012) 'Eastleigh's 'pay as you go' car club', <http://www.eastleigh.gov.uk> (website accessed November 2012).

⁵⁶ The Environmentalist (2012) 'Charging on the move', *The Environmentalist* (October 2012: 09).

⁵⁷ North Lincolnshire Council (2009) *Waste Contracts Procurement Project* (Scunthorpe: North Lincolnshire)

⁵⁸ UNEP (2012) *Sustainable, Resource Efficient Cities – Making it Happen!* (Paris: UNEP).

3.4 Asset management and procurement

Smart finance as a way to resource low carbon or other solutions is becoming a familiar practice for asset managers or procurement officers in UK local authorities. Arrangements cover revolving funds, municipal pension funds, green municipal bonds and revisions to procurement - saving money, mobilising new investment and helping to create desirable communities.

Corporate revolving funds are one common funding method, which can operate as an internal loan scheme, *whereby you borrow money to fund energy or water efficiency technologies, which is then repaid from the utility savings made as a result* (e.g. street lighting, office utilities). Aberdeen City Council, South Ayrshire Council, Oxford City Council and Glasgow City Council among many others have all made use of these.

Aberdeen City Council's Carbon Management Plan commits the organisation to a target of reducing CO₂ by 23% by 2015 and by 42% by 2020 and will offer financial savings of around £2 million.⁵⁹ The scheme is funded by a revolving fund. This is being achieved through an array of measures including energy and water efficiency in council housing stock and municipal buildings, energy consumption in street lighting, and council fleet and staff travel.

Not all interventions are at such scale, particularly when it involves trialling new technologies or processes, as is the case for South Ayrshire Council in regard to upgrading its street lighting. Advances in modern lighting technology, along with changes in regulations, mean that it is now feasible to achieve energy savings by means of varying street lighting.⁶⁰ A trial on Holmston Road in Ayr, funded by a revolving fund scheme proposed upgrades to old equipment, allowing adjustment of lighting levels to 60% of their full value between midnight and 6am. With a projected annual reduction of 19 tonnes of CO₂ and savings of around £3,250 per year, this project has been so successful that five further installations have been completed and planning is underway for other similar projects in areas in South Ayrshire.

As noted from the outset of this study though, saving money is not solely an end itself - making scarce resources go further is of primary importance to local leaders. Oxford underlines this point with its focus on water consumption.

Box 5: Treating water as a precious corporate asset in Oxford

By actively reducing water use, through the *Sustainability Strategy for Oxford*⁶¹, Oxford City Council understands it will place less demand on a diminishing resource and reduce energy usage and carbon emissions to boot - since water supply and treatment processes consume energy.

Oxford, like many other areas, suffers from too little water and there is now an increasing recognition by the Government that too little rainfall represents a major problem in the UK. For instance, the UK has less available water per person than most other European countries, London is drier than Istanbul, the South East of England has less available water per person than the Sudan or Syria. Water is also periodically scarce in parts of Scotland, Wales and Northern Ireland⁶².

Consequently, Oxford aims to ensure that the water it uses is maintained at the levels of usage from the 2008/09 benchmark and will progressively reduce consumption by 3% per annum from 2010/11 onwards to 2020. Initiatives to achieve this target include using rain harvested water within council buildings and for street cleansing operations where practical, and ensuring all new homes and commercial buildings are encouraged to meet best practice development standards through the Local Development Framework.

Along similar lines, Swansea City and County Council has developed a 'blueprint' sustainable appraisal process for assessing the local authorities asset management plans.

⁵⁹ Aberdeen City Council (2010) *Carbon Management Plan* (Aberdeen: Aberdeen City Council).

⁶⁰ South Ayrshire Council (2012) Sustainable Scotland Network Conference: Poster Compendium (Edinburgh: 8th November 2012).

⁶¹ Oxford City Council (2011) *A Sustainability Strategy for Oxford (2011-2020)* (Oxford: Oxford City Council).

⁶² Waterwise (2009) <http://www.waterwise.org.uk> (website accessed January 2012).

In these austere times, the availability of an in-house budget to finance a revolving fund can be problematic. Glasgow City Council has identified a creative solution to this big squeeze on the public purse.⁶³ The council is working with Business Stream, Scotland's leading non-domestic water supplier, to save the council as much as £1 million in water and waste water costs over four years. Under the pioneering new 'gainshare' commercial model, Business Stream has funded investment in new water efficiency infrastructure which will allow Glasgow to benefit from the associated financial savings without the need for up-front capital expenditure. Water saving devices have been introduced including urinal controls, water saving taps and toilet flush volume reducers, and Business Stream engineers have been working with the authority to deliver services such as leak detection and repair. The gainshare model means that Business Stream shares a proportion of the expenditure savings made by Glasgow City Council each year – thus it is a win, win situation for all concerned as Business Stream put up the investment money the council did not want to, yet the council was able to save money through the investment.

Glasgow is not alone when it comes to innovative financial mechanisms to liberate assets – local government in the UK and around the world has a long track record as a pioneer. The same can be said today for the new use of municipal pension funds and municipal bonds.

APSE has long argued that local government pensions funds (worth more than £120 billion) should be redirected to support local, low carbon growth⁶⁴ and so welcomes Greater Manchester's announcement in 2012 of a new housing investment model to bring new housing developments into the area, financed by the Greater Manchester LGPS Pension Fund.⁶⁵ The Fund has £11 billion in assets under management. It currently invests 1% locally, but plans to increase this to 5% over the coming years - this housing scheme will support that and develop 240 new homes in the area. Whilst this practice is novel in the UK today, it is a common intervention in the US such as in California and Ontario, which invest municipal funds in local under-served markets and public infrastructure. Ironically, Ontario also invests in UK public transport infrastructure too! APSE hopes the action of Greater Manchester Pension Fund will encourage other investable local projects to come forward. Area-wide energy and water efficiency schemes perhaps being fertile ground given the calculations made by Barnsley in this chapter. Another financial innovation is the advent of green municipal bonds, led by Southampton City Council.

Box 6: Southampton as a pioneer of Green Municipal Bonds

Southampton City Council is examining the option to create a consortium up to ten councils that would form an investment vehicle to borrow at least £100m from the bond market to invest in energy efficiency and renewable energy schemes.⁶⁶ The move is intended to open up access to possible European match funding for green investments that would be unavailable if town halls borrowed through the Public Works Loan Board (PWLB). The plan builds on that by Birmingham City Council's *Energy Savers initiative* where the city council contributes to the cost of improving energy efficiency in 60,000 homes (now linked to the new 'Green Deal' initiative). Southampton's intention is that councils smaller than Birmingham could work as a group to better access funds from the private market.

Prior to Birmingham and Southampton, the most recent use of bonds by a local authority was the Greater London Authority's 2011 funding of the Crossrail scheme as, although for large parts of the 20th Century municipal bonds were an important way of raising money for UK local authorities, very few have been undertaken since the 1980s. This change was a result of the PWLB offering money at a rate that has almost always been cheaper than that of a bond. However, the interest rate on PWLB loans has changed over past few years, raising the attraction for local authorities to examine the bond market again.

But the green municipal bond market is not restricted to just energy and transport initiatives such as

⁶³ Business Stream (2011) 'Innovative public sector model from Business Stream to save Glasgow City Council up to £1m in water costs' <http://www.business-stream.co.uk> (website accessed November 2012).

⁶⁴ APSE (2010) 'Investing local government pension funds in regeneration schemes', *APSE direct news* (August/September 2010: 12).

⁶⁵ The Smith Institute *et al* (2012) *Local Authority Pension Funds: Investing for Growth* (London: The Smith Institute).

⁶⁶ Public Finance (2012) 'Councils weight up bond bid', <http://www.publicfinance.co.uk> (website accessed November 2012).

those in Southampton and Ontario. According to a global study by the Climate Bonds Initiative, there is also a market in forestry, pollution control and water.⁶⁷ For instance, in terms of water, at present there are £122 billion of bonds issued by utilities and US municipals, which raises the spectre for local government issuers to link bonds more clearly with water conservation and flood prevention measures. Given that some cities like Milwaukee (as noted earlier in this chapter) are also developing enterprise zones that trade in water technology clusters, the evolution of the municipal bond market to encompass water efficiency and flood prevention perhaps presents a whole new asset management angle for UK local authorities to explore.

One further way local authorities are being canny with money is applying environmental standards to procurement criteria, ranging from office cleaning to kerbside recycling collections. Examples from Reykjavik (Iceland), Cambridge and Sunderland all show the benefits of looking again at an authority's procurement. Since 2009, the City of Reykjavik procurement office's implementation team has stated a clear commitment that all cleaning service providers need be certified under ISO 14001 or are Nordic Swan (or comparable) eco-labeled.⁶⁸ Subsequently, when the cleaning contract for the new city office building and of 63 kindergartens came up for tender the new procurement rules proved to be a major breakthrough in terms of environmental protection, green cleaning and market development for green products and services. Reykjavik increased the proportion of green cleaning services to traditional cleansing services purchased by the city government from almost zero in 2009 to 74 percent in 2011, with 95 percent of chemicals used being eco-labeled. A 65 percent decrease in chemical consumption for the new office building and 33 percent from the kindergartens has been estimated. The financial gains have been equally impressive; cleaning costs have been reduced by 50 percent through the tenders mentioned, totaling an annual saving of £480,000.

Similarly, using the environmental management system ISO 14001 has given Cambridge City Council a framework within which it can not only identify financial efficiencies, but also minimise the effects of its activities on the environment.⁶⁹ ISO 14001 has also enabled the Council to focus on key environmental issues, thereby allowing it to target resources directly into areas which will achieve the greatest effect. For instance, in terms of waste and fleet management, the Council has piloted a new type of refuse bin lift with the aim of reducing carbon emissions and fuel costs by as much as 13% on refuse collection vehicles. The Council hopes that by introducing more efficient kerbside recycling techniques, more efficient vehicles and by using non-hydraulic rear bin lifts it will not only reduce fuel use, but also lower crew and ambient public noise levels.

In 2010, Sunderland City Council underwent a restructure that led to the closure of buildings across the city. As offices were vacated, large quantities of office-related resources including furniture, equipment and supplies became redundant. Rather than send these to landfill, the council signed up to the WARP-it re-use scheme, which logs available resources and allocate it to new users in just nine months, the new scheme resulted in over £45,000 of cost savings, diverted 9.4 tonnes from landfill and saved over 24 tonnes of CO₂.⁷⁰

3.5 Environmental services

Environmental health, waste collection, parks maintenance and street cleansing are all key services for local authorities, partly due to compliance requirements with EU or UK law, but mostly because safe, clean and green places are a top priority for most, if not all, residents. Maintaining these frontline services is a major strain on the public purse (especially during times of austerity). So it is heartening that from local authorities such as the London Borough of Brent, Great Yarmouth Borough Council through to London Borough of Newham are continuing to work to squeeze optimum value from limited resources. These range from seeing waste not as a useless material but instead as a resource flow which can be converted into a more productive asset such as local renewable energy; building capacity in the local food industry to improve food safety; increasing customer satisfaction whilst lower council service costs; or by extracting additional benefit from already valued green spaces by

⁶⁷ Climate Bonds Initiative (2012) *Bonds and Climate Change: The State of the Market in 2012* (London: Climate Bonds Initiative)

⁶⁸ Federal German Ministry for Economic Cooperation and Development (2012) *Key Messages on Green Urban Economy from Bonn to Rio* (Bonn: BMZ).

⁶⁹ BSI (2009) *ISO 14001 – Environmental Management System : Case Study Cambridge City Council* (London: BSI).

⁷⁰ WRAP (2011) *Office Re-use Scheme Furnishes Council with Cost Savings* (Oxon: WRAP).

avoiding the huge cost of flood damage.

In terms of the waste hierarchy, councils understand that prevention is the first priority, followed by recovery and re-use. The London Borough of Brent is a good example of this by switching to alternative weekly refuse collection to stimulate more recycling.

Box 7: Brent's alternate weekly collection service

In 2010 the London Borough of Brent approved plans to overhaul its waste operations by moving to alternate weekly collections and introducing co-mingled kerbside recycling, in a move that will save it £500,000 a year on waste collection and disposal costs by 2013 and boost landfill diversion.⁷¹

At the time 80,000 households in Brent received weekly residual waste collections using wheeled bins and a compulsory kerbside separated recycling collection using a green box. Of these, 60,000 households were also receiving a weekly collection of food and garden waste and cardboard using a wheeled bin, while around 25,000 flats received bulk bin collections of residual waste and some flats have access to bring site collections of recycling.

Recycling rates across the Borough had been about 30% for a couple of years, so Brent knew it had to act both due to external drivers and the cost of disposal going up (Brent forecasted that if it successfully introduced this new system, it would help meet its long-term EU derived target of a recycling rate of 50%).

Under the new service arrangements introduced in 2011, Brent, working with its contractor Veolia Environmental Services, changed the service for low-rise properties to involve a fortnightly collection of residual waste - with a no side-waste policy. On the alternate week, householders now receive a commingled recycling collection, including cardboard which is collected alongside food and garden waste, as well as mixed plastics and tetrapaks. At the same time, the weekly collections of food and garden waste are being expanded to cover all 88,000 households, who all receive a kitchen caddy.

International examples are insightful here too. Yokohama (Japan) also has an integrated approach to waste management which, combined with community engagement, has reduced solid waste by 39% (not least at a time when its population actually grew by 170,000). The G30 plan (G = garbage; 30 = a 30 percent reduction in waste generation by fiscal year 2010) commenced in 2003, with environmental education and various promotional activities related to waste reduction undertaken to enhance the awareness and knowledge of residents and the business community. This saved Yokohama £0.7 billion which would have otherwise been needed to fund the renewal of two incinerators, as well as £3.7 million annual operation and maintenance costs.⁷² However, waste prevention is not always possible and so recovering energy from municipal waste is an increasingly popular way to help divert all waste from going to landfill. It not only avoids disposal costs and secures local low carbon energy supplies that contribute to a local Sustainable Energy Action Plan (SEAP), but it can even generate a new source of income. According to the Committee on Climate Change (2012)⁷³ Flensburg in Germany has the highest connection rate to district heating anywhere in the country, with 98% of buildings supplied with heat from the 80% efficient central combined heat and power (CHP) plant. Until 2007, the plant was exclusively coal-fired but is now co-firing with up to 25% waste-derived fuel and wood chip. The council-owned energy company has committed to switch the heat network to 100% renewable energy by 2050.

In the UK, Leicester City Council is a pioneer of energy-from-waste techniques through the use of anaerobic digestion (AD) technologies that diverts food waste from 126,000 households. This utilises organic waste, which accounts for about two thirds of all household waste (of which 18% is kitchen food).⁷⁴ AD is a treatment that composts organic waste in the absence of oxygen, producing a biogas that can be used to generate electricity and heat. It is estimated that AD could produce enough 100% renewable electricity to supply nearly a million UK households.⁷⁵ A main driver for introducing an AD scheme was Leicester City Council's ability to collect food waste separately, given its urban setting, limited pavement space for kerbside containers and that Leicester separates wheeled bin waste into

⁷¹ Materials Recycling World (2010) 'Brent plots major overhaul of recycling service', <http://www.mrw.co.uk> (website accessed November 2012).

⁷² The World Bank (2010) *Eco² Cities: Ecological Cities as Economic Cities* (Washington DC: The World Bank).

⁷³ Committee on Climate Change (2012) *How Local Authorities Can Reduce Emissions and Manage Climate Risk* (London: CCC).

⁷⁴ DEFRA (2007) *Composition of Local Authority Collected Waste*, <http://www.defra.gov.uk/> (website accessed January 2012).

⁷⁵ Friends of the Earth (2007) *Briefing – Anaerobic Digestion* (London: Friends of the Earth).

metals, plastics/cardboards, unrecyclable waste streams, as well as organic waste. Leicester's new collection scheme is funded through a public-private partnership. As well as developing this type of hard infrastructure, local authority environmental services teams are also working to build softer capacity on stronger resource efficiency, most notably amongst the business community or developers through voluntary standards and empowerment initiatives.

Intended to move away from an enforcement-based only approach, some councils take a 'nudge' approach in addition to penalising lack of behaviour change. Two examples of this can be seen in Florida (USA) and Great Yarmouth (UK) respectively. *Florida Water Star* is a voluntary, third-party certification for increased water efficiency in residential homes, specific to Florida's water needs.⁷⁶ It addresses landscape, irrigation and indoor features on the residential, commercial or community level. This is designed to encourage greater water stewardship. Florida also imposes water restrictions during times of drought (such as hosepipe bans) – people who flout the ban can be arrested and taken in jail. Another great example is Great Yarmouth's re-design of its food safety service.

Great Yarmouth Borough Council

"Our primary motivation in re-designing the food safety service was to enhance the council's ability to ensure food is safe for public consumption, which is to refocus on our core purpose and not to look primarily at cost cutting or other targets. Through a systems thinking approach we have successfully boosted service performance and increased customer satisfaction, but also managed to avoid waste and reduce operating costs as a secondary benefit" explains Kate Watts, Environmental Health Service Manager at Great Yarmouth Borough Council.⁷⁷

Great Yarmouth currently provides a statutory food safety service, which sits within the Environmental Health Department. A council review of the food safety service was precipitated by an audit in 2004 by the Food Standards Agency (FSA) (the governmental body that oversees the delivery of food safety within each Local Authority). The FSA audit - which was undertaken prior to Watts joining the department - concluded that whilst the council was able to demonstrate a well established emphasis on supporting and assisting local food businesses to meet legal standards, internal monitoring procedures were not effective, and there was a significant backlog of inspections and several high risk premises had not been visited by minimum inspection frequencies.

Given the current adverse spending climate, the department was not in a position to request more resources to correct the situation – so the starting point was to address the capability failing within existing resources. With the support of Improvement East (the regional improvement and efficiency partnership), a service review, redesign and re-launch was carried out over an 18-month period.

"The systems thinking approach included listening to local food businesses about what they wanted from us - the response was that they valued our service most in terms of providing a critical advisory service (after all, businesses understand that poor food safety is bad for business, so it is in everyone's interest to get this right). Then as part of looking at the existing service, we mapped each of the steps, from food inspection to business sign-off. There were 164 steps in total, of which more than 100 were related to office administration after inspection had taken place and included some duplicative and unnecessary activities. This helped us with re-thinking the purpose of the service: our goal is now to make sure food is safe for public consumption, not to solely focus on compliance. Tinkering around the edges of the service would not help us meet this goal, so we started with blank piece of paper in terms of a re-design. We trialled different approaches with businesses, and then on the basis of what was most effective we made a change" continues Watts.

An outcome of the re-design is that when Great Yarmouth now goes out to visit a food business it is to do an 'assessment', not to an 'inspection'. These assessments are needs based. If a business is already known to the council already, it may simply involve verifying existing records and a physical check to see if it is still safe or unsafe. So, now when the council completes an assessment the business will get a visit report prioritising corrective actions into unsafes, those works that are critical to ensure food

⁷⁶ University of Wisconsin-Milwaukee (2010) *Water Markets of the United States and the World* (Wisconsin: University of Wisconsin-Milwaukee).

⁷⁷ Case interview with Kate Watts, Great Yarmouth Borough Council (28 November 2012).

safety, and legislative breaches. If a business has unsafe identified the authority will plan a schedule of works to ensure these issues are addressed. These works are simply not revisiting to check, but seek to empower the business with the upstanding of risk and what they need to do to ensure the risk is resolved in the long term.

“Previously, some businesses did not know how to resolve a problem, even though they were willing to take action, so the officer explains what they need to do. More than this, we also offer supportive action to empower and build capacity. Literally, we show them how to do it, for instance, washing hands before preparing food, cleaning demonstrations or going as far as organising a Curry Chef Competition. As part of this approach we also target new businesses, as if we get to them early it prevents problems occurring further down the line. It is about long-term sustainability.”

The council now uses public complaints data as a method to prioritise selection of businesses to be assessed as the statistics show that 68% of those who are assessed following a complaint end up failing. The Council also works with partner agencies such as Trading Standards and business support initiatives to help businesses do the right thing, and support the good businesses.

As a result the food safety service team in Great Yarmouth now spend more time off-site and less time doing office administration. This has led to an improvement in service performance whereby there is no longer any case backlog and 100% of businesses visited are deemed safe typically after three assessments. On top of this, the service has achieved an operational cost saving of £60,000 on the basis that much less time is taken undertaking duplicative and unnecessary office administrative duties.

Another area where environmental services are making best use of available resources is in terms of green spaces. Local government policy on ‘green infrastructure’ continues to mature as it recognises the value of joining up green spaces (e.g. urban parks and natural play areas, woodlands, local wildlife sites and nature reserves, allotments and community gardens and other open spaces) to create ‘corridors’ which are far more than the sum of their parts. The interpretation of value here goes beyond purely ecological and social - in terms of recreation, health and biodiversity concerns - to also include economical ones. A view of natural landscapes can add 18% to property values, green spaces near workplaces can reduce sickness absence and increase labour productivity, and they can also act as a flood defence and urban coolant as well as reduce utility bills.⁷⁸

Copenhagen is a local authority that takes the economic value of green infrastructure very seriously. In August 2011 the city approved its first climate adaptation strategy, in part motivated by the need to respond to the threat of increased rainfall (dramatically demonstrated in July of the same year, where the city was hit by a severe storm that led to widespread flooding).⁷⁹ It was the second time in ten months that Copenhagen had to deal with the same experience, a situation that is anticipated to worsen in the coming years. The aim of the strategy is to integrate adaptation measures with other planning initiatives that improve people’s quality of life, for instance, to increase green parks, lakes, streams and ponds. Such ‘greener’ local drainage of rainwater and diversion of storm water is one third cheaper than traditional measures (such as an expansion of the sewer network). Furthermore, whilst the cost of adaptation are high (up to £3.8 billion), the price of repairing damage is even higher (up to £2.5 billion) – and yields a potential saving of up to £1.3 billion.

Through its Strategic Flood Risk Assessment (SFRA), a forward-thinking UK council like the London Borough of Newham understands that incorporating Sustainable Drainage Systems (SUDS) and grey water reuse systems into new developments or redevelopments is one way to alleviate flood risk.⁸⁰ Newham contains localised areas that are prone to flooding from a range of processes including: fluvial, tidal, surface water, sewer, groundwater, as well as and flooding from artificial sources. SUDS aim to control surface water runoff as close to its origin as possible, before it is discharged to a watercourse or sewer. This involves moving away from traditional piped drainage systems towards softer engineering

⁷⁸ Natural England (2009) *The Economic Value of Green Infrastructure* (Sheffield: Natural England).

⁷⁹ Leonardsen, L. (2012) ‘Financing climate change adaptation: the Copenhagen case’ in *Resilient Cities 2: Cities and Adaptation to Climate Change*, ed. Otto-Zimmerman, K. (Freiburg: Springer).

⁸⁰ London Borough of Newham (2010) *London Borough of Newham Strategic Flood Risk Assessment* (London: London Borough of Newham).

solutions that seek to mimic natural drainage regimes (e.g. ponds, shallow wetlands). SUDS have many advantages in addition to reducing flood risk, such as improving water quality, encouraging groundwater recharge and providing amenity and wildlife benefits.

Green spaces can contribute to resource efficiency in others ways too, such as in terms of lowering utility bills. Washington DC's *Living City* project plans to retro-fit an existing mixed-use urban community and engage with building and business owners, residents, civic and neighbourhood associations (as well as DC city government), to transform the area into a model of energy and resource efficiency. The aim is to do this whilst preserving the current buildings, uses and neighbourhood character. Achieving a 50% reduction in energy use by 2013 and a 75% reduction by 2015 is to be achieved through the installation of green roofs, green storm water infrastructure and organic community gardening.⁸¹

3.6 Neighbourhood management

Promoting stronger resource efficiency in neighbourhoods is about ensuring investments in compact infrastructure compliment local authority efforts to work with residents to enhance quality of life – protecting the vulnerable, connecting communities to break down silos, boosting local capacity for self-help and place-shaping.

To do this, it is important to appreciate the carbon footprint of the typical UK person and then understand how this relates to quality of life:⁸² For a typical UK person their carbon footprint breaks down as follows: heat and electricity (23%), food (29%), travel (13%), leisure goods (17%) and clothing / household goods (13%). This is particularly relevant during an economic downturn when the rising cost of energy (89%) and food (83%) continues to top the list of consumer concerns.⁸³

The London Borough of Islington and Seattle (USA) are two good examples of how local authorities are working with people to shape places the way residents want them to be, in terms of heat, electricity and food respectively.

London Borough of Islington

Making buildings more energy efficient has the largest potential of all measures to reduce greenhouse gas emissions. Emissions from buildings contributed 35% of the total UK emissions in 2011 (66% of which are residential).⁸⁴ However, the scale of the retrofit challenge in the UK is enormous – the Energy Saving Trust (EST) concludes that one building would need to be given a 'green makeover' each minute from 2012 until 2050 for the UK to meet its carbon budget targets.

The London Borough of Islington recognises the size of the problem and has a longstanding commitment to take action, with a target to reduce carbon emissions by 40% by 2050. Its Energy Advice Centre offers help on ways to reduce resident's energy use and save money. The Borough's advice is part of a shared-service with number other London councils including Hackney and Lewisham, amongst others, comprising a team of twenty serving approximately 750,000 customers every year. Whilst its service approach may have changed over time, Islington's commitment to taking action on energy advice dates back more than two decades. Andrew Ford, Energy Advice Manager explains "Our motivation for aiding residents to reduce energy use is tackling fuel poverty. We understand that by supporting people to lower their environmental footprint it helps vulnerable groups and advances our Decent Homes goals. Ultimately, it is about the kind of Islington we want to see in the future."⁸⁵

Despite its wealthy image, Islington is the fourteenth most deprived local authority in England, with vast extremes of rich and poor and the Islington Fairness Commission (IFC) was set up in June 2010 to look into how to make the borough a fairer place. Informed by evidence from the IFC, the housing agenda is rated as one of the major concerns for residents and, consequently, eradicating fuel poverty is a top political priority in Islington.

81 Joss, S., Tomozeiu, D., Cowley, R. (2011) *Eco-Cities – A Global Survey 2011*, International Eco-Cities Initiative (Westminster: University of Westminster).

82 Vaze, P. (2009) *The Economical Environmentalist* (London: Earthscan).

83 Which? Ltd (2011) *Rising Cost of Energy Tops Consumers' Concerns*, <http://www.which.co.uk/> (website accessed January 2012).

84 The Environmentalist (2012) 'Makeover SOS', *The Environmentalist* (October 2012: 17-20).

85 Case interview with Andrew Ford, London Borough of Islington (16 November 2012).

“One challenge we face is that many of the residential buildings that are home to vulnerable groups are ‘hard to treat’ - built pre-1900 with solid walls or are in conservation areas. So a key part of our response, given this context, is a Borough-wide boiler replacement programme. It involves a £3 million grant scheme to replace every single G-rated (energy inefficient) boiler in Islington. This universal scheme aims to retire about 1,000 old boilers in total and not only involves offering financial aid, but also visiting people in their homes to persuade them of the case for change. Literally, we have a team of six people called Energy Doctors knocking on doors throughout the Borough to encourage take-up as well as offer general energy saving tips to help reduce their bills and improve housing quality.” says Ford. This approach has the added benefit of delivering on wider health-related problems too. Notably, responding to an EU target for Greater London to reduce its air pollution levels.

Another core element of Islington’s approach to implementation is working in partnership with local agencies, such as the housing associations, the fire service and public health authorities. For instance, the *Season Health and Affordable Warmth Strategy* developed by the council in partnership with NHS Islington that includes Shine, a seasonal health intervention network. This sees council teams working with district nurses to target vulnerable people with breathing difficulties or blood disorders, to make sure they are using their heating system properly or are on the right energy tariff and have draft proofing. (Measures which are either free or are modest investments with an attractive payback are prioritised).

In 2011/12 alone, 4,000 households benefited from Islington’s energy advice services, through a total of 9,000 interventions involving insulation installations, boiler replacement or health advice improvements.

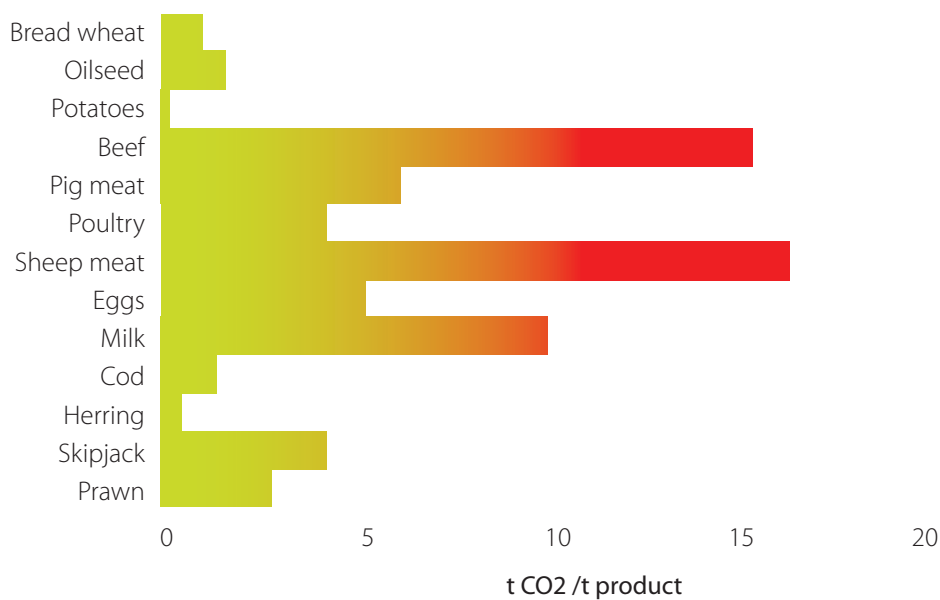
However, Ford concludes by highlighting additional ways in which the council could be enabled to help further “Data quality and data sharing to allow us to identify the right households and the appropriate measure is fundamentally important to delivering a cost effective service when it comes to fuel poverty. We are already doing a lot, for instance, working with the EST at the super output level or by bringing public health back inside the council (given that five or more agencies could be carrying out separate vulnerability checks ranging from age, health and welfare). However, knowledge management and data confidentially appears to be a barrier to us doing more. It would help tremendously if the Department for Work and Pensions and Department for Energy and Climate Change could, in some way, allow us greater access to the necessary data at the household level. This would increase the cost effectiveness and performance outcomes of council services when it comes to fuel poverty”.

Urban agriculture is a great way to get healthy, save money, lower personal environmental footprint and connect with others - involving growing food and rearing small livestock such as chickens and goats, as well as keeping bees. Seattle’s *Grow Food in the City* initiative makes it easy for residents to grow food in small places by providing the know-how or space to get involved.⁸⁶ It also ‘debunks’ myths or correcting misconceptions about the benefits of, and people’s right to, cultivate public land. Actions include growing food vertically on balconies (e.g. beans or cucumbers), planting strips (e.g. areas between the pavement and road in parking spaces) and urban garden sharing (i.e. community gardening). Local food growing is resource efficient in many ways by lowering household food bills and making use of redundant local land, as well as avoiding the huge carbon footprint associated with some commodities (as figure 6 illustrates)⁸⁷. Just 18% of emissions arising from eating are associated with its cooking and preparation – a massive 82% comes from production, retail and transport (i.e. fertilisers, agriculture and fisheries, freight and packaging).

⁸⁶ City of Seattle (2010) *Growing Food in the City* (Seattle: City of Seattle)

⁸⁷ Vaze, P. (2009) *The Economical Environmentalist* (London: Earthscan).

Figure 6: Carbon emissions arising from different foods



(Source: Vaze, 2009)

More than this, according to the Food for Life Partnership (an alliance including the Health Education Trust and the Soil Association), growing food locally in the UK also helps keep money circulating in the local economy – £3 in value can be created for every £1 spent.⁸⁸

Residents doing things together is not just confined to food though. Collaborative consumption initiatives are now common practice in places from Knowsley and Monmouthshire through to Tokyo (Japan). Everything from clothes and books to DVDs and furniture has been exchanged by residents in Kirkby, Halewood and other parts of Knowsley in a bid to connect communities and help the environment.⁸⁹ The *Swap Day* initiative was introduced by Knowsley Metropolitan Borough Council, Knowsley Housing Trust and residents association in 2010 to prolong the life of really useful items in a way that helps with household bills, brings residents together and prevents items unnecessarily going to landfill. Tokyo Metropolitan Government operates a similar scheme to Knowsley, but with a focus on involving children. Through its flea markets, children are encouraged to sell unwanted toys and other belongings, the idea is teach them both about responsible consumption and also how to manage money. Back in the UK, Monmouthshire County Council has had a service level agreement with the community business Homemakers to collect bulky waste items.⁹⁰ The agreement means Homemakers receive the fee paid by residents for collection and also a payment for every tonne of bulky waste diverted from landfill. The business collects and refurbishes unwanted furniture and other household goods and re-sells items at affordable prices to residents in need of good quality household items. Homemakers diverts about 5 - 6 tonnes of bulky waste per month from landfill. Since the SLA was established in 2005, Homemakers has collected nearly 9,000 items of furniture from across the county. In 2010 alone they supported over 1,500 households by providing low cost packages of furniture, sold 254 tonnes of furniture for re-use, provided work experience and training to 60 people (including serving prisoners from HMP Pescoed) and provided employment for 4 people.

A more recent process innovation that enables residents to consume together is 'collective switching' for hard-to-reach households. The idea builds upon imperatives to keep energy bills low through regular price comparison and switching of suppliers. By doing this collectively with other consumers better deals are sought than by switching independently. Cornwall County Council and Surrey County Council are both now helping thousands of households through an auction system to make it easier get a better deal from a new supplier. Surrey calculated this could save households as much as £250

⁸⁸ Food for Life Partnership (2011) *Good Food for All* (Bristol: Food for Life Partnership).

⁸⁹ Liverpool Echo (2010) 'Swap shop to help the planet and your pocket', <http://www.liverpooecho.co.uk> (website accessed November 2012).

⁹⁰ WRAP (2011) *Bulky Waste Re-use Partners in Monmouthshire* (Oxon: WRAP).

per annum, particularly if the energy supplier has not been switched for a long time.⁹¹ The *Cornwall Together* scheme estimates it could deliver Cornish households and businesses up to an estimated £3.7million worth of savings.⁹² An earlier pioneer of the broader collective buying notion was the London Borough of Lambeth, through its lauded Brixton Energy. Supported by the council, the community-owned solar energy housing initiative generates profits through the Feed-In Tariff that contribute a local energy efficiency fund.⁹³

3.7 Education and schools

From Brent and Reading through to Portsmouth, councils across the UK recognise that updating and refreshing learning and skills are vital to stronger resource efficiency at the local level. This means awareness raising efforts in neighbourhoods should be in complement to actions that build the capability of local business as well as raise formal educational standards.

One important technique is celebrating the 'art of the possible' – opening people's eyes to new ways of behaving in a practical and attractive way. BITES (Belfast City Council), ECOPROFIT (Government of Munich, Germany) and Green Works (State of Pennsylvania, USA) are all examples of local government instigated initiatives to show local businesses why and how they can and should become more resource efficient. This is in terms of the cost savings that can be realised from eco-efficiency (Belfast and Munich) or the value of remediating brownfield sites through land price rises (Pennsylvania).⁹⁴
⁹⁵ Also, Krakow (Poland) and Portsmouth have adopted novel methods to 'nudge' the general public in the right direction. The Municipality of Krakow's *Festival of Recycling* is an annual event that aims to demonstrate to residents that material recycling and reuse are not an abstract notion, isolated from every day life. In addition to music concerts and technical seminars (with instruments and structures all made from reclaimed materials), any attending resident who brings recyclables with them can exchange them for plant seedlings or other small green gifts (Monaghan, 2010).

Another way of opening people's eyes to what is possible is through peer-to-peer green community schemes. Portsmouth City Council is one council building community capacity through its *Green Neighbours* challenges, as detailed below.

Portsmouth City Council

Initiated in July 2012, *Green Neighbours* are local people in Portsmouth who volunteer to help the council share information about energy saving and recycling with people in their area and build a 'greener' community. Anyone and everyone can get involved, whether they already have handy green hints and tips from their own experience or are interested in finding out more.

"The story behind Green Neighbours is that the council needs to find a way to regenerate the city that responds to the Government's Big Society call at the same time as public spending pressures. We see the new project as a way to raise local awareness to reduce residents' carbon footprint through the 'nudge' technique. A big focus with households is on reducing food waste and energy bills." explains Spencer Dawson, Senior Environment and Recycling Officer, Portsmouth City Council.⁹⁶

Nudge theory is based on idea that people do not automatically do the right thing but will respond if the best option is highlighted – which is increasingly seen as one valuable way to get community members to act.

The project is being trialled in two areas of Portsmouth -Milton and Paulsgrove - which represent a total of 11,000 households (which represent about one eighth of households in the Portsmouth area).

⁹¹ Surrey County Council (2012) 'Collective switching – energy supply', <http://www.surreycc.gov.uk/> (website accessed November 2012).

⁹² DECC (2012) 'Ed Davey launches collective switching scheme Cornwall Together' <http://www.decc.gov.uk/> (website accessed November 2012).

⁹³ Brixton Energy (2012) 'Community energy efficiency fund', <https://brixtonenergy.co.uk> (website accessed November 2012).

⁹⁴ Sustainable Northern Ireland (2012) *Achieving Sustainable Communities: An Implementation Manual for Local Government* (Belfast: Sustainable NI).

⁹⁵ Monaghan, P. (2012) *How Local Resilience Creates Sustainable Societies* (London: Earthscan).

⁹⁶ Case interview with Spencer Dawson, Portsmouth City Council (22 November 2012).

These areas were chosen as they provided contrasting representative groups of society. Milton is a typical inner city community with people from different backgrounds and status with moderate levels of fuel poverty. Paulsgrove is mostly a deprived area, made up of inner city social housing, with older 'hard to treat' homes.

"We are mobilising resident action through a variety of communication pathways – to get the message out and for people to engage with us and each other. We have specially themed events like fashion and music shows that focus on repairing and reusing materials and, going forward, we will also do seasonal campaigns like craft-making for Christmas decorations and presents. In addition we have regular coffee morning gatherings for volunteers with guest speakers (such as Southern Electric, Shaw Trust and local community groups). This is complimented by print and online media outreach. So for instance, we display banners and public notices in health centres, libraries and community shops, as well as issue press releases and post advertisements in the local newspaper and council magazine. We have also have a facebook site which is very effective." continues Dawson.

One of the key messages the council is promoting through *Green Neighbours* is around 'Love Food Hate Waste' (a campaign of the same name led by the national environmental charity WRAP). Food waste is a major issue for Portsmouth as the UK throws away over 7 million tonnes of food and drink every year, costing us £12bn - most of this could have been eaten. This is bad for the purse but also the environment too. To put this in context, food waste accounts for about half of all household waste. Love Food Hate Waste aims to raise awareness of the need to reduce food waste and help residents take action. It shows that by doing some easy practical everyday things in the home everyone can all waste less food. So for instance Portsmouth offers advice on anything from home composting through to one-pot or community cooking.

Goals for the two-year pilots are that: the council recruits one volunteer per every one hundred households or 110 volunteers in total; that this results in a 25% increase in awareness across all 11,000 properties of reducing food waste and energy bills. Whilst the council is kick-starting the *Green Neighbours* scheme, the goal is that by 2014 it is self-sustaining, with for instance, all coffee mornings run by the volunteers themselves. Ultimately, it is hoped the project will aid Portsmouth in its EU target to achieve a very challenging 50% recycling rate by 2050. Novel techniques such as *Green Neighbours* are important to this effort, as given the current policy framework in the UK, traditional methods have resulted in a plateau of changes to recycling rates.

"Tapping into other network expertise and resources – inside and outside of the council - will be key going forward. We are already collaborating with our colleagues in housing on their Keep Warm and Carry On (fuel poverty) campaigns. We also aim to piggy-back on local initiatives by national companies like Tesco and The Cooperative, as well as Southern Electric, in terms of sustainable consumption as we know they too have waste reduction or energy efficiency targets that will drive them to work with us." concludes Dawson.

Newry and Mourne (NI), Sheffield (UK) and Chicago (USA) are all local authorities that are placing an emphasis on re-equipping the local workforce and higher education system in resource efficiency skills and knowledge to support the next generation of entrepreneurs and staff. Newry and Mourne District Council is working with a steering group of 15 other local organisations and businesses to implement a 'Low Carbon City' initiative, with a projected increase in 'local energy systems' anticipated to result in increased job creation. According to Sustainable Northern Ireland (2012)⁹⁷, as part of this, Newry and Mourne is developing a carbon mapping programme with Southern Regional College to develop and promote effective research. Through the Sheffield City Region Local Enterprise Partnership (LEP) and the Sheffield Low Carbon Skills Working Group, Sheffield City Council is prioritising skills development in specific growth sectors such as low carbon buildings to benefit from the Green Deal and the results of the 'Mini-Stern' assessment for Sheffield City Region (which looks at the economic impacts of climate change), as well as offshore wind and carbon capture and storage (linked to Yorkshire and Humber ports and the supply chain opportunities for local firms).⁹⁸ In 2013, the City of Chicago's new licensing

⁹⁷ Ibid.

⁹⁸ Calderdale College et al (2012) *Local Enterprise Partnerships Skills Research: Low Carbon and Environment Sectors*.

law on aquaponics (a process whereby nutrient-rich fish waste augments plant growth) will come into force – allowing business start-ups within the city boundaries to formally trade with local restaurants and grocery stores and train-up a new generation of urban farmers.⁹⁹ Whilst aquaponics accounts for less than 1% of the USA's £12.5 billion agriculture sector, the closed loop approach means its a growing industry that with enormous potential because of its attractiveness to the organic consumer market and rising concerns over resource scarcity.

Schoolteachers and children need to do their bit too. This is why local authorities up and down the UK have committed considerable time to working with schools. Most notably, through the now widespread 'Eco-Schools' or 'Sustainable Schools' programmes, to inform the way they incorporate resource efficiency principles into their class curriculum. Reading Borough Council has been persuading schools to sign up (and thus reduce the council's energy bills) by highlighting the links between the programmes and OFSTED evaluation criteria.¹⁰⁰ This is in respect of a school's 'commitment to care' with regards to energy and water it consumes, the waste it reduces, the food it serves, the traffic it attracts and the difficulties faced by the people living in its community and in other parts of the world. For instance, devising a School Travel Plan that addressed the benefits of less congestion and pollution, improved travel awareness and road user skills, healthier and more active school community, a safer environment for walking and cycling and improved independence and responsibility amongst pupils.

In contrast, Wirral Borough Council has been working directly with schools in the borough on managing their carbon footprints as far back as 2004 through water and energy conservation measures. For example, it worked with Riverside Primary School to make a positive impact on the environment and generate extra funds by reduce their water consumption. The installation of urinal controls at the school cost just £480 but generated average savings of 2033 litres of water per day, which equated to financial savings of £1,335 per annum. This meant the units had paid for themselves just 3 months after initial installation, generating an average of 40% savings; and that the school could use some of this money towards new equipment¹⁰¹

These UK and international experiences show that major wins can be realised through local authority led interventions that combine educational achievement with bold purpose.

99 Medill Reports (2012) 'Chicago aquaponic farms ready to harness revenue from the food they grow', <http://news.medill.northwestern.edu/chicago/> (website accessed November 2012).

100 Reading Borough Council (2012) 'DCSF National Sustainable Schools Framework', <http://www.reading.gov.uk> (website accessed November 2012).

101 Waterwise (2012) 'Riverside Primary School', <http://www.waterwise.org.uk> (website accessed November 2012).

4. What should the Government do to help councils achieve even more on stronger resource efficiency?

Based on feedback from case interviews and discussions within its 300 member network, APSE strongly believes there are actions the Coalition Government can take to support local authorities to overcome the challenges and barriers in promoting stronger resource efficiency.

Listed below are policy proposals by APSE that the Government should commit to delivering in order to help local government go even further when it comes to greater resource efficiency. APSE will be writing to the relevant Ministers to gauge support for these recommendations. These proposals build upon earlier recommendations by APSE in the predecessor study *The Transition to a Green Economy: The Vital Role of the Ensuring Council*¹⁰² in relation to: national transition plans; the Green Investment Bank; the Feed in Tarriff; municipal pension funds; local government finance legislation; Energy Company Obligations; and the Youth Jobs Fund. The first three proposals relate to the development of new policy interventions. The latter three proposals relate to improvements in the implementation processes of existing policy mechanisms.

National Office of Resource Management

APSE appreciates the Government clarifying its position on resource security through the *Resource Security Action Plan: Making the Most of Valuable Materials*. However, this policy roadmap does little justice to the vital role of local government in stronger resource efficiency, place stewardship and the transition to a circular economy. This omission means that the nationally important and innovative work by local authorities – for example attracting new investment in energy-efficient and low carbon developments (e.g. Plymouth) or ensuring strategic enterprise areas (e.g. Huntingdonshire) have sustainable travel plans to avoid the economic carnage of congestion - are not fully valued. This is bad news for everyone as such a fragmented approach undermines collaborative efforts between central government, industry and local authorities for the UK to compete in the global £3.3 trillion low carbon technologies market, to adapt to weather extremes, as well be resource independent.

The Government needs to refresh its long-term planning to 2050 - the target date for the UK to reduce its carbon emissions by 80% under the Climate Change Act. Such a re-aligned strategic vision should acknowledge the vital role of local authorities in this bold journey, clarify what the Government expects of local authorities (e.g. area-based Materials Flow Analysis) and to set out how it will help them to deliver bottom-up solutions (e.g. apportioning of the £3 billion funds from the newly launched Green Investment Bank to investable local government schemes). Whilst doing this, the Government should take the opportunity to clarify how delivery of the Resource Security Action Plan contributes to the UK Carbon Plan and in turn informs and accelerates other strategies, for instance the conundrum of rural travel planning.

Furthermore, to avoid policy silos across central government, overseeing the refinement and implementation of this new plan will require a dedicated pan-departmental unit. This is important as resource efficiency covers a number of disciplines and sectors and so collaborative action is imperative to success. The Material Security Working Group (MSWG) - a collective of organisations including the manufacturers' association EEF - has already recently called for the establishment of an Office of Resource Management in the business department (BIS) to coordinate activity that is currently spread across several departments and agencies including DEFRA, DECC, the Environment Agency and WRAP, as well as BIS.¹⁰³ Whilst APSE welcomes this proposal, APSE also believes it does not go far enough and repeats the major error of failing to value the important work done by local government thus resulting in further fragmented action – the new unit should also require representation from DCLG and HM Treasury given their oversight of crucial role of instruments such as the National Policy Planning Framework and the Green Investment Bank respectively. Given this new unit could be comprised of

¹⁰² Ibid.

¹⁰³ The Environmentalist (2012) 'UK given resource warning', *The Environmentalist* (September: 05).

secondaries already working in related areas, its establishment would add little if any additional cost whilst offering a huge value-add.

Water municipal bonds

A key function of a central government that works well is helping to create new markets that generate new wealth and serve in the public interest. For instance, in November 2012 the Cabinet Office launched a £20 million fund which aims to attract at least £60m of private investment in programmes to tackle some of the country's most complex and expensive social problems. The *Social Outcomes Fund* aims to generate more private investment in social impact bonds to tackle specific social problems in England.¹⁰⁴

Further to this development on social impact bonds, APSE believes that the Government should also launch a similar fund to kick-start trade in municipal bonds on water, which at the moment are the poor cousin to energy or transport bonds. As noted in chapter 3, whilst £122 billion of bonds are issued by international utilities and US municipals in relation to water, UK local government has not yet found an offering that works for local authority officials or for the marketplace. Through the launch of a *Water Outcomes Fund* the Government could raise the spectre of local government issuers by linking bonds with water conservation and flood prevention measures. The *Water Outcomes Fund* could be funded through a new Water Company Obligation on private utilities so there is no burden on the public purse.

APSE understands that the Local Government Association is considering a proposal to launch a Municipal Bonds Agency in 2014 in order to realise the benefits of aggregating funds across councils (like that envisioned by Southampton City Council as detailed earlier in chapter 3¹⁰⁵, and so this Water Outcomes Fund should be timed to coincide and support this development.

As well as financing much needed investment in climate adaptation schemes, an extra incentive for the Government is that this could also stimulate a new generation of water-related technology clusters, like those already boosting the regional competitiveness of Milwaukee (USA) and Zaragoza (Spain). Improving the pipeline of upcoming resource efficiency opportunities

Launched in 2012, the CBI launched *An Offer They Shouldn't Refuse: Attracting Investment to UK Infrastructure* - a policy paper stressing the importance of the Government's role in improving the pipeline of upcoming opportunities for investors. Calls ranged from transport to carbon capture and storage - to allow investors to plan for the long term.¹⁰⁶ APSE supports the CBI's calls, with the obvious addition that local government can make a key contribution to improving the pipeline as both an *investor* and as a *borrower*.

The development of this exhaustive pipeline would be greatly assisted through the establishment of an Office of Resource Management along the lines APSE suggested above. For instance, by facilitating the development of local government led projects to be funded by the Green Investment Bank or administering the proposed new *Water Outcomes Fund*. Additionally, this would align with and amplify APSE's longstanding position that the Government should facilitate the *local* investment of £120 billion worth of municipal pension funds. For instance, by clarifying the legal position, correcting any fund manager information asymmetries and by bringing together various parties to realise the benefits of aggregation.

Such an approach would also lend itself to a key finding of the recent *Heseltine Review*¹⁰⁷ - which looked at how government departments with spending responsibility and other relevant public sector bodies interact with the private sector to deliver pro-growth policies - that disparate national funding pots should be pooled on an area basis so there is increased efficiency in public expenditure.

Access to data

Councils need greater access to data on households at risk of fuel poverty in order to be able to make key interventions. At present, information asymmetries and duplication of efforts on fuel poverty

¹⁰⁴ Social Enterprise (2012) 'Government kick-start for social impact bonds', <http://www.socialenterpriselive.com> (website accessed November 2012).

¹⁰⁵ Public Finance (2012) 'Councils weight up bond bid', <http://www.publicfinance.co.uk> (website accessed November 2012).

¹⁰⁶ CBI (2012) *An Offer They Shouldn't Refuse: Attracting Investment to UK Infrastructure* (London: CBI).

¹⁰⁷ BIS (2012) *Heseltine Review*, <http://www.bis.gov.uk/heseltine-review> (website accessed November 2012).

undermine great work by local authorities up and down the UK. Current data quality and failures to share data result in councils failing to identify the right households and the appropriate measure/s to deliver a cost effective fuel poverty services.

Although councils are already doing a lot, for instance, working with the Energy Savings Trust at the super output level to determine the appropriate efficiency measures; or by bringing public health back inside the council. However, knowledge management and data confidentiality appears to be a barrier to local government doing more. The Government should launch a review to examine how the Department for Work and Pensions (DWP) and DECC could allow councils greater access to the necessary household level data. This would increase the cost effectiveness and performance outcomes of council services when it comes to fuel poverty.

Skills development and qualifications in resource efficiency

The evolution of skills of the UK workforce is fundamental to realising the economic opportunities from the £3.3 trillion market in low carbon goods and services. Whilst APSE members report progress in certain skills development and qualifications, there is a call for Government to work with skills bodies and the industry itself to look at carbon accounting and resource efficiency competencies across all levels - from skills in senior management through to increasing relevant apprenticeships.

Grant dispersal in emergent sectors

APSE warmly welcomes the Government's commitment to the Green Deal, including a new grant announced by DECC in late 2012 to accelerate local take-up in early 2013. A challenge some councils are experiencing however is that the unhelpful short lead time between the fund being announced, applications being submitted and grants being spent. Unlike sustainable travel or other more mature sectors, Green Deal is an emergent market, which means it requires a greater investment of council officer time to raise awareness of the opportunity and build a new network or consortium of local traders, housing associations and other partners (especially when one factors in strict EU public procurement rules). This means that public expenditure may not always be the most effective in terms of securing 'the biggest bang for the public's buck'. APSE suggests that the announcements of future grants should be made with a longer lead time (between the fund criteria being issued, applications being open, and deadline to spend the funds) to allow councils to submit higher quality applications. APSE fully appreciates that as this is an emergent sector, the Government is learning by doing, and if so APSE is on hand to consult with DECC and other departments about how to best structure funding streams for optimal impact.

5. A guide of the key leverage points to strengthen local resource efficiency

The Transition to a Green Economy: The Vital Role of the Ensuring Council set out in simple steps how the ensuring council of the future will confidently lead the transition to the green economy. Crucially, this talks to how the ensuring council will effectively navigate the journey to a greener local economy by establishing a high-level vision and then developing capacity to deliver this on behalf of the local area. This is a local authority that is lean but also one that has a strong core of services and know-how to co-ordinate low carbon policy. It is the kind of local authority that has the legitimacy to intervene on behalf of communities and is able to secure broader strategic agreements with business and central government about the respective low carbon responsibilities of each. As a result, the ensuring council makes certain that local economies are greener and the area is more resilient by both mitigating climate-related risks and nurturing innovative cleaner solutions.

These principles apply equally for stronger resource efficiency, which a key pillar of the transition to a green economy.

Through the insights brought together in this study; and by APSE's wider work with its network members, potential practical interventions are mapped in Table 2. This illustrates service-level insights collated in chapter 3 against each of the closed loop stages described in chapter 1. The result is a sample checklist of possible ways for local authority managers to intervene which can be used by local authorities to identify areas of priority to bring about stronger resource efficiency in their locality.

Table 2: Sample checklist of key leverages points and practical interventions for stronger resource efficiency

| Redesign extraction and production processes to minimise use of materials | |
|--|---|
| Leadership | |
| Community Strategy commits to place-shaping with a circular economy (with a grasp of the whole system) | ✓ |
| Material Flow Analysis (MFA) application looks beyond waste to all materials that flow in and out of the area and is elevated to priority risk category in terms of resource security | ✓ |
| Key decisions in the Corporate Plan subject to scrutiny of rebound effects of resource efficiency | ✓ |
| Regeneration and spatial planning | |
| Local Plan stipulates a local carbon development framework (i.e. design, build, operation) | ✓ |
| LEP connects resource efficiency to competitiveness (e.g. land value, inward investment) | ✓ |
| Reduce consumption | |
| Regeneration and spatial planning | |
| Regeneration Strategy ensures Business Support networks allow for capacity building in closed loop practices to boost profits and comparative advantage of local industries | ✓ |
| Transport and logistics | |
| Sustainable travel plans for corporate and community development to avoid car use | ✓ |
| Green fleet review for corporate as well as waste collection and street cleansing | ✓ |
| Energy efficient street lighting | ✓ |

| | |
|---|---|
| Asset management and procurement | |
| Use of municipal pensions funds and municipal bonds as an alternative to PWLB (understanding the benefit of mobilising in-area assets before accessing external ones) | ✓ |
| Water, energy and green spaces are as accounted as valuable in asset register | ✓ |
| Environmental supply standards mainstreamed within the procurement office | ✓ |
| Neighbourhood management | |
| Green Neighbours is normalised as a volunteering option | ✓ |
| Local food growing in small spaces is encouraged | ✓ |
| Housing strategy links energy efficiency and food waste reduction to alleviating poverty | ✓ |
| Education and schools | |
| Participation by all schools in Eco Schools programme | ✓ |
| Recover and reuse materials | |
| Regeneration and spatial planning | |
| Regeneration Strategy ensures Business Support networks allows for capacity building in closed loop practices to boost profits and comparative advantage of local industry | ✓ |
| Environmental services | |
| Integrated waste management plan that respects the waste hierarchy | ✓ |
| Recovering energy from waste is extended to green fuels for municipal fleet | ✓ |
| Education and schools | |
| Skills development recognises emergent industries (e.g. such as aquaponics) | ✓ |

As always, in putting forward this checklist, APSE appreciates that depending on a local authority's particular context, the ability to take related actions will vary, especially across the devolved nations which have different policy environments and powers. So, again, it is a matter of each local authority doing the best it can, given their particular circumstances and licence to operate.

6. Conclusion

Resource efficiency underpins plans for the UK to move to a prosperous and green economy in a world of finite resources. Thus, APSE welcomes the publication of the Government's Resource Security Action Plan to advance thinking and action in this field.

In addition to this, APSE knows that local authorities are pivotal to the delivery of resource efficiency as every aspect of their role shapes how people live their lives – from spatial planning and waste collection through to neighbourhood management and education. APSE members across England, Northern Ireland, Scotland and Wales are already committed to innovation in this space. For councils this is stronger resource efficiency with a clear purpose: creating desirable communities too. This ranges from Plymouth's pioneering Low Carbon Framework through to Portsmouth's novel Green Neighbours challenge. Taken together across the UK, this kind of leadership is just not protecting or creating a vast number of jobs and building people's capacity for self-help, but, as is the case with Islington's Season Health and Affordable Warm Strategy, is also helping to lift rafts of vulnerable people out of poverty.

APSE strongly calls for government to fully recognise the leadership shown by local authorities when undertaking national strategising on resource efficiency, as well as the green economy itself. Indeed the government can support local authorities to achieve even more - ranging from establishing a Water Outcomes Fund to kick-start the municipal bond market in water conservation and flood prevention; through to providing greater direction on data access and skills qualifications to allow knowledge sharing and workforce development to keep pace with industry needs. In doing this, everyone wins – as well as helping the nation boost its resilience to future commodity price shocks and shortages, it ensures that the UK will bounce back from the economic downturn to become more competitive; represents more effective public expenditure; and connects communities to build the futures they desire.



Appendix. The Resource Efficiency policy context

International accords and agreements

There are a few internationally negotiated agreements that by extension shape both UK and local policy on resource efficiency.

EU Roadmap to a Resource Efficient Europe, 2011

The EU adoption of a *Roadmap to a Resource Efficient Europe* in 2011 will have long-term consequences for local authorities (as well as businesses within their areas) as it becomes embedded in national policies.¹⁰⁸ The roadmap aims to transform the EU economy into a sustainable one by 2050, this is on the basis that by this time more than two planets will be required to sustain the human population if we carry on using resources at the current rate. For instance, each person in the EU currently consumes 16 tonnes of materials annually, of which six are wasted, with half going to landfill. To put this in context, an analysis by the UN's International Resource Panel (IRP) shows that by 2050 the level of resources used by each person each year will need to fall dramatically - to between five and six tonnes - in order for us to live within our resource limits.¹⁰⁹ Consumption levels vary wildly, with some developing countries still below this level (such as India at 4 tonnes per capita), whilst some developed economies are as high as 25 tonnes per capita (namely, Canada). The EU Roadmap sets out a number of goals to achieve its new vision. By 2020, this includes:

- **Consumption** – incentives being in place to encourage the purchase of the most resource-efficient products and services, with minimum environment performance standards set to remove the least efficient and most polluting products from the market;
- **Business support** – establish a system of incentives that rewards business investments in energy efficiency and stimulates innovation in resource-efficient production;
- **Waste** – elimination of landfilling, with energy recovery limited to non-recyclable materials;
- **Price signals** – phasing out of subsidies that have potential negative impact on the environment (notably in the area of fossil fuels, transport and water);
- **Taxation** – a shift from labour taxes to environmental taxes;
- **Natural capital** – ecosystem services provided to be properly valued and accounted for by business and the public sector;
- **Biodiversity** – halting biodiversity loss across EU (given its negative impact on natural capital);
- **Build environment** – renovation and construction of buildings and infrastructure to be at high-resource efficiency levels, with all new buildings using virtually zero-energy.

The UK's current EU-derived targets related to resource efficiency which should be met by 2020 include:

- Recycling 50% of household waste and at least 70% of construction and demolition waste (against 1995 levels);
- Reducing the amount of biodegradable municipal waste going to landfill by 65% (against 1995 levels);
- To halve the loss of natural habitats and biodiversity.

EU Energy Efficiency, Directive 2012

Further to the EU Road Map reference above, in June 2012 the EU Energy Efficiency Directive was agreed. The Directive is a significant step forward by the EU as it looks to meet its target to reduce primary energy consumption by 20% by 2020 against business as usual projections. This needs to be fully implemented by Spring 2014. The Directive includes obligations on the UK to:

- Set indicative targets for primary energy consumption in 2020, taking into account the EU's overarching 2020 target;

¹⁰⁸ The Environmentalist (2012) 'When less means more', *The Environmentalist* (September: 21).

¹⁰⁹ International Resource Panel (2011) *Decoupling: Natural Resource Use and Environmental Impacts from Economic Growth* (Paris: UNEP).

- Meet annual targets for building renovation, or equivalent energy savings, on the central government estate;
 - Meet binding energy saving targets through the deployment of a supplier obligation and/or equivalent policy measures;
 - Require non-SME enterprises to undergo energy audits every four years;
 - Ensure developers of new generation installations over 20MW undertake a cost-benefit analysis of the case for developing a Combined Heat and Power (CHP) Plant; and
 - Report regularly to the European Commission through a series of periodic National Energy Efficiency Action Plans.

UN post-Rio+20

At the global level, *Rio+20 - The UN Conference on Sustainable Development* in Brazil in June 2012 (the 20th anniversary of the Earth Summit and Local Agenda 21) precipitated the launch of a plethora of city-centric initiatives or announcements in relation to resource efficiency ranging from UN-Habitat¹¹⁰ and the UNEP (2012)¹¹¹ through to ICLEI and the World Mayors Council on Climate Change. This is part of a renewed call for the decoupling of human well-being from resource consumption by linking city development strategies to resource flow strategies (Which, critically, includes all materials used in the production of goods imported from outside a region to ensure one area is not exporting its problem to another area). As Box 8 shows, the ability of cities to get to grips with this challenge is vital.

Box 8: All-consuming cities?

Although cities only occupy 2% of the world's crust, 53 per cent of the global population resides in them. Cities also account for 80% of global GDP and 600 of these cities are home to 20% of the world's population, generating 60% of global GDP.¹¹² At the same time, 33% of all city dwellers live in slums and cities are also a vast consumer of resources, producing 75% of world CO₂ emissions.

Whilst there has been an initial focus by the UN and others on cities, it is also understood here that it is important that this is not the sole focus of efforts to ensure local development is resource efficient. After all, it is rural areas that provide essential ecosystem services (to grow food, provide eco-tourism and alleviate flood risk) that enable national growth, and it is market towns that produce or consume crafts and other goods traded with cities. In short, strong resource efficiency needs to apply to all local authorities.

National policy

Resource Security Action Plan, 2012

As noted earlier in Chapter 2, in August 2011 the HM Government set out its policy in *Enabling the Transition to a Green Economy for the transition to a green economy*. The vision is that a green economy of the future will¹¹³:

- Grow sustainably and for the long term;
- Use natural resources efficiently;
- Be more resilient; and
- Exploit comparative advantage.

Subsequently, in March 2012 BIS and DEFRA detailed the Government's new *Resource Security Action Plan*.¹¹⁴ The Action Plan focuses on the security of supply of metals and minerals which are critical to UK businesses, ranging from mercury and 'rare-earths' (like Cerium which are used in every iPhone) through to fish and timber. (It is noteworthy that the Action Plan focuses on *security* not *scarcity* on

¹¹⁰ UN-Habitat (2012) *Clustering for Competitiveness: Urban Patters for a Green Economy* (Nairobi: UN-Habitat).

¹¹¹ UNEP (2012) *Sustainable, Resource Efficient Cities – Making it Happen!* (Paris: UNEP).

¹¹² Dobbs, R., Smit, S., Remes, J., Manyika, J., Roxburgh, C., Restrepo, A. (2011) *Urban World: Mapping the Economic Power of Cities* (Seoul: McKinsey Global Institute).

¹¹³ Ibid.

¹¹⁴ Ibid.

the basis that the Government expects that most resources will not run out, but are uneconomical to exploit at this moment). Key new actions during 2012-13 include:

- Innovation Challenge - an Innovation Challenge Fund for local economy closed loop projects to establish the feasibility of new approaches enabling local businesses to extract value from domestic and commercial waste streams (i.e. through re-use and recovery);
- Individual Producer Responsibility (IPR) - the Government will investigate the feasibility of applying the principle to the Waste Electrical and Electronic Equipment (WEEE) system;
- Data capture of waste electrical and electronic equipment - the Government will work to support UK businesses by extending data capture being treated by waste management companies and other players outside the current 'WEEE system';
- A new critical resources dashboard will be launched - the Environmental Sustainability Knowledge Transfer Network (ES KTN) is to provide companies with the information they need to take more informed decisions on the resource risks to their operations;
- Development of a materials flow analysis, initially for WEEE 'hot spots';
- Demonstration trials - conduct demonstration trials to highlight the potential to improve recovery of critical materials through the WEEE treatment process;
- A new industry-led consortium - to bring together interested businesses and business groups to provide a mechanism to further develop links between government, business and other organisations to address resource opportunities and concerns, to disseminate leadership thinking and best practice and to provide a forum for policy innovation. Whilst Enabling the Transition to a Green Economy or the Resource Security Action Plan do not acknowledge the vital role of local government, earlier national plans, put in place by the current and previous Government administrations do.

National Planning Policy Framework, 2012

Launched in March 2012, the National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and how these are to be applied by local government. The NPPF is a key part of the Government's reforms to make the planning system less complex and more accessible. It is intended to simplify the number of policy pages about planning. The NPPF acts as guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications. At the heart of the NPPF is a *presumption* in favour of sustainability development. For plan-making this means that: local planning authorities should positively seek to meet the development needs of their area unless any adverse impacts of doing so would significantly and demonstrably outweigh the benefits. In terms of resource efficiency, this includes guidance on promoting sustainable transport, conserving and enhancing the natural environment, facilitating the sustainable use of materials, and high quality home design. In terms of house building, for instance, this is intended to compliment the Government's national standard for sustainable new homes the Code for Sustainable Homes (CSH). The CSH covers nine design principles and uses a star rating system to communicate overall performance of a residential dwelling (e.g. energy and carbon emissions, water, materials, surface water run-off, waste, pollution, ecology).

Energy Act, 2011

The Energy Act provides for some of the key elements of the Coalition's Programme for Government and aims to provide for a step change in the provision of energy efficiency measures to homes and businesses, and makes improvements to enable and secure low-carbon energy supplies and fair competition in the energy markets. The Act includes a critical provision on the so-called 'Green Deal' - a new financing framework to enable the provision of fixed improvements to the energy efficiency of households and non-domestic properties, funded by a charge on energy bills that avoids the need for consumers to pay upfront costs.

Waste Policy Review, 2011

As part of the Government's commitment to ensure that is on the path towards a 'zero waste' economy, it has reviewed all aspects of waste policy and delivery in England. The Review's findings were published in June 2011, alongside a series of actions for the future. This included commitments to: launch a grant funding scheme for innovative reward and recognition schemes which could incentivise people

to do the right thing; encourage councils to sign new Recycling and Waste Services Commitments, setting out the principles they will follow in delivering waste services to households and businesses; provide technical support to councils and businesses who want to see **recycling-on-the-go** schemes grow; and scrap '**unfair' bin fines and taxes** while bringing in powers to deal with repeat fly-tipping offenders and genuine nuisance neighbours.

The Flood and Water Management Act, 2010

The Flood and Water Management Act 2010 (applicable to England and Wales) means that many councils are now the lead statutory authorities with responsibilities for managing flood risk. It includes a requirement to use sustainable urban drainage systems (SUDS) in certain developments. This has implications for resource efficiency in terms of the use of green infrastructure to avoid the cost of flood damage.

The Climate Change Act, 2008

The Climate Change Act 2008 created a framework for building the UK's ability to adapt to climate change. The Act sets legally binding carbon budgets with the long-term goal to reduce carbon dioxide emissions by a very challenging 80% by 2050. As part of the Act, the Carbon Reduction Commitment Energy Efficiency Scheme (CRC) established a new mandatory carbon reduction scheme designed to encourage public and private organisations improve energy efficiency and reduce the amount of carbon dioxide emitted in the UK. The CRC covers all organisations whose electricity consumption was equivalent to an annual electricity bill of £0.5m in the qualification year of 2008 and, thus, many UK local authorities are required to comply with the scheme. Carbon allowances must be purchased for each tonne of carbon dioxide emitted from energy use in buildings (£ per tonne of CO₂).

Devolved nations

Devolved powers mean that some nations are taking different journeys to resource efficiency. This has led to leaders in Scotland and Wales in particular arguing they are more progressive than Westminster when it comes to stronger resource efficiency for their national economies compared to England.

A sustainable development strategy for **Northern Ireland**, *Everyone's Involved* was published in 2010 and signals a new approach for sustainability in the nation. The strategy connects sustainable development thinking with Northern Ireland's Programme for Government. The Strategy sets out the long-term vision, with the fourth of the six priorities focusing on striking an appropriate balance between the responsible use and better protection of natural resources in support of a better quality of life and better quality environment.¹¹⁵ This strategy provides further guidance to the statutory duty for sustainable development contained within the Northern Ireland (Miscellaneous Provisions) Act 2006, which obliges a public authority including local authorities to be aware of, and have regard for, any strategy or guidance relating to sustainable development issued by the Department of the Environment or any other Northern Ireland department.

Local Carbon **Scotland** was launched in 2011 by the Scottish Government and sets out its plan for meeting emissions reduction targets over the next decade. Scotland's Climate Change Act came in to force in August 2009, committing Scotland to a 42% reduction in greenhouse gas emissions by 2020 (from a 1990 baseline). At 42%, Scotland's climate change target is significantly higher than the UK Government's (34%). The Act places duties on public to act: in the way best calculated to contribute to delivery of the Act's emissions reduction targets; in the way best calculated to deliver any statutory adaptation programme; and in a way that it considers most sustainable. The duties cover all 'public bodies', including all 32 of Scotland's local authorities. According to the Committee on Climate Change (2012)¹¹⁶, in practice, there is evidence that the duties are helping to drive action in local authorities. All 32 local authorities in Scotland are signatories to Scotland's Climate Change Declaration, all have carbon management plans, and for the reporting year 2010/11 for the first time all submitted an annual report under the Declaration.

During 2012/13 the **Welsh** Government is consulting the public on its new *Sustainable Development*

¹¹⁵ Sustainable Northern Ireland (2012) *Achieving Sustainable Communities: An Implementation Manual for Local Government* (Belfast: Sustainable NI).

¹¹⁶ Ibid.

Bill, and which will be presented to the Welsh Parliament in August 2013.¹¹⁷ The Bill builds on the Welsh Government's earlier strategy through *One Wales: One Planet* (2009) to strengthen its approach to a resource efficient and sustainable economy, by making the commitment a legal duty for all activities and decisions of the Welsh Government and devolved public bodies in Wales, including local authorities. This means that all public bodies: take a long term approach; work better together; and use evidence when making decisions so that they provide the best value for the people they serve now and in the future. Specifically with regards to municipal waste management in Wales the national strategic context and direction has been made clear through the Welsh Government's national waste strategy *Towards Zero Waste* which embraces the type of principles set out in the EU Roadmap to a Resource Efficient Europe, including sustainable consumption and production and the circular economy. For instance, in terms of practical, tangible implementation, the Welsh Government has introduced statutory targets for re-use, recycling and composting - from 2012/13 onwards through the Waste (Wales) Measure 2010.

Local policy

Local authority responses to relevant policy are constantly reshaped as particular needs and circumstances change over time. This includes sector collective initiatives led by local government for local government.

The successor to the Nottingham Declaration

Climate Local is a new initiative launched in June 2012 to drive, inspire and support council action on carbon reduction and climate resilience. It succeeds the Nottingham Declaration on Climate Change and offers a framework that can reflect local priorities and opportunities for action. It intends to support councils' efforts both to reduce carbon emissions and to improve their resilience to the anticipated changes in the climate. One aim of Climate Local is to help councils across the country to capture the opportunities and benefits of taking action on resource efficiency through saving on their energy bills, as well as generating income from renewable energy, attracting new jobs and investment in 'green' industries, reducing flood risks and managing the impacts of extreme weather. Climate Local is facilitated by the Local Government Association, in partnership with the Environment Agency and a number of Government departments including the DCLG, DECC and DEFRA.

¹¹⁷ Welsh Government (2012) 'Sustainable Development Bill: helping shape a better future for Wales', <http://wales.gov.uk/topics/sustainabledevelopment/sdbill/> (website accessed November 2012).

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