



## Briefing 07/05

January 2007

TO: All Chief Executives, main and email contacts (UK wide)

### **Briefing; Stern Review – The economics of climate change; the effect on local authorities**

#### Key messages

- Economic benefits of strong early action on climate change outweigh the costs. Costs incurred in reducing emissions now must be viewed as an investment to avoid the risks of the future
- Stabilisation of carbon emissions and averting climate change is feasible and consistent with continued economic growth meaning the choice between climate and growth can be overcome.
- APSE believes that local government has a key role, both in the way authorities operate services and manage assets and as leaders of their communities.

#### **1. Introduction**

The Government commissioned this independent review (led by Sir Nicholas Stern) to assess the economic impacts of climate change. This was in light of the growing scientific consensus about the environmental reality of climate change. The last year has seen a significant increase in the political importance in climate change from all political parties. The Prime Minister stated *“Climate change is probably the greatest long-term challenge facing the human race. That is why I have made it a top priority for this government, at home and internationally”*

Local government has a major role to play in both service delivery and community leadership. This was acknowledged in the recent local government white paper, *Strong and prosperous communities* which contained a full section on climate change. The white paper also suggested that the local strategic partnership, local area agreements and the community call for action are all methods to promote effective responses to climate change.

This briefing gives an outline of the facts and explores the policy implications. The report covers over 600 pages and gives a full understanding of the economic

consequences of climate changes. The full report and executive summaries can be downloaded at the HM Treasury website using this hyperlink.

[http://www.hm-treasury.gov.uk/independent\\_reviews/stern\\_review\\_economics\\_climate\\_change/sternreview\\_index.cfm](http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm)

## 2. The Facts

The scientific evidence is now overwhelming: climate change is a serious global threat, and it demands an urgent global response. The evidence includes

- ✓ The ten warmest years since records began are all since 1994 with 1998 being the warmest
- ✓ Early estimates indicate that 2006 was the warmest ever in the UK.
- ✓ As temperature continues to increase the frequency of droughts and extreme changes are also expected to increase with a wide range of impacts on both the natural environment and human society. An example in 2006 was that the average temperature drop between July & August in the UK was the widest ever monthly difference between two months.
- ✓ Sea levels rose 1 to 2mm per annum throughout 20th Century. This is predicted to continue because of melting glaciers etc on land.
- ✓ The atmospheric CO<sub>2</sub> concentration is already at a level not seen on earth for at least 740,000 years, and probably for over 20 million years. The pre-industrial level of CO<sub>2</sub> in the atmosphere was about 270ppm (parts per million).
- ✓ The risks of the worst impacts of climate change can be substantially reduced if greenhouse gas levels in the atmosphere can be stabilised between 450 and 550ppm CO<sub>2</sub> equivalent. The current level is 430ppm CO<sub>2</sub> (rising at more than 2ppm each year). Some sources claim the level to be approx 380ppm CO<sub>2</sub>, but there is consensus that levels are increasing.
- ✓ Stabilisation in the range between 450/550ppm would require emissions to be at least 25% below current levels by 2050.
- ✓ As a result of past and present emissions, some degree of climate change is now inevitable. Global temperature is now increasing at 0.17°C per decade.
- ✓ Sea levels could be between 9 and 88cm above 1990 levels by 2100.
- ✓ All countries will be affected. The poorest countries and populations will suffer earliest and most, even though they have contributed least to the causes of climate change. The costs of extreme weather, including floods, droughts and storms, are already rising, even in developed countries.

## 3. Where do the emissions come from?

### Energy related emissions

- |                        |     |     |
|------------------------|-----|-----|
| ✓ Power                | 24% |     |
| ✓ Transport            | 14% |     |
| ✓ Industry             | 14% |     |
| ✓ Building             | 8%  |     |
| ✓ Other energy related | 5%  | 65% |

### Non-Energy emissions

- |                            |     |     |
|----------------------------|-----|-----|
| ✓ Land use (Deforestation) | 18% |     |
| ✓ Agriculture              | 14% |     |
| ✓ Waste                    | 3%  | 35% |

The majority of energy emissions are mostly CO<sub>2</sub> (some non CO<sub>2</sub> in industry). Non-energy emissions are CO<sub>2</sub> (land use) and non CO<sub>2</sub> (agriculture and waste).

### **3. Impacts on growth and development.**

If no action is taken to reduce emissions it will almost certainly lead to a global average temperature rise of over 2°C. In the longer term, there would be a greater than 50% chance that the temperature rise would exceed 5°C. This rise is equivalent to the change in average temperatures from the last ice age to today and will inevitably lead to major changes in where people live and how they live their lives. Even at more moderate levels of warming, all the evidence shows that climate change will have serious impacts.

Taking steps to build resilience and minimise costs is therefore essential. It is no longer possible to prevent the climate change that will take place over the next two to three decades, but it is still possible to protect from its impacts to some extent by providing better information, improved planning and more climate-resilient crops and infrastructure. This adaptation will however again fall disproportionately on developing countries (estimates of over \$10billion are given) and will put still further pressure on already scarce resources.

### **4. What action can be taken?**

The Review assessed a wide range of evidence on the impacts of climate change and on the economic costs, and used a number of different techniques to assess costs and risks. From all of these perspectives, the evidence leads to a simple conclusion: the benefits of strong and early action far outweigh the economic costs of not acting.

Climate change will affect the basic elements of life for people such as access to water, food production, health, and the environment. Hundreds of millions of people could suffer hunger, water shortages and coastal flooding as the world warms. Using the results from formal economic models, the Review estimates that the overall costs and risks of climate change will be equivalent to losing at least 5% of global GDP each year, now and forever. If a wider range of risks and impacts is taken into account, the estimates of damage could rise to 20% of GDP or more. In contrast, the costs of action can be limited to around 1% of global GDP each year.

The investment that takes place in the next 10-20 years will have a profound effect on the climate in the second half of this century and in the next. Actions now and over the coming decades could create risks of major disruption to economic and social activity, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century. Unlike these disruptions it will be difficult or impossible to reverse these changes.

The report identifies that climate change is a global problem and the response must be international. It needs to be based on a shared vision of long-term goals and agreement on frameworks that will accelerate action over the next decade, and built on mutually reinforcing approaches at national, regional and international level.

The costs of stabilising the climate are identified as significant but manageable where delay would be dangerous and much more costly. This is a major challenge, but sustained long-term action can achieve it at costs that are low in comparison to the risks of inaction. Costs could be even lower if there are major gains in efficiency, or if the co-benefits, (e.g. reduced air pollution), are measured. Costs will be higher if innovation in low-carbon technologies is slower than expected, or if policy-makers fail to make the most of economic instruments that allow emissions to be reduced whenever, wherever and however it is cheapest to do so.

The costs of taking action are not evenly distributed across sectors or around the world. Even if the developed world takes on responsibility for absolute cuts in emissions of 60-80% by 2050, developing countries must take significant action too. However developing countries should not be required to bear the full costs of this action. Carbon markets in developed countries are already beginning to deliver flows of finance to support low-carbon development, including through the Clean Development Mechanism. The report suggests that a transformation of these flows is required to support action on the scale needed.

Action on climate change will also create significant business opportunities, as new markets are created in low-carbon energy technologies and other low-carbon goods and services. These markets could grow to be worth hundreds of billions of dollars each year, and employment in these sectors will expand accordingly. Changes in energy technologies and in the structure of economies have created opportunities to decouple growth from greenhouse gas emissions. Tackling climate change is the pro-growth strategy for the longer term, and it can be done in a way that does not cap the aspirations for growth of rich or poor countries.

The energy industry around the world would need to be at least 60% decarbonised by 2050 for atmospheric concentrations to stabilise at or below 550ppm CO<sub>2</sub>e, and deep emissions cuts will also be required in the transport sector. Even with very strong expansion of the use of renewable energy and other low carbon energy sources, fossil fuels could still make up over half of global energy supply in 2050. Coal will continue to be important in the energy mix around the world, including in fast-growing economies. Extensive carbon capture and storage will be necessary to allow the continued use of fossil fuels without damage to the atmosphere.

Cuts in non-energy emissions, such as those resulting from deforestation and from agricultural and industrial processes, are also essential. With strong, deliberate policy choices, it is possible to reduce emissions in both developed and developing economies on the scale necessary for stabilisation in the required range while continuing to grow.

## **5. Three elements of policy necessary for an effective global response**

1. Appropriate pricing of carbon, implemented through tax, trading or regulation to ensure full consequences of actions are taken into account;

2. Support for innovation and the deployment of low-carbon technologies;
3. Action to remove barriers to energy efficiency, and to inform, educate and persuade individuals about what they can do to respond to climate change.

Climate change will demand an international response, based on a shared understanding of long-term goals and agreement on frameworks for action. Many countries and regions are taking action already: the EU, California and China are among those with the most ambitious policies that will reduce greenhouse gas emissions. The UN Framework Convention on Climate Change and the Kyoto Protocol provide a basis for international co-operation, along with a range of partnerships and other approaches. The report however identifies that more ambitious action is now required around the world.

Key elements of future international frameworks suggested include:

- ✓ *Emissions trading*: Expanding and linking the growing number of emissions trading schemes around the world is a powerful way to promote cost-effective reductions in emissions and to bring forward action in developing countries: strong targets in developed countries could drive flows amounting to tens of billions of dollars each year to support the transition to low-carbon development paths.
- ✓ *Technology cooperation*: Informal co-ordination as well as formal agreements can boost the effectiveness of investments in innovation around the world. Globally, support for energy R&D should at least double, and support for the deployment of new low-carbon technologies should increase up to five-fold. International cooperation on product standards is a powerful way to boost energy efficiency.
- ✓ *Action to reduce deforestation*: The loss of natural forests around the world contributes more to global emissions each year than the transport sector. Curbing deforestation is a highly cost-effective way to reduce emissions; large scale international pilot programmes to explore the best ways to do this could get underway very quickly.
- ✓ *Adaptation*: The poorest countries are most vulnerable to climate change. It is essential that climate change be fully integrated into development policy, and that developed countries honour their pledges to increase support through overseas development assistance. International funding should also support improved regional information on climate change impacts, and research into new crop varieties that will be more resilient to drought and flood.

## **6. APSE Comment**

APSE welcomes the report as a further indication of the increasing importance taken by the Government of the seriousness to the future of the planet through climate change even if the Pre Budget Report (Dec 2006) failed to bring in any significant new key green initiatives . The Stern report identifies that scientific evidence points to increasing risks of the impacts of climate change associated with business-as-usual

paths for emissions. The scale of the challenge means that all sectors of the community have to be involved if targets for reducing emissions and adapting to climate change are met. As a result local government has a crucial role to play in responding to this challenge.

Whilst the report identifies the importance of international action there is also a key role for all organisations to achieve the challenging target (60% reduction in emissions by 2050). APSE believes that local government has a key role, both in the way authorities operate services and manage assets and as leaders of their communities. The commitment to tackling climate change within local government is already evident as over 160 councils have signed up to the Nottingham Declaration<sup>1</sup>. A further example of how local government can impact comes from Uttlesford District Council who gave climate change as one reason for turning down initial plans for the expansion of Stansted airport.

APSE believes that local authorities should have to have regard to climate change in carrying out all of their functions. As a result, they can reflect the issue in sustainable community strategies and procurement strategies, local transport, housing, fuel poverty, planning and enforcement of building regulations. Additionally, waste management strategies will need to reflect the carbon management element of the service in terms issues such as zero waste policies and the amount of methane emitted to the atmosphere from landfill. All these will allow local government to fulfil its role as a community leader and place shaper in managing Climate Change. Many examples already exist where local authorities have taken initiatives which have led to reduced emissions often with efficiency savings such as:

Shropshire County Council which has both a corporate and community climate change strategy, with strong emphasis on sustainable transport and energy. It set up the Marches Energy Agency in 1995 to come up with innovative solutions to reducing

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<sup>1</sup> The Nottingham Declaration was launched in October 2000. The Declaration is a voluntary pledge to address the issues of climate change, signed by the Leader and Chief Executive of a council. In signing it, councils are committing to ensure that tackling climate change is a cornerstone of the council's strategy. The Declaration was recently re-launched and will soon be accompanied by a much improved support package that shows councils how to develop a sustainable energy strategy. By signing the Nottingham Declaration, authorities pledge to actively tackle climate change in their area and work with others to reduce emissions country-wide.

emissions, and has the country's only petrol station with 100% biofuel. In 2007 it will launch a carbon trading-type scheme to sell the CO<sub>2</sub> savings from energy saving schemes in community buildings.

Nottingham City Council has reversed traffic growth, has one of the oldest park and ride schemes, and in 2004 opened a 14km tram line that carries 23,000 passengers every weekday.

Woking Borough Council has slashed CO<sub>2</sub> emissions in its council buildings by 77% through energy efficiency measures and the pioneering use of low- and zero-carbon technologies. Woking's climate change strategy calls for a "carbon-neutral approach" to all future services, and its guide for developer's calls for an 80% reduction in greenhouse gas emissions on 1990 levels in new construction.

Leicester City Council has saved £1.5m in energy costs over five years by implementing a pioneering smart metering system in all 550 council buildings. By getting half-hourly data on water, gas and electricity use, the council was able to pinpoint wastage and take immediate action. The local authority offers training courses on installing low-carbon technologies, has a renewable energy loan scheme for residents, and has developed several small-scale CHP projects.

Cornwall County Council was the driving force behind the Cornwall Sustainable Energy Partnership, which brings together eight councils and 72 organisations, including businesses, community groups and the primary care trust.

Merton London borough has a groundbreaking prescriptive planning rule that all new commercial developments over 1,000 sq metres must have 10% of their anticipated energy needs met by onsite renewables. Merton has since persuaded the Government to adopt planning policy statement 22, confirming the legality of the policy and its desire to see other councils emulate it. To date, 18 councils have done so and another 73 have Merton-type rules in their draft plans.

Aberdeen City Council has slashed CO<sub>2</sub> emissions on its own estate by 31% over the past two years. Along with a wholesale switch to green electricity, it has a carbon management programme that includes energy audits, a street light replacement programme, a green travel plan for council officers, and energy efficiency measures in council homes.

An overall example is that emissions by local government offices have fallen by 28% since 1990 although it is predicted that they will remain at about this level through to

2010. This is because electricity consumption has been increasing per unit of floor area with the introduction of open plan working, increased IT equipment and air-conditioning, and flexible and extended working hours. APSE as an organisation has itself moved to having its electricity supplied from 100% renewable sources and to offset its carbon footprint.

APSE welcomes the recognition in the local government white paper that the current performance framework does not include “outcome focused content on climate change”. Local authorities need to take a lead and be aware of the wider climate change issues when specifying working patterns, products and services to further cut emissions.

APSE welcomes that the Government will publish a report on ways in which local authorities can reduce greenhouse gas emissions and alleviate fuel poverty following the passing of the Climate Change and Sustainable Energy Act (royal assent 21 June 2006). There will be a need to engage and mobilise business, industry, communities and individuals to address the issue in both the workplace and at home.

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