Integrated Impact Assessment of

Delivering London's Energy Future: The Mayor's draft Climate Change Mitigation and Energy Strategy

Levett-Therivel Sustainability Consultants with
Ben Cave Associates
Zahno Rao Associates
University of Huddersfield

6 October 2010

Contact:
Roger Levett, roger@levett-therivel.fsnet.co.uk
0117 973 2418 39 Cornwallis Crescent, Bristol BS8 4PH

The Greater London Authority commissioned Levett-Therivel llp with Ben Cave Associates, Zahno Rao and Huddersfield University to carry out an independent Integrated Impact Assessment during the preparation of the Mayor of London's Climate Change Mitigation and Energy Strategy. This document is the report of that assessment. It reports the results of a Sustainability Appraisal, a Strategic Environment Assessment and health, equalities and community safety appraisals of the Strategy. In terms of its evaluation of Strategic Environmental impacts (SEA) it conforms with the requirements of an environmental report for the purposes of the SEA Regulations[1] . This IIA Report represents the views of the consultants and not necessarily those of the Greater London Authority or the Mayor of London.

Levett-Therivel llp, 39 Cornwallis Crescent, Bristol BS8 4PH Tel 0117 973 2418
Contact: Roger Levett, Partner, roger@levett-therivel.fsnet.co.uk

Contents

Non technical summary 3

1 Introduction 8
2 The Mayor's Climate Change Mitigation and Energy Strategy and its relationship to other plans and programmes 9
3 The current state of environment and evolution thereof 13
4 The assessment method 18
5 Main findings of the IIA: the likely significant effects of the CCMES 22
6 Measures to prevent, reduce and offset adverse effects 27
7 Detailed assessment of CCMES policies 29
8 Monitoring 42

Annex 1: Equalities assessment 44
Annex 2: Rationale behind proposed policies 52

[1] The Environmental Assessment of Plans and Programmes Regulations 2004, S.I.2004 No.1633

Non technical summary

The Mayor of London's Climate Change Mitigation and Energy Strategy

Overview of purpose and contents

In 2007 The Mayor of London was given a new duty to prepare and publish a Climate Change Mitigation and Energy Strategy ("the CCMES") containing the Mayor's policies and proposals for the mitigation of climate change and the achievement of national policy objectives relating to energy. It must contain policies and proposals relating to minimising emissions of CO_2 and other significant greenhouse substances from the use of energy in Greater London (generally and for the purposes of surface transport), promoting the efficient production and use of energy in London, and supporting innovation and encouraging investment in energy technologies.

This assessment is of the public consultation draft of the CCMES entitled Delivering London's Energy Future, prepared under this requirement, published in October 2010. This contains the following chapters:

Chapter 1 Introduction sets out the Mayor's vision and carbon reduction targets, and summarises why action is both necessary and an opportunity for London. It refers to IPCC work on the science of climate change, the Stern Review on its costs, and to the energy security and fuel poverty benefits of reducing energy dependence.

Chapter 2 London's CO_2 emissions outlines the scale of the challenge. It sets out London's current CO_2 emissions and projects its future CO_2 emissions.

Chapter 3 Making London one of the world's leading Low Carbon Capitals sets the economic case for taking action to mitigate climate change, including the economic measures that will need to be in place, and the resulting opportunities. It includes two policies to help grasp these opportunities.

Chapter 4 Securing a low carbon energy supply for London presents policies and programmes to research, identify, enable, promote and fund decentralised energy production (including heat as well as power) in London.

Chapter 5 London's homes: driving our energy future presents policies and programmes for retrofitting existing homes with energy efficiency measures and renewable energy supplies and for tackling fuel poverty.

Chapter 6 Cutting costs and CO_2 in London's workplaces presents policies and programmes for reducing emissions from workplaces by fitting energy efficiency measures, capacity building and sharing best practice.

Chapter 7 Building towards a zero carbon London presents policies and programmes for securing the best possible carbon performance in new buildings in London

Chapter 8 Moving towards zero emission transport in London presents policies and programmes for reducing transport emissions by reducing the need to travel, encouraging shifts to lower-carbon modes, and promoting more fuel efficient driving and transport technologies.

Chapter 9 Setting an example through the GLA group describes how the GLA itself and its functional bodies will set an example through reducing energy use in its own buildings, transport and procurement.

Chapter 10 Evaluating and monitoring the success of the Strategy summarises how the effects of the strategy will be monitored and reported.

Annexes A and B (Roadmaps and Implementation Plan) present projections of future emissions and lists the actions to be taken to implement the CCMES.

Integrated Impact Assessment

In preparing the Climate Change Mitigation and Energy Strategy the Mayor is required to have regard to the effect it would have on health, health inequalities, equality of opportunity, crime and disorder, climate change and its consequences, and sustainable development. The IIA has formed part of the process of policy construction and evaluation.

Impact assessment is the process of predicting and reporting on a plan or strategy's effects on a defined set of goals or objectives, and suggesting improvements. The IIA of the CCMES, which is reported here, covers sustainability, environment, health, equalities and community safety.

The IAA was carried out in parallel with assessments of the Mayor's Air Quality Strategy and his waste Strategies. Doing these assessments at the same time has helped achieve policy consistency across the three strategies.

The IIA process has involved five stages:

- setting the context, establishing the baseline and setting the scope of the assessment including defining assessment objectives;
- developing and refining policy options and assessing the effects of the strategy on the assessment objectives;
- preparing the IIA report (of which this section is the non-technical summary);
- consulting on the draft strategy and this report; and
- monitoring of the strategy's significant effects.

How was the Mayor's Climate Change Mitigation and Energy Strategy assessed?

The strategy has been assessed iteratively throughout its period of preparation. In Spring 2009 a list of assessment objectives covering the full range of assessment topics was provisionally agreed between the consultants and GLA officers, drawing on previous assessments in London and elsewhere, relevant regulations, published guidance and good practice. Over the following year, the consultants wrote informal commentaries on successive working documents which sought to identify the likely significant impacts of the emerging policies in meeting the assessment objectives and suggest possible improvements. These were discussed with GLA officers.

In early 2010 the assessment objectives were finalised reflecting the latest policy developments. This report has been produced on *Delivering London's Energy Future: The Mayor's draft Climate Change Mitigation and Energy Strategy for public consultation* published in October 2010. This also took account of comments from a stakeholder consultation workshop in April 2010.

The objectives are as follows.

Objective
1 Health, well-being
2 Community Safety
3 Equality and diversity
4 Housing
5 Liveability
6 Historical and Cultural Environment
7 Governance, participation, education and awareness
8 Accessibility

Objective
9 Economy, jobs, skills
10 Biodiversity
11 Water Quality and Resources
12 Air Quality
13 Climate Change Mitigation and Energy
14 Climate Change Adaptation
15 Resource use and Waste

What is the current state of the environment?

There is now overwhelming scientific consensus that human emissions of carbon dioxide (and other greenhouse gases) are causing climate change and need to be reduced sharply to reduce the risk of catastrophic climate change. The UK Government has adopted a target to reduce UK emissions by 80% from 1990 levels by 2050.

In 2008:

- London's total direct CO_2 emissions were 44.7 million tonnes, or 8.4% of the UK total;
- This is 5.9 tonnes per person per year, lower than any other region and well below the UK average of 7 tonnes, though still several times a fair share of a sustainable global total;
- 43% of emissions of these emissions were due to workplaces, 36% to homes and 21% to transport;
- 51% of the emissions were due to electricity use in buildings and transport, 19% fossil fuel used in transport, and 30% other energy (non electricity) used in buildings.

These figures cover fossil fuels used in London and electricity consumed in London (which is nearly all generated elsewhere.) They do not include London's indirect emissions: that is, emissions outside London from the production of goods and services used in London, and emissions from transport of goods and people to and from London. These have been estimated to be about as large again as the direct emissions.

The CCMES includes a commitment to measure these in future, and refers to measures in other strategies and programmes which begin to address them.

What strategic options were considered?

The coverage of the CCMES is dictated by section 361B of the Greater London Authority Act 1999 ("the GLA Act"), introduced in 2007.

Major strategic decisions were taken to:

- Maintain the existing target to reduce London's CO_2 emissions by 60% by 2025;
- Apply an energy hierarchy of 'Be lean (use less energy); be clean (supply energy efficiently)' and be green (use renewable energy) to new development rather than any alternative classification and merit order of measures;
- Include emissions which take place in London, and emissions caused elsewhere generating electricity used in London, in the CCMES's statistics, targets and policies;
- Concentrate on reducing London's direct emissions.

In addition a number of more detailed decisions were taken to pursue or not pursue particular policies and measures. These are documented in Annex 2. The IIA endorses all these except for the emphasis on direct emissions over indirect emissions.

What are the significant effects of the Mayor's Climate Change Mitigation and Energy Strategy?

Overall, the IIA predicts that the CCMES will:

- Be highly beneficial for its main objectives of reducing greenhouse emissions and energy use;
- Be highly beneficial for the economy, by increasing demand for energy efficiency and renewable energy products and services and supporting investment and businesses in these fields
- Contribute to climate change adaptation, by reducing dependence on fossil energy;
- Have generally positive effects on health (through reducing fuel poverty and promoting cycling and walking), equalities (because fuel poverty most affects the least well off) and air quality (through reducing fossil fuel use).
- Have few, small, but generally positive effects on other IIA objectives.

What recommendations does the IIA make?

The IIA makes the following main recommendations for measures to prevent, reduce and offset adverse effects:

(1) The Mayor's energy hierarchy: Be lean (use less energy); be clean (supply energy efficiently)' and be green (use renewable energy) should be introduced early and applied throughout the CCMES, but as a rule of thumb for considering policy options, not a rigid prescription.
(2) Statistics on and targets for energy use and carbon emissions quoted in the CCMES, and discussion of the carbon intensity of London's economy, should include indirect emissions. In particular, the 'headline' figure should be London's total and per resident direct and indirect emissions, including imports and transport but excluding production in London of goods and services for use elsewhere.
(3) The CCMES should include policies to reduce indirect emissions at a level of commitment and detail commensurate to the Mayor's ability to influence them.
(4) Green energy business development should actively seek to provide skills and jobs to disadvantaged groups.
(5) The CCMES should give the greatest possible prominence to obviating energy use, for example by reducing the need to travel, the need for heat, artificial light and building services.
(6) The whole life carbon effects of all actions should be assessed in enough detail to provide reassurance that they are beneficial, and show how their carbon benefits can be maximised.
(7) Detailed design and implementation of initiatives to promote more sustainable energy behaviour should be informed by impartial assessment of previous initiatives, not only in London, with particular attention to the reasons why uptake and effect of many of these schemes have fallen short of expectations.

The IIA also makes various more detailed recommendations on individual policies.

How will the strategy's effects be monitored?

The most important outcomes of the CCMES will be reductions in energy use and greenhouse gas emissions from London. These are monitored through London Energy and Greenhouse Gas Inventory (LEGGI), as explained in chapters 2 and 10 of the CCMES.

However the complexities of the relationships between actions and results limit the reliability and practicability of measuring many of the things that matter most, and resources committed to monitoring should be proportionate to the potential benefits and not divert effort from action.

How to comment

This IIA Report is being issued for public consultation alongside the public consultation draft of the CCMES. In addition to seeking views from statutory consultees, this IIA Report is available for comment to all organisations and individuals that have an interest in the Climate Change Mitigation and Energy Strategy. The consultation period on this IIA Report will run until 5

January 2011. Comments should be sent by e-mail to viewsonenergy@london.gov.uk or by post to:

GLA Climate Change Mitigation and Energy Strategy Consultation
Post Point 19 B
FREEPOST LON15799
City Hall
The Queen's Walk
LONDON SE1 2AA

1 Introduction

Integrated impact assessment

1.1 The Greater London Authority commissioned Levett-Therivel llp with Ben Cave Associates, Zahno Rao Associates and Huddersfield University to carry out an independent Integrated Impact Assessment (IIA) during the preparation of the Mayor of London's Climate Change Mitigation and Energy Strategy (CCMES). This IIA Report presents an assessment of the environmental, social and economic performance of the public consultation draft CCMES against a set of objectives.

1.2 The IIA combines Sustainability Appraisal (SA), Strategic Environmental Assessment (SEA) including consideration of human health, Equalities Impact Assessment, Health Impact Assessment and Community Safety Impact Assessment. This approach has the benefit of avoiding duplication, providing a more rounded assessment of policies, and helping develop solutions that help achieve multiple objectives together. The IIA meets the requirements of Environmental Assessment of Plans and Programmes Regulations 2004 (referred to as 'the SEA Regulations'), which transpose EU Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (usually referred to as 'the SEA Directive). It also follows the Practical Guide to the SEA Directive (ODPM 2005).

1.3 The IIA did not include an Appropriate Assessment as provided for in the Conservation (Natural Habitats, &C.)Regulations 1994 (as amended). The need for such an assessment was considered by the GLA and it was concluded that, having regard to Regulations 48 and 85B, an Appropriate Assessment of the CCMES was not required.

Consultation and stakeholder engagement

1.4 This IIA Report is being issued for public consultation alongside the public consultation draft of the CCMES. In addition to seeking views from statutory consultees on its content, this IIA Report is available for comment from all organisations and individuals that have an interest in the CCMES. The consultation period on this IIA Report will run until 5 January 2011. Comments should be sent by e-mail to viewsonenergy@london.gov.uk or by post to:

GLA Climate Change Mitigation and Energy Strategy Consultation
Post Point 19 B
FREEPOST LON15799
City Hall
The Queen's Walk
LONDON SE1 2AA.

Structure of this report

1.5 Schedule 2 to the SEA Regulations specifies information which environmental reports must contain. Table 1 says where these requirements are met in this IIA report.

Table 1: where information required by Schedule 2 of the SEA Regulations is set out

SEA Regulations Schedule 2 requirement	Where covered
1 An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	Chapter 2
2. The relevant aspects of the current state of the environment and	Chapter 3

the likely evolution thereof without implementation of the plan or programme.	
3. The environmental characteristics of areas likely to be significantly affected.	Chapter 3
4. Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive.	Chapter 3
5. The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	Chapter 3
6. The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects.	Chapter 5 (overview), chapter 7 (detail)
7. The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Chapter 6
8. An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Chapter 5, annex 1 Chapter 4
9. A description of the measures envisaged concerning monitoring in accordance with regulation 17.	Chapter 8
10. A non-technical summary of the information provided under paragraphs 1 to 9.	Non-technical summary

2 The Mayor's Climate Change Mitigation and Energy Strategy and its relationship to other plans and programmes

SEA Regulations schedule 2 requirement 1: *An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.*

Legal requirements

2.1 The Greater London Authority Act 1999 (the "GLA Act") was amended in 2007 to give the Mayor a new duty to prepare and publish a climate change mitigation and energy strategy ("the CCMES") set out in section 361B. It must contain the Mayor's policies and proposals with respect to the contribution to be made by Greater London towards the mitigation of climate change and the achievement of national policy objectives relating to energy. It must contain policies and proposals relating to: minimising emissions of CO_2 and other significant greenhouse substances from the use of energy in Greater London (generally and for the purposes of surface transport), promoting the efficient production and use of energy in London, and supporting innovation and encouraging investment in energy technologies. (The Strategy need only address greenhouse gases which the Mayor considers appropriate in London.)

2.2 The CCMES must contain a range of information about various matters: the pattern of energy use in Greater London, the level of emissions in, or attributable to, Greater London of substances which contribute to climate change, the number of households in

fuel poverty [2], the measures to be taken for the purpose of implementing the Strategy by the GLA, the London Development Agency and Transport for London, and also the measures which other bodies and persons are to be encouraged by the Mayor to take for that purpose.

2.3 Government statutory guidance issued in 2008 elaborates on these requirements. It states that the CCMES must be consistent with national policies and targets for climate change mitigation and energy, though it explicitly sanctions the Mayor 'to … where this is possible and reasonable, go further than national policy, particularly with regard to climate change mitigation'.

2.4 In producing and revising the CCMES the Mayor is required to have regard to the principal purposes of the GLA, namely the promotion of environmental improvement, social development and wealth creation and economic development in Greater London. He must also have regard to the resources available for the implementation of the strategy; the need to ensure that the CCMES is consistent with national policies relating to climate change mitigation and energy, and with such international obligations which the Secretary of State may notify to him; and to the consistency of the strategy with the Mayor's other statutory strategies.

2.5 The Mayor must, in addition, have regard to the effect the CCMES would have on the following four interests, and must include in the strategy such of the policies and proposals available to him as he considers are best calculated to address them (unless not reasonably practicable):

- the health of persons in Greater London;
- the promotion of the reduction of health inequalities between persons living in Greater London;
- the contribution to the achievement of sustainable development in the UK; and
- the contribution to the mitigation of, or adaptation to, climate change in the UK.

2.6 The Mayor, in producing and revising the CCMES must also have due regard to the principle that there should be equality of opportunity for all people, including the need to promote equality of opportunity for all persons irrespective of their race, sex, disability, age, sexual orientation or religion; and to its effect on crime and disorder, and to the need to reduce it.

2.7 Delivering London's Energy Future, published in 2010, is the first CCMES to be prepared under the 2007 statutory requirement. The previous Mayor had adopted a non-statutory London Energy Strategy 2004 and a London Climate Change Action Plan 2007. The London Energy Strategy 2004 (Green light to Clean Power) aimed to "improve London's environment, reduce the capital's contribution to climate change, tackle fuel poverty and promote economic development." Its objectives were to:

- Reduce London's contribution to climate change by minimising emissions of carbon dioxide from all sectors
- Help to eradicate fuel poverty, and
- Contribute to London's economy by increasing job opportunities and innovation in delivering sustainable energy, and improving London's housing and other building stock.

2.8 The London Climate Change Action Plan (CCAP) presented a plan for London to reduce its CO_2 emissions. It set targets for reducing emissions of CO_2 from London by 60 per cent of 1990 levels by 2025.

[2] As defined by section 1 of the Warm Homes and Energy Conservation Act 2000

Objectives

2.9 The Mayor's vision for climate change mitigation and energy in London (CCMES chapter 1) is 'By 2025 London is one of the world's leading low carbon cities, with a thriving low carbon economy, some of the world's most energy efficient buildings, a secure and efficient energy supply and world class low carbon transport.'

2.10 To achieve this vision, the Mayor proposes targets to reduce London's CO_2 emissions by:

- 20 per cent of 1990 levels by 2015
- 38 per cent of 1990 levels by 2020
- 60 per cent of 1990 levels by 2025
- At least 80 per cent of 1990 levels by 2050.

2.11 The CCMES is arranged as follows:

Chapter 1 Introduction sets out the Mayor's vision and carbon reduction targets, and summarises why action is both necessary and an opportunity for London. It refers to IPCC work on the science of climate change, the Stern Review on its costs, and to the energy security and fuel poverty benefits of reducing energy dependence.

Chapter 2 London's CO_2 emissions outlines the scale of the challenge. It sets out London's current CO_2 emissions and projects its future CO_2 emissions.

Chapter 3 Making London one of the world's leading Low Carbon Capitals sets the economic case for taking action to mitigate climate change, including the economic measures that will need to be in place, and the resulting opportunities. It includes two policies to help grasp these opportunities.

Chapter 4 Securing a low carbon energy supply for London presents policies and programmes to research, identify, enable, promote and fund decentralised energy production (including heat as well as power) in London.

Chapter 5 London's homes: driving our energy future presents policies and programmes for retrofitting existing homes with energy efficiency measures and renewable energy supplies and for tackling fuel poverty.

Chapter 6 Cutting costs and CO_2 in London's workplaces presents policies and programmes for reducing emissions from workplaces by fitting energy efficiency measures, capacity building and sharing best practice.

Chapter 7 Building towards a zero carbon London presents policies and programmes for securing the best possible carbon performance in new buildings in London.

Chapter 8 Moving towards zero emission transport in London presents policies and programmes for reducing transport emissions by reducing the need to travel, encouraging shifts to lower-carbon modes, and promoting more fuel efficient driving and transport technologies.

Chapter 9 Setting an example through the GLA group describes how the GLA itself and its functional bodies will set an example through reducing energy use in its own buildings, transport and procurement.

Chapter 10 Evaluating and monitoring the success of the Strategy summarises how the effects of the strategy will be monitored and reported.

Appendix A Roadmaps and Implementation Plan presents projections of future emissions and lists the actions to be taken to implement the CCMES.

Spatial and temporal scope

2.12 Climate change affects the whole planet and all human societies (albeit in different ways). Its severity will depend on the levels of greenhouse gases in the atmosphere at different times and therefore on the total *quantities* and *timings* of emissions and captures of greenhouse gases, but not, in general, on where these occur.[3] Therefore a coherent strategy for climate change needs to consider all the emissions attributable to the entity or activities whose strategy it is, regardless of where these occur.

2.13 The CCMES is a strategy for the Greater London Authority area (comprising the 33 London boroughs including Westminster and the City of London.) Most of its actions are within Greater London. However it recognises that achievement of its objectives depends on national and international policies, and on action elsewhere in the UK.

2.14 In particular, the CCMES's objectives and targets take account of the projected effect of national policies and actions on the carbon intensity of grid electricity, almost all of which is generated outside London, over which the Mayor has little influence. However it does not include any other emissions which take place outside London to produce goods and services consumed in London, such as the energy used in making imports and in transporting them to London. Nor does it include emissions from personal travel to and from London. These indirect emissions are estimated to be roughly as large as London's direct emissions. Conversely it does include emissions incurred in London making goods and services for consumption outside London.

2.15 The IIA mostly mirrors the spatial scope of the CCMES but does also discuss and make recommendations about the implications of London's indirect impacts.

2.16 The CCMES is primarily concerned with achievement of the Mayor's CO_2 reduction targets up to 2025 though it recognises this as a stepping stone toward the Government target of 80% by 2050. The strategy mentions all CO_2 emissions in London, includes indirect emissions from energy use from the grid, and has policies for direct emissions, over which the Mayor has most control and influence. It commits to establishing a methodology for measuring indirect emissions going forward. It does not include policies dealing directly with other greenhouse gases since these currently cause under 1% of London's contribution to climate change from direct emissions.

Relationship of the CCMES to other plans and programmes

2.17 The CCMES is one of 12 statutory strategies the Mayor of London is required by law to publish and keep up to date. Particularly significant other strategies for climate change mitigation and energy are:

- The Spatial Development Strategy (the London Plan);
- The Transport Strategy;
- The Housing Strategy;
- The Economic Development Strategy
- The Municipal Waste Management Strategy

2.18 The Greater London Authority is a regional government organisation responsible for the strategic administration of Greater London. London wide public services are delivered

[3] There are some exceptions, where emissions in particular circumstances cause more global warming. The most significant example is that emissions from jet engines cause extra warming through chemical and physical changes in the upper atmosphere. These are variable, not fully understood, and are generally shorter lived than carbon emissions, so there is controversy about whether, and how, they should be taken into account in policy. Many scientists argue that applying an 'uplift factor' of about 1.9x to the carbon emissions, while an oversimplification, is likely to be closer to a fair reflection of these increased effects than ignoring them.

through a number of GLA Group delivery agencies, notably Transport for London (TfL), the Metropolitan Police Authority, the London Fire and Emergency Planning Authority (LFEPA) and the London Development Agency.

2.19 The bulk of day to day local public services are delivered by the London boroughs comprising 33 unitary local authorities.

2.20 The principal relationships the CCMES has with other relevant plans and programmes are:

- The Mayor has a duty of consistency: the CCMES must be consistent with other Mayoral strategies and with Government policies and notified international obligations. The Government can direct the Mayor as to the contents of the CCMES where it considers that it is inconsistent with Government policies with respect to energy or climate change and the inconsistency would have a detrimental effect on achieving those policy's objectives;
- The London Plan is concerned with London's spatial structure and built development. These are important influences over energy use and greenhouse gas emissions, and these are prominent concerns of the London Plan;
- The Mayor's Transport Strategy (MTS) aims to support greener modes (walking, cycling and public transport) and promote lower impact transport behaviours and technologies. These are all important measures for climate change mitigation. The MTS is the principal tool for introducing road user charging;
- The Mayor's Economic Development Strategy affects development of green business sectors. There are also opportunities to have a major influence over the energy and climate change impacts of London's economy more broadly, for example in reducing the need for personal and goods transport (especially by air, the most damaging mode per person or tonne-kilometre);
- The Mayor's Housing Strategy includes measures for improving the energy performance of both existing and new housing;
- The Mayor's draft Municipal Waste Management Strategy emphasises reducing the climate impacts of waste management, and recovering energy from waste which cannot be reused or recycled;
- Boroughs are required to have regard to the CCMES and other mayoral strategies when developing certain of their own strategies and programmes, and certain plans (local transport implementation plans and borough development plans) must be in conformity with relevant Mayoral strategies, particularly the MTS and London Plan.

3 The current state of environment and evolution thereof

SEA Regulations schedule 2 requirement 2: *The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.*

3.1 A detailed draft Scoping Report was completed in June 2009 and informed development of the CCMES[4]. This chapter of the IIA highlights the most significant points and more recent developments, and what would happen if the CCMES were not implemented.

Current state of climate change and energy in London

3.2 Chapter 1 of the CCMES summarises the overwhelming scientific consensus that human emissions of carbon dioxide (and other greenhouse gases) are causing climate change and need to be reduced sharply to reduce the risk of catastrophic climate change.[5]

[4] http://www.london.gov.uk/sites/default/files/IIA_Scoping_report.pdf

3.3 Chapter 2 presents information on London's CO_2 emissions, drawn from the 2008 London Energy and Greenhouse Gas Inventory (LEGGI). According to LEGGI, CO_2 accounts for 99.3% of London's emissions (on the basis of climate change impact) so the CCMES only deals with CO_2 emissions, consistent with the GLA Act quoted above. Significant points are:

- London's total direct CO_2 emissions were 44.7 million tonnes, or 8.4% of the UK total
- This is 5.9 tonnes per person per year, lower than any other region and well below the UK average of 7.tonnes
- 43% of emissions of these emissions were due to workplaces, 36% to homes and 21% to transport
- 51% of the emissions were due to electricity use in buildings and transport, 19% fossil fuel used in transport, and 30% other energy (non electricity) used in buildings.

3.4 These figures cover fossil fuels used in London and electricity consumed in London. They do not include London's indirect emissions: that is, emissions outside London from the production of goods and services used in London, and emissions from transport of goods and people to and from London. However they do include emissions within London from the production of goods and services used outside London.

3.5 In these exclusions and inclusions, LEGGI follows UK, regional and international reporting conventions. In 2009 the London Sustainable Development Commission estimated London's emissions on a consumption basis – that is, including these indirect emissions and excluding emissions in London producing goods and services consumed elsewhere. This presents a less favourable picture:

'Using the perspective of consumption, London is currently responsible for 90 Mt CO_2 per year – twice the amount that is attributed to London under a production approach. This is the equivalent to a carbon footprint of 12.12 tonnes CO_2 per year for every Londoner – similar to the national average of 12.08 tonnes CO_2 per person per year, but substantially higher than other regions such as the North East (11.14) and the West Midlands (11.53). Within London, carbon footprints also vary considerably – ranging from 10.03 in Newham to 13.99 in Richmond upon Thames – which reflects the strong links between affluence and consumption levels and the greater reliance on private cars for transport in outer London.'[6]

3.6 This has significant implications which are discussed later.

3.7 Chapter 1 also highlights two related issues:

- a combination of rising energy demand, falling gas reserves, and ageing energy generation infrastructure are increasing Britain's, including London's, dependence on energy imports and vulnerability to price rises and supply interruptions
- The Mayor estimates that 760,000 households are potentially living in fuel poverty, affecting health, especially of more vulnerable people.

Key sustainability issues for London

3.8 The IIA of the draft revised London Plan includes a list of 'key sustainability issues for London' and states that 'They have been informed by the review of plans and programmes … the consideration of key baseline information … a review of the key issues identified in previous assessments for London and through consultation with statutory consultees. They represent a set of issues that has been refined during the

[5] For example see the IPCC Fourth Assessment Report *Climate Change 2007: Synthesis Report* http://www.ipcc.ch/publications_and_data/ar4/syr/en/spm.html

[6] Capital Consumption, London Sustainable Development Commission and Bioregional, 2009

preparation of the revised Plan.' This list[7] provides helpful context for appraising the sustainability of the CCMES and is reproduced unchanged as Table 2:

Table 2: Key Sustainability Issues for London

A. Development and Regeneration. The sustainable development and regeneration of London, including addressing areas of deprivation and generating a lasting and sustainable legacy from the Olympic Games, particularly for East London communities.

B. Protecting Biodiversity. Biodiversity needs to be conserved and enhanced across London (from the central urban core through suburbia to the surrounding green belt) in ways that restore and promote its ecological function.

C. Managing Continued Population Growth. London's population is expected to continue to grow which means new homes, jobs, and infrastructure need to be planned for in a sustainable way.

D. Improving and Protecting Health and Wellbeing. Poor health outcomes and a widening disparity of relative wellbeing across London, and the relative impacts on the capacity of Londoners to engage economically and socially.

E. Equalities. The increasing disparity in quality of life across social groups and the impact of poverty on access to key social, environmental and economic infrastructure (for example: housing, transport, heath care and education). There is also increasing polarisation of certain socio-economic groups within London.

F. Delivering Appropriate Housing. Affordability, level of provision, quality, sustainable design and location of housing in London, and its impacts on access, mobility, sense of place and resource use.

G. The Changing Economy. London will be impacted by the current global recession. London's unemployment rate has risen to 8%, the highest of any Government Office Region and the employment rate has remained on a downward trend over the last year. How London responds to the current recession will have long term impacts on the region and the UK.

H. London's World City Status. The need to ensure London maintains its attractiveness to business and tourism to the benefit of all Londoners.

I. Responding to Climate Change. London's impact on the global climate, and the threat of current and expected climate change on London's population, biodiversity, built and natural environment.

J. Protecting Water Quality and Resources. Population growth, lifestyle choices and climate change are all placing increasing demands on London's water quality and supplies. At the same time existing water resources need to be managed more effectively.

K. Managing Waste. Due to the volume of waste generated and put to landfill there is need for an integrated sustainable approach to managing waste in London, from reduction through to re-use, recycling and reprocessing.

L. Increasing Transport Accessibility. The need to reduce congestion and increase accessibility for all Londoners. There is a continued emphasis on travel by car rather than more sustainable modes of transport such as public transport, walking and cycling.
There is also a need to reduce emissions from vehicles (to be addressed in the Mayor's Transport Strategy).

M. Safeguarding (and enhancing) Heritage and the Historic Environment. Due to competing land uses the quality of the cityscape and preservation of the historic environment may come under increasing pressure.

N. Promoting Safety and Security. Levels of crime and perceptions of safety from the perceptions of crime and its relationship to sense of place and community.

O. Improving Access to Nature and Open Space. There is need to improve the public realm and increase people's opportunity for contact with nature and London's rivers and open spaces.

P. Improving Air Quality. London's air is still polluted and is the worst of any city in the UK and amongst the worst in Europe. The primary cause of poor air quality in London is emissions from road traffic, although emissions from residential and workplace heating are also substantial.

[7] Table 3.2, Integrated Impact Assessment of consultation draft replacement London Plan, Entec, October 2009

The likely evolution of the environment without implementation of the CCMES

3.9 Figure 2.7 in chapter 2 presents projections to 2050 of

- London's emissions under 'business as usual'
- Reductions from 'committed government action'
- Reductions from 'committed Mayoral action'
- Reductions from 'further Mayoral action'
- Reductions from 'further government action''
- Resulting total emissions

3.10 The first part Appendix A (Roadmaps and Implementation Plan) gives detailed figures for energy supply, homes, workplaces and transport, for 2012, 2015, 2020 and 2025. These projections show, by 2025:

- A slight downward trend in the 'business as usual' trend, of 10.5%;
- Committed Government action delivering 17%;
- Committed Mayoral action delivering a further 14%;
- A further 18.5% needed to achieve the 60% target reduction, consisting of 8.5% attributed to further Mayoral action and 10% to further government action through implementation of Committee on Climate Change recommendations.

3.11 Thus according to these projections, without implementation of the CCMES London's emissions are projected to decline, but too slowly to achieve Mayoral targets. Implementation of the CCMES is necessary to achieve the targets, but will not do so without extensive action by Government, including actions recommended by the Committee on Climate Change not (yet) agreed by Government.

Areas likely to be significantly affected by the implementation of the CCMES

SEA Regulations Schedule 2 paragraphs 3 and 4: *The environmental characteristics of areas likely to be significantly affected.; Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds and the Habitats Directive*

3.12 The scoping report presents information about London's environment under eighteen themes which were based on an assessment of the key issues relevant to strategy development in London and a review of previous scoping reports developed for other GLA Strategies. These cover all the SEA Regulations Schedule 2 paragraph (6) issues (listed in table 4 below) and provide a picture of the environmental characteristics of Greater London and its existing environmental issues.

3.13 For each of the 18 themes, the scoping report identifies 'issues associated with the development of the Climate Change Mitigation and Energy Strategy'. Very few of these indicate 'areas likely to be significantly affected' by the CCMES. There are some generic reasons for this:

- CO_2 diffuses freely through the atmosphere. CO_2 emissions caused by London do not have significant direct effects on specific places: they matter because they add to the global total;
- However London's emissions are a very small proportion of the global total. The effects of the CCMES on levels of greenhouse gases in the atmosphere, and

therefore on the severity of climate change, will be proportionally too small for it to be meaningful to attribute specific responsibility to London for any effects of climate change on particular places;

- Climate change mitigation measures can have major impacts on specific places. For example the scoping report identifies potential serious impacts of large scale wind, hydro and biomass. However these will not be located in London, for obvious reasons. They therefore do not give rise to spatially specific impacts which the CCMES can influence. The only implication for the IIA is to further confirm the wisdom of the principle, already in the CCMES, of giving top priority to minimising the need for energy, ahead of developing alternatives.

3.14 Some CCMES actions may have significant local impacts. For example, decentralised energy projects will require buildings and infrastructure which may affect visual amenity. Energy efficient building techniques such as high levels of insulation, controlled ventilation and management of solar gain are often visually conspicuous. They can be integrated as part of the design vocabulary of new buildings, but can alter the character of buildings where they are retrofitted, especially older ones. However these effects will generally be at too fine a grain to be addressed by a high level strategy such as the CCMES.

Relevant environmental protection objectives

SEA Regulations schedule 2 requirements 5: *The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.*

3.15 Chapter 1 of the CCMES (Introduction) sets out the relevant international, Community and UK agreements and commitments which have informed development of the CCMES. These are as follows:

3.16 The Climate Change Act 2008 gives the Government a statutory duty to reduce carbon emissions by 34% by 2020 and 80% by 2050 compared to the baseline year of 1990. It also requires the Government to set carbon budgets for each five year period. The first three of these budgets, set in 2009, commit the UK to reductions of 22% by 2012, 28% by 2017 and 34% by 2022. These were the figures recommended by the Committee on Climate Change, a new body set up under the 2008 Act to advise Government. It recommended the Government to adopt tougher budgets if and when a new global deal on climate change was agreed. This did not happen at the 2009 Copenhagen conference as had been hoped.

3.17 In 2009 the previous Government published three strategies to help meet these targets: A UK Low Carbon Transition Plan, a Heat and Energy Saving Strategy and a Low Carbon Industrial Strategy.

3.18 The energy and climate change section of new coalition government's programme for government[8] states that 'The Government believes that climate change is one of the gravest threats we face, and that urgent action at home and abroad is required. We need to use a wide range of levers to cut carbon emissions, decarbonise the economy and support the creation of new green jobs and technologies.' It implicitly endorses the previous government's targets and proposes further measures to accelerate progress and to bring policy in other areas into better consistency with climate change goals. The Government has announced plans to create a new Green Investment Bank and for an Energy Bill to deliver a national programme of energy efficiency measures to homes and

[8] http://www.cabinetoffice.gov.uk/media/409088/pfg_coalition.pdf

businesses. This may also introduce powers to regulate the emissions from coal-fired power stations, reform energy markets and put in place a framework to guide the development of a smart grid.

3.19 All the figures just referred to are based on the system of carbon accounting agreed in the Kyoto Protocol in 1997. This excludes international aviation and shipping, and attributes emissions to the country where they take place. This means that the climate change consequences of increases in international travel do not appear in the figures, and that the more of its consumption a country – or indeed a city - imports the better its figures will look, while the more of its production it exports the worse it will look.

4 The assessment method

SEA Regulations Schedule 2 paragraph 8: *… a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.*

How the assessment was undertaken

4.1 The approach adopted in the IIA followed generally Government guidance contained in 'A Practical Guide to the Strategic Environmental Assessment Directive 2005', which specifies five stages[9]:

A: Setting the context and objectives, establishing the baseline and deciding on the scope
B: Developing and refining alternatives and assessing effects
C: Preparing the Environmental Report
D: Consulting on the draft plan or programme and the Environmental Report and decision making
E: Monitoring the significant effects of implementing the plan or programme on the environment

4.2 The first stage (Stage A) of the IIA process was carried out under a separate contract by Bureau Veritas and is recorded in the Scoping Report produced by them[10].

4.3 This report constitutes Stage C of the process and also reports on Stage B.

4.4 Consultation on this report alongside the draft CCMES will be part of Stage D. Chapter 8 of this report includes proposals for stage E, monitoring the effects of the CCMES.

4.5 The IIA has been carried out mainly through desk assessments by the consultant team, through discussions within the team and then with GLA officers. Commentary style reports were produced on policies, responding to working documents and drafts of the CCMES. These exercises were supplemented by a workshop to which experts and stakeholders on health, equalities and community safety in London were invited to comment on the draft CCMES from their own perspectives. Despite addressing the CCMES, Air Quality Strategy and Waste Strategy, attendance was sparse (albeit high quality).

Assessment objectives

4.6 The strategy has been appraised against the 15 objectives set out in Table 3. These were developed in consultation with GLA officers from previous assessments, good practice guidance and studies and policies about sustainability in London. The detailed assessment questions are used to amplify the objectives and prompt the assessors to consider all relevant aspects.

[9] Office of the Deputy Prime Minister, 2005
[10] Consulted on by GLA in 2009

Table 3: IIA objectives

Objective	Assessment Questions: will the strategy help to …
1 Health and well-being To maximise the mental and physical health and well-being of the population and reduce inequalities in health.	Improve mental health? Improve physical health? Reduce health inequalities? Improve health equity? Encourage active lifestyles (including cultural, leisure, sporting and recreational activities for all)? Reduce exposure to pollution, noise, damp, cold and heat? Improve access to health services and information?
2 Community Safety To enhance community safety by reducing crime and the fear of crime, anti-social behaviour and misuse of drugs, alcohol and other substances	Reduce opportunities and motivation for involvement in crime, disorder and anti-social behaviour? Reduce the risk of victimisation and exposure to crime, disorder and anti-social behaviour? Reduce the likelihood that people will move due to both experiences of crime, anti-social behaviour and levels of fear of crime?
3 Equality and diversity To ensure equitable outcomes for all communities and celebrate the unique ethnic and cultural diversity of London's citizens as London's key strength	Impact positively on Equality Target Groups and those living in deprived areas and communities? Reduce inequalities and poverty? Avoid disadvantaging any social group or sector of society? Improve access to services and employment opportunities?
4 Housing. To ensure that all Londoners have access to good quality, well-located, affordable housing.	Reduce homelessness and overcrowding? Reduce the number of unfit homes? Increase the range and affordability of housing (taking into account different requirements and preferences of size, location, type and tenure)? Promote lifetime homes?
5 Liveability To create and sustain liveable environments that promote social cohesion, sustainable lifestyles and a sense of place	Improve the quality of the built environment, open space and the public realm? Improve access to open space and the public realm? Regenerate and improve run down areas Promote community engagement and help to make people feel positive about the area where they live?
6 Historical and Cultural Environment To enhance and protect the built, historic and cultural environment	Protect and enhance sites, features and areas of historical, archaeological and cultural value/potential? Conserve and enhance the townscape/cityscape character, including historical, archaeological and cultural value/potential?
7 Governance, participation, education and awareness To ensure and encourage a transparent and participative decision making process over the long-term, following a good evidence base and in an integrated manner, facilitating participation, engagement and raising awareness.	Involve relevant stakeholders and organisations in decisions and implementation? Support and enable individuals, organisations and businesses to make pro-environmental changes to their behaviour? Improve the provision of information about the environment? To provide educational opportunities so that new generations can understand environmental, social and economic issues

Objective	Assessment Questions: will the strategy help to …
8 Accessibility To maximise accessibility to housing, key services and amenities and increase the proportion of journeys made by public transport, by bicycle and by foot	Reduce the need for travel? Encourage a modal shift to more sustainable forms of travel? Get more benefit from travel services e.g. through car sharing?
9 Economy, jobs and skills To encourage a strong, diverse and prosperous economy, so that all Londoner's can enjoy a good quality of life, to reduce worklessness, improve skills, and improve the resilience of businesses and organisations and their environmental, social and economic performance	Provide secure, satisfying employment to all who want it? Enable people to earn enough to live how they wish without stress or overwork? Enable people to opt for voluntary, cooperative and community activity outside the paid economy? Increase the proportion of business income spent and reinvested locally, especially in poorer areas? Improve the resilience of business and the economy? Improve opportunities and facilities for formal, informal and vocational learning (including volunteering) for all ages? Raise skills and meet skills shortages? Equip Londoner's with the skills they need to live a low environmental impact and low carbon lifestyle? Improve access to jobs and training? Encourage ethical and responsible investment in London?
10 Biodiversity To conserve and enhance local and global natural habitats and wildlife and bring nature closer to people	Conserve and enhance habitats and wildlife? Enhance the resilience of priority habitats and species? Encourage the replacement of valuable lost habitat?
11 Water Quality and Resources To conserve and enhance the supply and quality of water resources	Reduce water consumption and waste water load? Maintain and improve the quality of water and water bodies (surface and groundwater)? Promote the re-use of water?
12 Air Quality To improve local, national and international air quality	Reduce the emissions of pollutants including PM10, NOx and ozone depleting substances? Comply with relevant local, national, EU and international standards (limit values) for air quality?
13 Climate Change Mitigation and Energy To minimise energy use and greenhouse gas emissions	Reduce the emissions of greenhouse gases in and caused by London? Reduce consumption of energy at source? Raise energy efficiency? Reduce reliance on fossil fuels? Increase the proportion of decentralised and renewable energy used in London?
14 Climate Change Adaptation To ensure that London is prepared for the impacts of climate change	Reduce vulnerability to extreme weather and changed climate including heat, cold, wind, drought, rain, flood, pests and diseases? Reduce dependence on long distance transport and trade? Reduce vulnerability to sea level rise?
15 Resource use and Waste To use resources efficiently, minimise the production of waste across all sectors, and maximise	Minimise waste generation? Increase re-use, recycling, and reduce waste going to landfill? Dispose of remaining waste safely and with least environmental impact? Promote the proximity principal by managing London's waste as close to source as practicable?

Objective	Assessment Questions: will the strategy help to …
useful recovery of materials and energy	Reduce resource use and consumption?

4.7 The list sought to make the assessment legible by grouping closely related objectives together. They fell roughly into three groupings of society / quality of life (1-6), economy (7-9) and environment (10-15) though these are fuzzy and overlapping categories.

4.8 The list was designed to be appropriate for IIA of a range of Mayoral strategies. While it was not tailored specifically to the assessment of the significant effects of the CCMES, it has proved valuable and effective in identifying them.

Schedule 2 of the SEA Regulations

4.9 Schedule 2 paragraph (a) to (m) of the SEA Regulations specifies a list of 'issues' in respect of which the assessment was required to identify the Strategy's 'likely significant effects'. Table 4 shows how the IIA objectives included these issues.

Table 4: The SEA Regulations 'issues' and how the IIA objectives cover them

SEA Regulations Schedule 2 paragraph (6) issue	Corresponding IIA objective(s)
(a) Biodiversity	10
(b) Population	2, 3, 7, 8, 9
(c) Human health	1, 2, 5
(d) Fauna	10
(e) Flora	10
(f) Soil	10, 15
(g) Water	11
(h) Air	12
(i) Climatic factors	13, 14
(j) Material assets	4, 9, 15
(k) Cultural heritage including architectural and archaeological heritage	5, 6
(l) Landscape	5
(m) the inter-relationship between the issues referred to in sub-paragraphs (a) to (l).	Not covered by an objective, but by the assessment process

Assessment of the CCMES against the IIA objectives

4.10 Thirteen of the 17 CCMES policies were assessed against the 15 assessment objectives using assessment matrices. (Four policies were not, for reasons explained in chapter 7 of this report.) Matrices were not a formal requirement for assessment but were included to provide evidence that all relevant issues had been considered.

4.11 The matrices used the following scores:

++	Policy very good for this objective
+	Policy good for this objective
blank	Policy has no significant impact on this objective
-	Policy bad for this objective
--	Policy very bad for this objective
?	Policy's effects on the objective uncertain or dependent on how implemented

4.12 More than one symbol was used where necessary. In some cases, some proposals or components of a policy scored differently from the rest. The comments in the last column of each matrix explain these, and give reasons for the scores.

4.13 To help bring out the most important impacts clearly we have refrained from cluttering the matrices with potential impacts which we judge to be trivial or speculative, and given definite scores where ever possible: ie we have used scores of 'blank' liberally and '?'

sparingly. However the effect of policies always depend on the details of how they are implemented and on the effects of future developments which cannot be known for sure. Scoring is therefore always to some extent a matter of judgement.

4.14 The question of what are the baseline conditions against which the implementation of the CCMES policies is being compared with is complex. The matrices generally compare the impact of the implementation of the strategy's policies with what would happen without that implementation. This has some important consequences:

- A 'good' score does not necessarily mean 'good enough'. For example a score of + on climate change mitigation (objective 13) means implementing the policy will reduce emissions compared to not implementing the policy, but not necessarily that it will reduce emissions in absolute terms, or enough to be consistent with overall reduction targets.
- A policy should have a neutral score if it is going to happen anyway.

4.15 For each policy we give a commentary which seeks to give a rounded assessment of the policy's likely effects, good and bad, on the objectives, and any recommendations for changes to strengthen the positive impacts and/or reduce or avoid negative ones. These policy by policy assessments form the basis of the overall findings reported in chapter 4.

Limitations and problems with the assessment

4.16 There are a range of problems about measurements and targets. First, the CCMES uses the Government's estimates of the effects of its own programmes. However, as the Environmental Audit Committee has observed, these have often proven optimistic.[11]

4.17 One reason for this is that unforeseen events can have bigger impacts (positive or negative) than policies and strategies. For example the 2008-9 economic recession has been the most effective decarbonisation measure by far in recent British history. Conversely a strong economic recovery could well cause an increase in carbon emissions.

4.18 Second, the CCMES currently has much less detail about London's indirect emissions, policies to influence them and their likely effects than about direct emissions..

4.19 Many programmes lack the detail needed to judge how effective they are likely to be. Of course a high level strategy such as the CCMES should not try to give too much detail about implementation. However it is a concern where programmes predict large scale uptake and major impacts where previous comparable initiatives (by the GLA or others) have been disappointing, but the CCMES does not say what lessons have been learned and how the problems will be avoided.

4.20 These factors mean that this IIA is of necessity strategic and qualitative in its assessments.

5 Main findings of the IIA: the likely significant effects of the CCMES

SEA Regulations schedule 2 requirement 6: *The likely significant effects on the environment,*

[11] For example in its 2009-10 session Third Report on carbon budgets: http://www.publications.parliament.uk/pa/cm200910/cmselect/cmenvaud/228/22807.htm

including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects.

Consistency and compatibility of objectives

5.1 The Mayor's vision for energy and climate change and the specific carbon reduction targets quoted at 2.9 above are strongly supportive of IIA objectives 13 (climate change mitigation and energy) and 9 (economy) and consistent in principle with all the other IIA objectives.

Likely significant positive and negative effects on the environment and other IIA objectives of the implementation of the CCMES

5.2 Chapter 7 of this report assesses individual policies. This section brings together the results. Table 5 shows how each of the thirteen formally appraised CCMES policies scores on the 15 IIA objectives. (Policies 13, 14 15 and 17 are not appraised in matrices for the reasons stated in chapter 7.)

Table 5: policy scores

Objective	Policy													
	1	2	3	4	5	6	7	8	9	10	11	12	16	Ov
1 Health, well-being	+					+	++		+	++	+			+
2 Community Safety										+				
3 Equality and diversity	+?	?	?			?	++	+		++		?-		+
4 Housing	+	+				++	++		+					+
5 Liveability										+				
6 Historical and Cultural						?								
7 Governance, participation etc		+						+					+	
8 Accessibility										+				
9 Economy, jobs, skills	++	++	++	+	+	+	+	+	+		+	+	+	+
10 Biodiversity														
11 Water Quality and Resources						+								
12 Air Quality	+?						+	+	+	+	+	+		+
13 Climate Chg Mitigation, Energy	++	+		++	++	++	+	+	++	++	+/ ?	+	+	++
14 Climate Chg Adaptation	+	+		+	+	+	+	+	+	+		+	+	+
15 Resource use and Waste				+	+	?						+/ ?-	+	+

5.3 The overall score (last column) is not based on a mechanical totting-up of the individual policy scores, but takes account of the overall picture.

5.4 This table shows that overall, the IIA predicts that the CCMES will:

- Be highly beneficial for its main objectives of reducing greenhouse emissions and energy use;

- Be highly beneficial for the economy, by increasing demand for energy efficiency and renewable energy products and services and supporting investment and businesses in these fields;
- Contribute to climate change adaptation, by reducing dependence on fossil fuels for energy and making London's buildings and infrastructure better able to cope with extremes of weather and price hikes and disruption to energy supplies;
- Have generally positive effects on health (through reducing fuel poverty and promoting cycling and walking), equalities (because fuel poverty most affects the least well off) and air quality (through reducing fossil fuel use);
- Have few, small, but generally positive effects on other IIA objectives.

5.5 Particular strengths of the CCMES in terms of the IIA objectives include:

- Provision of serious funding for energy efficiency and lower carbon energy, through the London Green Fund and other means;
- Emphasis on new financial mechanisms, especially revolving funds designed to accelerate cost effective investments by providing funding up front and recouping costs from energy savings. Given current economic pressures these will become even more important for progress in future;
- Emphasis on retrofitting energy saving measures to existing housing and other buildings which, as the strategy recognises, will be much more significant for energy consumption than new build;
- The strategic approach to decentralised energy: recognising and addressing the complex institutional barriers, seeking to reap the benefits of large scale area wide schemes where possible but encouraging smaller scale ones where these are the best practicable;
- Action by the GLA group 'leading from the front'

5.6 The commitments to substantial funding, especially the London Green Fund, are essential to the success and credibility of the CCMES and of the 'softer' measures: without these serious commitments to 'walk the walk' the strategy would justify a far less positive assessment. Ensuring this funding is secured and fully applied needs to be the Mayor's top priority in implementing the CCMES.

5.7 There is very little in the strategy that is negative in terms of the IIA objectives, though there are many detailed recommendations about implementation identified in the assessments of individual policies. However there are some areas where the CCMES could go further. Recommendations on these are made in the following chapter.

Short, medium and long term effects; temporary and permanent

5.8 The CCMES is mainly concerned with actions and meeting targets up to 2025, and prioritises measures that will deliver significant benefits within this timescale. Many of these will continue delivering benefits well beyond this timescale, particularly those concerned with establishing a lower carbon energy infrastructure, for example the promotion of heat networks and renewable energy.

5.9 Ensuring new construction is as energy efficient as possible will produce benefits typically for at least 30 years, and often for 100 or more, depending on the lifetime of the building. The duration of benefits from energy efficiency improvements during refurbishment will depend on the lifetime of the building after refurbishment. This will again usually be decades, since major refurbishment is usually only cost effective where the refurbished buildings are expected to last some time.

5.10 Promotion of cleaner vehicles will give more transient benefits because the average lifespan of a car is 13.5 years[12] and standards are being driven up by regulation and

[12] 2004 Wastewatch estimate: http://www.wasteonline.org.uk/resources/InformationSheets/vehicle.htm

market pressures anyway. Long term infrastructure and measures to encourage, or protect, less energy intensive patterns of life are likely to bring more durable benefits.

Secondary, cumulative and synergistic effects

5.11 The Practical Guide to the SEA Directive explains cumulative effects as follows: 'cumulative effects arise, for instance, where several developments each have insignificant effects but together have a significant effect; or where several individual effects of the plan (e.g. noise, dust and visual) have a combined effect '. It also suggests a 'focus on identifying the total effect of both direct and indirect effects on receptors' as a way to deal with them.

5.12 The Practical Guide describes secondary effects as ones which 'are not a direct result of the plan, but occur away from the original effect or as a result of a complex pathway' and synergistic effects as ones which 'interact to produce a total effect greater than the sum of the individual effects.'

5.13 The CCMES deals with London's direct emissions by estimating the total and how it is made up, proposing policies to deal with components of this total, and estimating their effect in combination with each other and with other factors affecting emissions in London, notably the effects of central government policies and programmes. It is welcome that the carbon intensity of grid electricity supplied to London, and the effects of national policy on it, is included. This is all highly consistent with the guidance just quoted. However the lack of comparable targets and policies for London's indirect climate change emissions is not.

Consideration of alternatives

SEA Regulations schedule 2 requirement 8: *… An outline of the reasons for selecting the alternatives dealt with…*

5.14 The availability of 'reasonable alternatives' to the CCMES was constrained by:

- The statutory requirement for the Mayor to produce a strategy with specified contents (as outlined above);
- The requirement for consistency with national regulations and policies, including those implementing international agreements;
- The large proportion of the ways the Mayor can influence climate change and energy which are decided in other Mayoral strategies, notably his spatial, transport and economic development strategies, with their own development and assessment processes;
- The Mayor's limited direct powers and resources, and his consequent need to rely in many areas on persuasion, advocacy and enabling action by others with direct powers and duties and (potentially) access to resources.

5.15 Alternative policies and actions were considered during the policy development process. GLA officers provided a note (at Annex 2) giving the reasons the policies in the draft CCMES were adopted and some alternatives rejected. The assessors agree with the reasons given for adopting all the policies in the CCMES and for rejecting alternatives (both those identified and implicit others) with some further recommendations.

5.16 This list does not discuss two bigger decisions, which the assessors believe implicitly give rise to alternatives which offer opportunities to enhance the benefits of the strategy. These are reviewed in the following sections.

The Mayor's energy hierarchy

5.17 The CCMES includes a few references to 'the Mayor's energy hierarchy: Be lean (use less energy); be clean (supply energy efficiently)' and be green (use renewable energy).' This hierarchy is implicit in much of the policy thinking. However the first explicit reference to it is not until page 18 (policy 9). This is surprising for something which by name and nature is a universal organising principle. Moreover it is not explained or justified in comparison with any possible alternative classification and/or merit order of measures.

5.18 This hierarchy is analogous to the waste hierarchy of 'reduce, reuse, recycle'. Both reflect the way that in general, simply *avoiding* or *reducing* an environmentally damaging activity is most likely to reduce its negative impacts with least chance of complications and side effects; that improving the efficiency of conversion of environmentally damaging inputs into socioeconomically desirable outputs will be next best; and that adopting less damaging technologies can still often be beneficial, but has a greater risk of complications. However this is only a generalisation. 'Lower' or 'later' steps in the hierarchy are sometimes the best, or only, options. We therefore believe that the hierarchy is valuable rule of thumb in considering policy options but should not be applied too rigidly. We therefore recommend that **(1) The Mayor's energy hierarchy: Be lean (use less energy); be clean (supply energy efficiently)' and be green (use renewable energy) should be introduced early and applied throughout the CCMES, but as a rule of thumb for considering policy options, not a rigid prescription.**

Indirect emissions

5.19 The CCMES includes one important category of emissions outside London caused by consumption in London, emissions from electricity generated elsewhere. It quotes the London Sustainable Development Commission's Capital Consumption report's estimate that the indirect emissions are roughly as large as the direct ones, mentions that the draft Municipal Waste Strategy, Food Strategy and planning policies have already 'begun to address indirect emissions', and includes a commitment to 'measuring London's Scope 3 emissions in order to inform how best to include these in future updates of this Strategy.'

5.20 These are all welcome steps. We recommend that **(2) Statistics on and targets for energy use and carbon emissions quoted in the CCMES, and discussion of the carbon intensity of London's economy, should include indirect emissions. In particular, the 'headline' figure should be London's total and per resident direct and indirect emissions, including imports and transport but excluding production in London of goods and services for use elsewhere.** The LSDC report referred to can provide interim figures to guide policy and action until the Mayor's own measurement of indirect emissions (action 17.2 in policy 17) is available. Work by the Stockholm Institute, the Environmental Change Institute, the Tindall Centre and Best Foot Forward (among others) can provide further corroboration of the LSDC estimates.

5.21 We also recommend that: **(3) The CCMES should include policies to reduce indirect emissions at a level of commitment and detail commensurate to the Mayor's ability to influence them.**

5.22 Trends in direct emissions need to be interpreted in the context of the implications for indirect emissions. An important example is the statement on page 14 of the CCMES that:

'However, from 2000 to 2008 the city's emissions dropped by 11 per cent to 44.7 $MtCO_2$ per year in 2008 despite continued economic growth and population increase. This is due to a number of factors, primarily the lower carbon intensity of the national electricity supply, and the growing proportion of London's economy accounted for by the service industry.'

5.23 However if this shift to a service industry has been achieved by reducing the amount of goods Londoners consume made in London and increasing the amount made elsewhere,

imported into London and attributed to the climate change accounts of those other places, there is no net benefit for climate change. The passage from the LSDC report already quoted at … continues: 'Nationally, consumption-based accounts show increases over time, due to the export of heavy industry while domestic consumption is still rising. When measured on a production basis, UK greenhouse gas emissions have fallen by 18.4% and CO_2 emissions are down by 8.5% since 1990. However, as noted previously, when measured on a consumption basis, UK emissions rose by 19% between 1990 and 2003'. This means caution must be exercised over any belief that the UK, or London, has yet achieved genuine emissions reduction or 'decoupling' of economic progress from carbon.

6 Measures to prevent, reduce and offset adverse effects

SEA Regulations schedule 2 requirement 7: *The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.*

6.1 The Practical Guide to the SEA Directive (5.B.18 and following sections) helpfully expands on this requirement:

'For convenience, these measures are referred to in this Guide as 'mitigation measures', but they include proactive avoidance of adverse effects as well as actions taken after effects are noticed.

'Mitigation measures must be considered during the preparation of plans and programmes to address effects identified in the SEA …

'Mitigation can take a wide range of forms, including:
- Changes to the alternative concerned, or to the plan or programme as a whole
- Changes to a specific proposal within the plan or programme
- Inclusion of new provisions within the plan or programme
- Technical measures to be applied during the implementation stage, e.g. buffer zones, application of design principles
- Identifying issues to be addressed in project EIAs
- Proposals for changing other plans and programmes'

6.2 As already pointed out, the CCMES has few identified negative effects on IIA objectives. However the IIA identifies various ways that positive benefits should be safeguarded and could be increased. This chapter discusses these.

Equal opportunities from energy businesses

6.3 The CCMES emphasises the business and job opportunities which the coming low carbon transition offers, and includes measures to train and equip Londoners to exploit these. There are references to helping the unemployed take jobs. However there is also an opportunity to help disadvantaged groups. Programmes for energy efficient retrofit of homes have been designed to produce multiple benefits since the 1980s, for example by offering unemployed people the opportunity to progress from unskilled to increasingly skilled and responsible jobs (see references under policy 2 in chapter 7 of this report). There is potential in other areas of sustainable energy activity: eg collection and processing of used cooking oil, construction / demolition timber, local digestion. We recommend that **(4) Green energy business development should actively seek to provide skills and jobs to disadvantaged groups.**

More obviation

6.4 The Mayor's energy hierarchy (see 5.17 above) wisely reflects the way that reducing the need for energy is generally the most foolproof way to mitigate climate change without unwanted side effects (some examples are given under 'whole life assessment' below).

Avoiding the need for energy is, in general, better than improving the efficiency of energy use, because the latter can give rise to rebound effects. For example, more energy-efficient lighting, heating and appliances make their 'energy services' cheaper to householders, who can respond by being less careful about avoiding unnecessary use. We therefore recommend that **(5) The CCMES should give the greatest possible prominence to obviating energy use, for example by reducing the need to travel, the need for heat, artificial light and building services.** We feel that obviation needs to be supported by wider action to reduce the dependence of wellbeing on material consumption.

Whole life assessment

6.5 There is a need for a whole life assessment of all measures to ensure that those which are beneficial overall are prioritised, and that policy is not distorted by 'false positives' of apparent benefits in one area achieved at expense of problems elsewhere. Examples include:

- Alternative transport fuels need to take account of how the fuel is generated. For example if electricity or hydrogen is generated by fossil fuel burn, there may be little or no overall carbon benefit. It is helpful that the CCMES reports that electric cars currently have about the same greenhouse gas emissions as 'best in class' combustion engined cars, and that predicted substantial improvements depend on the success of policies to de-carbonise energy supply;
- Biofuels need to take account of the environmental and social impacts of growing the fuels. Studies have found some biofuels worse for carbon than oil because of (for example) the fossil fuel intensity of the fertilisers, pesticides, cultivation, harvesting, processing and transport, and the carbon released by clearing the land. There are also concerns about the effect of biofuel cultivation on displaced indigenous peoples and wildlife, and causing food price shortages and price rises. These factors need to taken into account in implementing the commitment to 'sustainable' biofuels.
- Need to ensure that any measures of the carbon intensity of London's economy take account of carbon impacts elsewhere incurred by creation of goods and services for use in London.

6.6 We recommend that **(6) The whole life carbon effects of all measures should be assessed in enough detail to provide reassurance that they are beneficial, and show how their carbon benefits can be maximised.**

Motivation and behaviour change

6.7 There have been numerous national, regional and local schemes to motivate and promote energy saving since the mid 1980s. Many have proved disappointing in uptake and results. The ambition and enthusiasm of the CCMES proposals are admirable. But the resources and effort the Mayor is proposing to commit make it all the more important to ensure that the lessons of past experience have been learned, to ensure that effort is deployed effectively. The CCMES itself should not give too much detail. However we recommend that **(7) Detailed design and implementation of initiatives to promote more sustainable energy behaviour needs to be informed by impartial assessment of previous initiatives (not only in London), with particular attention to the reasons why uptake and effect of many of these schemes have fallen short of expectations**[13]**.**

6.8 One reason is that the psychology and sociology of behaviour change is complex. Self interested and altruistic motivations interact.[14] The Government's review of sustainable

[13] For example see 2008 NAO report Programmes to reduce household energy consumption http://www.nao.org.uk/publications/0708/household_energy_consumption.aspx

[14] For example see Averting The Tragedy Of The Commons: Social Psychological Design Principles For Protecting The Environment, Mark Van Vugt, in press http://www.professormarkvanvugt.com/files/AvertingtheTragedyoftheCommons.pdf

consumption and production projects[15] found that 'Key behavioural areas in which projects achieved behaviour change were recycling (encouraging either small to moderate increases in existing behaviours) and energy and water saving (the adoption of many small, low impact behaviours)' but that 'There were few successes in areas which would have required major lifestyle changes, such as micro-generation, flying and car use. Sustainable food behaviours were seen as complex.'

6.9 Under 'Key ingredients to running a successful behaviour change project' the study reported that 'Projects benefited where they: had a good knowledge of target audiences (and pitched messages specifically to them); used face to face contact (often through working in groups); incorporated an element of hand-holding (possibly by offering facilitation support); had repeat contact with participants; were able to forge mutually beneficial partnerships; and had strong leadership and senior level 'buy in'… Group working was reportedly effective in embedding longer term community action, building a sense of ownership over environmental issues and personal motivation. As a result participants were encouraged to do more when they saw 'people like me' taking action. However, group working is very resource intensive so it is an approach which cannot deliver rapid results. Moreover it takes time to build consensus and take action and the fact that groups tend to focus on small, achievable steps may limit the areas they can tackle. Also because they tend to attract more active and motivated individuals, they may not be the ideal way to target the inactive/disinterested.'

Multiple initiatives

6.10 The CCMES refers to a large number of schemes and initiatives. They have been clarified and simplified since earlier drafts. However it remains important for the GLA and partners to provide clear and coordinated information on the coverage, available resources and eligibility for all the programmes and schemes for low carbon energy.

7 Detailed assessment of CCMES policies

Chapter 3: Making London one of the world's leading Low Carbon Capitals

Chapter 3 of the CCMES has the aim that 'By 2025, London will be one of the world's leading Low Carbon Capitals and the world's leader in low carbon finance. It will provide opportunities for businesses, inward investors and Londoners to participate in the global low carbon economy, and generate jobs and create wealth for London and the UK economy.'

Policy 1: Combining London's existing economic strengths and institutions with its influence and capacity to drive demand and attract inward investment in the low carbon economy.

Objective	Score	Comment
1 Health, well-being	+	Improving energy efficiency of buildings will improve health
2 Community Safety		
3 Equality and diversity	+?	If energy efficiency investments are targeted at housing of disadvantaged groups
4 Housing	+	Improving thermal performance of housing
5 Liveability		
6 Historical and Cultural Environment		

[15] Cox, J; Wilkins, C; Ledsom, A; Drayson, R; Kivinen, E (2009). *Environmental Action Fund (EAF): A Review of Sustainable Consumption and Production Projects (SCP2.2) – Executive Summary (abbreviated version). A report to the Department for Environment, Food and Rural Affairs.* Brook Lyndhurst. Defra, London.

Objective	Score	Comment
7 Governance, participation, education and awareness		
8 Accessibility		
9 Economy, jobs, skills	++	Policy will both directly fund and indirectly encourage green economy jobs
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality	+?	Reducing energy demand from buildings is likely also to reduce pollution from energy use
13 Climate Change Mitigation and Energy	++	Main aim of the policy
14 Climate Change Adaptation	+	Improvements to energy efficiency generally improve the resilience of buildings to climate change
15 Resource use and Waste		

Commentary: This policy includes a wide range of actions designed to use London's strengths to become a leader in the low carbon economy. Some particularly significant ones are:

- The London Green Fund, a substantial revolving fund for low carbon energy investments
- The commitment to 'work with partners from the public sector to investigate further how London can use joint procurement to stimulate demand for low carbon products and services.'
- The statement that 'the Mayor recognises that to drive the low carbon economy in London will require reductions in both London's direct and indirect CO_2 emissions … The Mayor is therefore working towards a methodology to measure London's CO_2 emissions, and identify existing and proposed programmes for specific sectors in London that are designed to reduce the CO_2 emissions related to their supply chains.

Recommendations: The investments are the most significant and effective actions under this policy and should be given top priority.

Lobby the financial sector to support sustainability and low carbon through its activities and services world-wide. This will have a potentially huge influence.

Policy 2: Helping Londoners to gain the skills and experience needed to participate in the low carbon economy

Objective	Score	Comment
1 Health, well-being		
2 Community Safety		
3 Equality and diversity	?	Potential to provide jobs for disadvantaged groups
4 Housing		
5 Liveability		
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness		
8 Accessibility		
9 Economy, jobs, skills	++	Main aim of the policy is to give Londoners the skills and knowledge to benefit from the jobs and commercial opportunities opened up by transition to a low carbon economy

Objective	Score	Comment
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality		
13 Climate Change Mitigation and Energy		
14 Climate Change Adaptation		
15 Resource use and Waste		

Commentary: The policy aims to identify the skills and knowledge Londoners will need to benefit from the low carbon economy, and provide these.

Recommendations: Take a proactive approach to develop opportunities for jobs for disadvantaged people. The text reports that key findings of this [Low Carbon Skills for London] research include ' … a quarter of all jobs are at level 2 and below suggesting opportunities for low skilled and workless Londoners'. This is consistent with the way that since the 1980s, insulation and draft proofing projects under a range of support schemes have helped disadvantaged people including those with low educational qualifications, disabilities and criminal records to develop both technical and workplace skills and equip themselves for employment.[16]

Chapter 4: securing a low carbon energy supply for London

This chapter has the aim 'To meet the energy demands of London's homes, businesses and infrastructure through the provision of an efficient, affordable and secure supply of low and zero carbon energy including 25 per cent from decentralised energy by 2025.'

Policy 3: Enabling the identification and development of decentralised energy opportunities and building capacity to deliver decentralised energy projects.

This policy is not formally appraised since it is concerned with identifying and spreading information of about decentralised energy opportunities. It is valuable to enable the other energy supply policies.

Policy 4: Delivering decentralised energy through the planning system

Objective	Score	Comment
1 Health, well-being		
2 Community Safety		
3 Equality and diversity		
4 Housing		
5 Liveability		
6 Historical and Cultural Environment		

[16] For example the Wise Group has long been involved in training programmes for the unemployed which are similar to the LDA's REAP pilot. For example Scottish Power and the wise Group collaborated on the Energy to Work programme in 2005, which gave unemployed people the opportunity to learn to install a range of insulation measures. See http://www.scottishpower.com/PressReleases_604.htm
Current schemes include British Gas's new green training centre in Tredegar, South Wales which aims to train 1300 people in new energy efficient technologies. British Gas has a record of targeting specific equalities groups for their schemes, including an initiative targeting lone parents in north London which ran in the 1990s: see
http://www.greenwisebusiness.co.uk/news/british-gas-opens-green-training-centre-1399.aspx

Objective	Score	Comment
7 Governance, participation, education and awareness		
8 Accessibility		
9 Economy, jobs, skills	+	Will support development of a low carbon energy sector in London
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality		Policies in the London Plan and Air Quality Strategy should ensure that biomass does not cause unacceptable detriment.
13 Climate Change Mitigation and Energy	++	Decentralised energy is generally lower carbon
14 Climate Change Adaptation	+	Decentralised energy will increase London's resilience
15 Resource use and Waste	+	Pragmatic approach, favouring area wide schemes where practicable but single site and micro CHP where not, should make best use of physical resources

Commentary: The policy aims to use the planning system to support area wide and multi-site decentralised energy systems – potentially the most carbon efficient, for the reasons set out in box 4.2 in the CCMES – wherever practicable, and single site and micro CHP systems – generally less carbon efficient but still much better than conventional energy – where these are the best practicable solution. This pragmatic approach seems likely to get the best carbon reduction outcomes possible.

The amount of carbon benefit decentralised energy (DE) can deliver depends on the fuel and technologies used (biomass or waste, for example, is much lower carbon than gas), the match of power and heat loads (combined heat and power only reduces carbon emissions to the extent when the heat can actually be used and would have had to be produced in some other way if it was not available from CHP) and on what the DE is in place of (for example reducing energy demand in the first place is better still.) The cost effectiveness of DE as a carbon reduction measure depends on all these factors and on the cost of DE compared to alternatives. In general, the cost difference will be much less where DE is installed as part of a development than where it is retrofitted.

Recommendations: Restore previous 'where possible' wording – stronger than 'where appropriate'

Policy 5: Enabling the commercialisation of the decentralised energy market to deliver decentralised energy on a wide scale in London

Objective	Score	Comment
1 Health, well-being		
2 Community Safety		
3 Equality and diversity		
4 Housing		
5 Liveability		
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness		
8 Accessibility		

Objective	Score	Comment
9 Economy, jobs, skills	+	
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality		Policies in the London Plan and Air Quality Strategy should ensure that biomass does not cause unacceptable detriment.
13 Climate Change Mitigation and Energy	++	
14 Climate Change Adaptation	+	
15 Resource use and Waste	+	

Commentary: The policy supports implementation of decentralised energy schemes by 'de-risking' delivery, including by making land available and committing public buildings to provide energy loads, and investing public money. These are substantial initiatives responding to the actual barriers to distributed energy. The policy also includes lobbying central government for more policy support.

Recommendations: Only a drafting suggestion: give the policy a clearer name.

Chapter 5: London's homes: driving our energy future

Aim: By 2030, all of London's existing homes will be retrofitted with energy efficiency measures and the potential to generate energy; Londoners use energy more efficiently and fuel poverty is eradicated.

Policy 6: Retrofitting existing homes with energy efficiency measures along with low and zero carbon energy generating technologies

Objective	Score	Comment
1 Health, well-being	+	Energy efficiency reduces fuel poverty
2 Community Safety		
3 Equality and diversity	?	Opportunity to target disadvantaged communities
4 Housing	++	Will improve housing stock
5 Liveability		
6 Historical and Cultural Environment	?	Potential conflicts between energy efficiency and built heritage
7 Governance, participation, education and awareness		
8 Accessibility		
9 Economy, jobs, skills	+	Job opportunities from energy efficient retrofit
10 Biodiversity		
11 Water Quality and Resources	+	Includes water efficiency measures
12 Air Quality	+	Positive impact from boiler energy efficiency and replacement
13 Climate Change Mitigation and Energy	++	Retrofitting housing is one of the biggest opportunities for reducing emissions
14 Climate Change Adaptation	+	Energy efficiency retrofit generally increases resilience to extreme weather. However lightweight superinsulated construction is harder to keep cool in hot

Objective	Score	Comment
		weather, so high thermal mass should be preferred where possible.
15 Resource use and Waste	?	Energy efficiency retrofitting is best combined with general upgrading and refurbishment to minimise resource demands and waste.

Commentary: This policy is very obviously beneficial for a large number of appraisal objectives. In particular, improving the energy performance of buildings is good for health, because cold increases respiratory illnesses. It is good for equalities, because people on low incomes are most vulnerable to fuel poverty, and the planned retrofitting is likely to prioritise areas of social housing. It is likely to improve air quality and mitigate climate change by reducing the need for fossil energy. It will also help adapt to climate change, because lower energy buildings are generally more 'liveable' with less energy and in different weather conditions.

The policy is welcome for recognising and tackling the true barriers: not only lack of money but also fragmentation of schemes, the need for delivery mechanisms to make energy efficiency easy, straightforward and risk free to householders, and the opportunity for new financial packages to provide up-front payment for energy saving measures and recoup the costs out of energy savings. The commitment to seek a better Decent Homes standard is welcome: it has been recognised for years that the current one misses opportunities to secure good energy efficiency while housing is being upgraded more generally. For example a recent Commons Select Committee report[17] concluded that 'The decent homes standard is … a low standard', recommended that that 'the thermal comfort criterion should be redrafted explicitly as a minimum energy efficiency rating' and stated that 'The SAP rating of 35, currently referred to in the decent homes guidance, is unacceptably low.'

Lightweight superinsulated construction is harder to keep cool in hot weather, so high thermal mass should be preferred where possible: it is resilient to both cold and hot weather.

The Green Homes Concierge Service was launched with GLA funding and support, as a promising new way to get over the barriers of anxiety about the hassle and uncertainty of energy efficiency installation. It is not mentioned in the CCMES, but the alternative policy assessment (annex A) provided by the GLA officers states that it 'was only taken-up by a very small number of households and resulted in a reduction in CO_2 emission of only 723 tonnes …' The Concierge Service was also launched with optimistic claims after research and piloting, so it would be prudent to make sure the reasons for its disappointing performance have been understood and lessons learned and applied to the RE:NEW scheme.

Recommendations: Energy *efficiency* does not always reduce energy *consumption* if there are rebound effects (e.g. people becoming more careless about turning things off when energy is effectively cheaper.) To avoid this:

- It is important that physical energy efficiency measures are always, as the policy intends, backed up with education and advice to ensure that building occupants take full advantage of them;
- Measures also need to recognise user behaviour and psychology;
- Cost levels and cost structures need to reinforce incentives. 'Rising block' tariffs, for example, can combine social equity (basic energy consumption at affordable rates per unit) with environmental incentives (higher 'luxury' consumption at higher prices).

[17] Session 2009-10 Communities and Local Government Committee - Fourth Report
Beyond Decent Homes
http://www.publications.parliament.uk/pa/cm200910/cmselect/cmcomloc/60/6009.htm#a47

The Mayor should raise these points in design and delivery of these proposals.

Lessons should be learned from the Green Homes Concierge Service. Preferably there should be an independent published assessment of the scheme, and an explanation in the CCMES of how the lessons have been applied in successor schemes.

Extra funding should not be provided specifically for parking costs: if the extra costs (including travel costs) of installing in London justify higher levels of funding, this should be provided in ways that do not weaken the cost incentive to minimise vehicle movements, for example higher rates per installation job, or additional core funding.

Policy 7: Tackle fuel poverty in London

Objective	Score	Comment
1 Health, well-being	++	Affordable warmth is an important contributor to health
2 Community Safety		
3 Equality and diversity	++	Fuel poverty disproportionately affects disadvantaged communities
4 Housing	++	Policy will improve housing
5 Liveability		
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness		
8 Accessibility		
9 Economy, jobs, skills	+	Job opportunities from energy efficiency measures
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality		
13 Climate Change Mitigation and Energy	+	Improving energy efficiency often saves energy. However some of the benefit is taken in the form of higher comfort standards. This is justified for health and wellbeing reasons.
14 Climate Change Adaptation	+	More energy efficient housing is usually more resilient to extreme weather.
15 Resource use and Waste		

Commentary: This is an important and valuable policy for achieving social and environmental objectives together. It is also welcome that the policy recognises that low incomes and high housing costs add to the 'poverty' side of 'fuel poverty', and refers to other Mayoral initiatives to tackle these.

Recommendation: None other than already made under policy 6.

Chapter 6: cutting costs and carbon in London's workplaces

Aim: By 2025, London's workplaces will be some of the most energy efficient of any major city in the world

Policy 8: Minimising CO_2 emissions from London's existing workplaces

Objective	Score	Comment

Objective	Score	Comment
1 Health, well-being		
2 Community Safety		
3 Equality and diversity	+	Good that the policy includes measures targeted at the smallest businesses: as many of these are BAME owned [18]
4 Housing		
5 Liveability		
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness	+	Includes programmes to support collaboration between businesses
8 Accessibility		
9 Economy, jobs, skills	+	Policy aims to help businesses adopt energy efficiency measures. This will both help safeguard the competitiveness of businesses and create business opportunities
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality	+	Improved energy efficiency likely to reduce use of fossil fuels
13 Climate Change Mitigation and Energy	+	Main aim of the policy
14 Climate Change Adaptation	+	Reducing dependence on energy will also reduce the London economy's vulnerability to climate change
15 Resource use and Waste		

Commentary: An important policy for breaking down the market barriers to energy efficiency improvements. Good that consideration of delivery to small businesses is using motivational approaches of proven effectiveness in the household sector.

Recommendations: Seek investments in revolving energy fund.

Chapter 7: building towards a zero carbon London

By 2025 all new buildings are built to the highest energy efficiency standards and supplied in part by low and zero carbon decentralised energy.

Policy 9: Minimising CO_2 emissions and energy use from London's new buildings

Objective	Score	Comment
1 Health, well-being	+	Energy efficient buildings will help tackle fuel poverty
2 Community Safety		
3 Equality and diversity		
4 Housing	+	Will improve housing quality
5 Liveability		

[18] The LDA's 2005 report 'Redefining London's BME-owned Businesses' estimates that there are 66,000 BAME-owned businesses in London (around 22% of the London total), as well as 93,000 self employed people from BAME communities. The majority of them are small, with around 25% of them employing less than 5 people. A GLA Economics paper on Retail and the Labour Market (2006) found that BAME people make up around 42% of the self employed in the retail sector in London. This is far higher than their share in the population.

Objective	Score	Comment
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness		
8 Accessibility		
9 Economy, jobs, skills	+	Will stimulate energy efficiency industry
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality	+	By reducing need for fuel burn
13 Climate Change Mitigation and Energy	++	Policy aims to improve energy efficiency of new building faster than national regulations
14 Climate Change Adaptation	+	Energy efficiency buildings are generally more resilient to extreme weather. However lightweight superinsulated construction can be hard to cool in hot weather
15 Resource use and Waste		

Commentary: The policy is positive in seeking to reduce the carbon intensity of new building faster than national regulations. It applies the mayor's energy hierarchy sensibly and pragmatically. Good that it now requires code level 4 in public funded housing.

Recommendations: Ensure the revised Housing Supplementary Planning Guidance SPG encourages low energy construction approaches which are resilient to hot weather as well as cold

Chapter 8 Moving towards zero emission transport in London

By 2025 London's transport system will excel amongst global cities, with low carbon infrastructure and access to ever more low carbon transport options.

Policy 10: Minimising CO_2 emissions through a shift to more efficient modes of transport

Objective	Score	Comment
1 Health, well-being	++	Promotes cycling and walking
2 Community Safety	+	Encourages more use of public transport and more people in public spaces
3 Equality and diversity	++	Will increase the ability for Londoners to access the things and places they need without use of cars
4 Housing		
5 Liveability	+	Improved quality of public realm
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness		
8 Accessibility	+	Will increase the ability for Londoners to access the things and places they need without use of cars
9 Economy, jobs, skills		
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality	+	Will reduce polluting emissions by reducing lorry and

Objective	Score	Comment
		car traffic
13 Climate Change Mitigation and Energy	++	Will reduce need for vehicle fuel
14 Climate Change Adaptation	+	Will improve resilience by increasing transport options
15 Resource use and Waste		

Commentary Very valuable policy for a range of objectives. Good that it includes encouraging patterns of development which reduce the need to travel as well as support for cycling, walking, reducing motorised freight and promoting high speed rail as an alternative to air travel.

Recommendations: Together with other Mayoral strategies as appropriate, include support for delivering public services in ways which reduce the need to travel. Smaller, more local, schools, surgeries, hospitals, post offices, council offices (etc) may be 'inefficient' when measured purely in terms of cost per unit of service delivered but may have substantial benefits in reducing travel generated even in London, and therefore greenhouse gas emissions, as well as improving equality of access. Promoting choice in public service providers is likely to erode these benefits; reducing the motivation to choose distant providers by ensuring that all reach good standards can increase them.

Consider differential road user charging as tool to incentivise carbon reduction.

Restore former wording of 'increase levels of walking' instead of 'empowering individuals to walk'

Policy 11: Minimising CO_2 emissions through more efficient operation of transport

Objective	Score	Comment
1 Health, well-being	+	Smoother driving likely to reduce polluting emissions as well as CO_2
2 Community Safety		
3 Equality and diversity		
4 Housing		
5 Liveability		
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness		
8 Accessibility		
9 Economy, jobs, skills	+	More efficient transport operations likely to reduce costs to business
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality	+	Smoother driving likely to reduce polluting emissions as well as CO_2
13 Climate Change Mitigation and Energy	+/?	Most measures likely to save energy. However need to ensure that smoothing traffic flow, reducing disruptions and helping people avoid them do not lead to induced traffic growth by effectively increasing road space.
14 Climate Change Adaptation		
15 Resource use and Waste		

Commentary: Policy likely to reduce air pollution and help business competitiveness as well as saving energy.

Recommendation: Combine with other measures to discourage driving to ensure that smoothing traffic flow, reducing disruptions and helping people avoid them do not lead to induced traffic growth by effectively increasing road space.

Policy 12: Minimising CO_2 emissions from transport through the use of low carbon vehicles, technologies and fuels.

Objective	Score	Comment
1 Health, well-being		
2 Community Safety		
3 Equality and diversity	?-	See comment for objective 15
4 Housing		
5 Liveability		
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness		
8 Accessibility		
9 Economy, jobs, skills	+	Will help build a low carbon economy
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality	+	The fuels and technologies supported generally reduce air polluting emissions as well as CO_2.
13 Climate Change Mitigation and Energy	+	Likely to reduce carbon emissions (though need to be assessed on a whole life basis and implemented in ways which minimise rebound effects.)
14 Climate Change Adaptation	+	Diversity in fuels likely to increase resilience
15 Resource use and Waste	+/?-	Some biofuels (eg waste cooking oil) reduce waste as well as giving carbon benefit; others (eg energy crops) can have little or no carbon benefit and displace food production, wildlife or (for example tropical palm oil) indigenous people.

Commentary: Policy is good for climate change mitigation and several other objectives if – but only if – the fuels and technologies supported have positive impacts over their whole life cycle. This cannot be assumed. Inclusion of information on the lifecycle CO_2 emissions from EVs (the main technology) is welcome but only one component of lifecycle impacts. The carbon balance of electricity and hydrogen as a transport fuel depends on how the electricity or hydrogen is generated and transported as well as the fuel efficiency of the vehicles (and the carbon costs of manufacturing them.) The other environmental and social impacts also depend on effects over the life cycle. For example converting waste cooking oil into diesel substitute is good for waste reduction, the economy, and energy security, and potentially for equalities if jobs are created for disadvantaged groups. In contrast palm oil imports may be bad for all these objectives. These and similar points need to be considered in making operational the commitment to only promoting 'sustainable' biofuels.

The commitment to 'encouraging the implementation of pricing differentials based on vehicle emissions for resident parking permits and parking charges' is welcome but we consider it inconsistent that the Mayor is not applying the same principle to the congestion charge, which he

directly controls. The Mayor's proposal, subject to consultation, to remove the Western Extension to the congestion charging zone (ie stop charging vehicles to enter this area during weekdays) is not mentioned in the CCMES. This will have a negative impact on the CCMES's targets (albeit only small according to the IIA carried out on the proposal.)

The Mayor is also proposing to exempt the most fuel efficient vehicles (with emissions below 100g/km). This proposal is welcome to help stimulate demand for them and help grow the market. However it will give no incentive to choose more rather than less fuel efficient vehicles over the 100g/km level (for example to replace a 160g/km one with a 120g/km one, or a 200g/km one with a 150 g/km one.) This will remain the great majority of car purchase choices for some time to come.

Recommendations: Assess the carbon and broader environmental and social consequences of each technology on a whole life basis. Beyond the experimental or pilot stage, only support those technologies and methods of applying them which have positive results.

Use variable road user charging to encourage and reward decisions to use less carbon intensive vehicles across the range, not only at the most fuel efficient end.

Chapter 9: setting an example through the GLA Group

This chapter includes four policies.

Policy 13: Setting challenging targets and measuring and publicly reporting CO_2 emissions is clearly benign but does not warrant an appraisal matrix.

Policies 14: Reducing energy use and CO_2 emissions from GLA group buildings and 15 Driving down CO_2 emissions from transport in the GLA group are welcome. They will have the same effects as the equivalent policies for the wider community (policy 8 and policies 11 and 12 respectively) so are not scored separately. It is welcome that policy 15 includes 'minimising business car and air mileage' as its first action, in line with the principle of obviating energy use.

Policy 16: Demonstrating what can be achieved through demanding low carbon goods and services

Objective	Score	Comment
1 Health, well-being		
2 Community Safety		
3 Equality and diversity		
4 Housing		
5 Liveability		
6 Historical and Cultural Environment		
7 Governance, participation, education and awareness	+	Policy aims to increase corporate responsibility
8 Accessibility		
9 Economy, jobs, skills	+	Green procurement aims to increase business opportunities
10 Biodiversity		
11 Water Quality and Resources		
12 Air Quality		
13 Climate Change Mitigation and Energy	+	
14 Climate Change	+	

Objective	Score	Comment
Adaptation		
15 Resource use and Waste	+	

Commentary: Valuable policy for using the GLA group's procurement muscle to promote more sustainable products and businesses.

Recommendations: None.

Chapter 10: Evaluating and monitoring the success of the Strategy

This chapter contains one policy.

Policy 17: Measuring London's CO_2 emissions is not appraised with a matrix since it will not in itself make any difference to achievement of the IIA objectives.

Commentary: The commitment to measure and publish figures on London's emissions, both direct and indirect, is welcome.

Recommendations:

Change action 17.2 from 'The Mayor will establish a methodology to measure London's scope 3 indirect emissions' to 'The Mayor will measure and report on London's scope 3 indirect emissions'. 'Establishing a methodology' is only a means to reporting, so it would be better for the action to refer to the significant result rather than a step towards it.

Make explicit reference to involving relevant stakeholders in agreeing the methodology for scope 3 emissions.

Commit to periodically reviewing the levels of greenhouse gases other than CO_2 in both direct and indirect emissions, and to reconsidering the CCMES's exclusive focus on CO_2 if and when any other greenhouse gases become a significant proportion of the total.

Appendix A: Roadmaps and Implementation Plan

This appendix sets out the CO_2 emissions projections for each sector set out in this Strategy, as well as a plan for when each action identified in the Strategy will be implemented.

Commentary: The roadmaps showing how Mayoral action and other changes should add up to the total reductions to be achieved by 2025 are helpful but present single, and very precise, figures for results which are subject to multiple uncertainties. The implementation plan is a helpful list of the actions in the CCMES but needs much more detail of who will be accountable to whom for doing what by when to be a true implementation plan. The 'timescale' column has the great majority of entries just 'from 2010' so it is currently little more than a commitment to implement the CCMES.

Recommendations: For the routemaps:

- Recognise the inevitable uncertainties about (for example) the effects of different possible future rates of economic growth, (or shrinkage), depletion, disruption and price changes in fossil fuel imports, progress (or lack of it) in international agreements and actions on climate change) in a spread of projections and give some probabilistic assessment of the likelihood of reaching targets;

For the implementation plan:

- Give more detail of responsibilities and milestones. A good example is **Action 12.2 – '**the Mayor will work with partners, aiming to deliver 25,000 electric vehicle charge points by 2015, with the aim of every Londoner being no more than a mile on average from a publicly accessible electric vehicle charge point' – this states a measurable output to be achieved by a specified date

8 Monitoring

SEA Regulations schedule 2 requirement 9. *A description of the measures envisaged concerning monitoring*

The purpose of monitoring is to answer questions about the effectiveness of the strategy in delivering desired results. This section therefore puts forward the main questions which should be asked of the CCMES from the point of view of achievement of the IIA objectives and offers suggestions for how they could be monitored. However two caveats must always be kept in mind:

- The complexities of the relationships between actions and results limit the reliability and practicability of measuring many of the things that matter most
- Resources committed to monitoring should be proportionate to the potential benefits and should not divert effort from action.

Are London's energy use and greenhouse gas emissions shrinking? The most important outcomes of the CCMES should be reductions in these. Policy 17 in Chapter 10 of the CCMES has the vision that 'London will be able to measure and report those CO_2 emissions for which it is responsible, and assess the progress of this Strategy on an annual basis.' It commits the Mayor to monitor and report on London's energy use and CO_2 emissions. It is particularly welcome that this includes a commitment to 'establish a methodology to measure London's Scope 3 indirect CO_2 emissions'. This is a valuable advance, although developing policies for indirect emissions need not wait for this since the LSDC work can provide a basis for it.

Measuring changes and attributing them to the CCMES raises two major challenges.

The CCMES is only one of a number of influences. Chapter 2 of the CCMES quotes projections that emissions will decline anyway ('business as usual' savings), and as a result of government policies, both current and future, as well as to the CCMES. It will be difficult to determine how these have contributed to whatever overall trajectory happens, partly because they often act in combination, and partly because other factors will have unpredicted effects: for example the current recession has had much larger effects on carbon emissions than policy interventions[19].

Second, as chapter 10 acknowledges, the CCMES needs to calculate indirect ('scope 3') emissions but these are 'harder to measure than scope 1 and 2 emissions because the data and tools needed are often not available. As a result there is likely to be a higher degree of estimation and extrapolation and therefore lower levels of accuracy …'

[19] 'Official estimates based on energy use data show that emissions in 2009 fell sharply by around 10% as the recession led to a sharp decline in economic activity which, in turn led to a sharp fall in final energy demand' … 'the knock-on effects of the 2008-09 recession, and the modest economic upturn forecast over the short term, point to a further decline in the UK's carbon emissions in 2010' Cambridge Econometrics press release 24 May 2010 http://www.camecon.com/UK/UKEnergy/PressRelease-UKEnergy.aspx

How much difference is the CCMES making?

CCMES includes a substantial fund, the London Green Fund. Important to monitor:

- How much funding is actually available for projects to bid for at different times
- How much is firmly offered to projects in particular forms
- How much is actually taken up
- What projects go ahead with funding
- How much of this project activity was additional (ie would not have happened without the funding)
- What actual savings these projects achieved, and over what periods
- How much of this was additional
- How fully, and how quickly, these projects paid back the financial input?

The important words in these are 'additional' and 'actual'. The overall performance measure should be additional carbon savings over the life of the project per £ invested per year.
Many of the actions within policies are concerned with the Mayor encouraging or lobbying for action by Government or others. It would be helpful to strengthen these by specifying measures of success for these, for example policies or programmes of particular kinds adopted by specified dates.

Annex 1: Equalities assessment

Equalities Impact Assessment of the Mayor's Climate Change Mitigation and Energy Strategy

1. The Context

In 2007 the Mayor of London was given a new duty to prepare and publish a Climate Change Mitigation and Energy Strategy (CCMES) containing policies and proposals for minimising emissions of CO_2 (and other greenhouse gases) from the use of energy in Greater London, promoting the efficient production and use of energy in London, and supporting innovation and investment. This assessment is of the first CCMES prepared under this requirement: *Delivering London's Energy Future: The Mayor's draft Climate Change Mitigation and Energy Strategy*, published in October 2010.

The GLA Act requires that the Mayor has due regard to the principle that there should be equality of opportunity for all people, including the need to promote equality of opportunity for all persons irrespective of their race, sex, disability, age, sexual orientation or religion. The Mayor's 'Equal Life Chances for All' equalities framework[20] extends the definition of equalities to include other groups who may face discrimination, disadvantage and social exclusion – for example, due to class or income - whose needs have often been ignored[21]. In assessing the CCMES policies the consultants have not provided a separate assessment of each group, but rather highlighted the effect of each policy on particular equalities groups who are likely to be positively or adversely affected.

This Equalities Impact Assessment is an Annex to the Integrated Impact Assessment (IIA) and focuses on the equalities impact of the CCMES. It forms part of the IIA which considers a range of goals or objectives together, providing a more rounded view of policies, and helping develop solutions that help achieve multiple objectives. The IIA covers sustainability, environment, health, equalities and community safety. It is imperative that this Annex is **not treated as a stand-alone document**, but is read in conjunction with the IIA as a whole, since there are cross-cutting impacts, for example concerning health inequality.

2. The Assessment Process

2.1 The IIA process

The IIA process has five stages:

A: setting context, establishing the baseline and setting the scope of the assessment
B: developing and refining options and assessing the effects of the strategy on the assessment objectives
C: preparing the IIA report and this appendix
D: consulting on the draft plan and this report
E: monitoring of the plan's significant effects

The strategy has been appraised iteratively throughout its period of development. In Spring 2009 a list of assessment objectives covering the full range of assessment topics was provisionally agreed between the consultants and GLA officers, drawing on previous assessments in London and outside, relevant regulations, published guidance and good practice.

[20] http://www.london.gov.uk/mayor/equalities/framework/

[21] The links from the following web page give examples of these other groups
http://www.london.gov.uk/eqiaguide/target.jsp

2.2 Equality and Diversity

Equality and Diversity was one of the fifteen assessment objectives: *to ensure equitable outcomes for all communities and celebrate the unique ethnic and cultural diversity of London's citizens as London's key strength*. The following assessment questions were used to assess the CCMES from an equalities perspective:

Will the CCMES:

- impact positively on Equality Target Groups and those living in deprived areas and communities?
- reduce inequalities and poverty?
- avoid disadvantaging any social group or sector or society?
- improve access to services and employment opportunities?

The assessment process follows the key stages of an Equalities Impact Assessment, namely:

- **Initial screening:** the consultants have commented on the CCMES throughout its development and pointed out particular beneficial and negative effects at this stage which have been incorporated into the final IIA and this assessment.
- **Scoping and defining:** the scoping stage was carried out at the beginning of the process of developing the CCMES and resulted in the equalities objectives and assessment questions detailed above.
- **Evidence base:** Evidence to answer the equalities assessment questions was sourced where appropriate from relevant documents. Professional judgement and qualitative analysis has also necessarily been used to assess the likely impact of new policies.
- **Assessment:** the IIA and this equalities assessment analyses all policies within the CCMES in respect of their likely equalities impact.

A further two stages will happen once the consultation period had been completed and the strategy has been ratified.

- **Action planning:** The IIA has recommended changes and amplifications to certain policies which will benefit equalities groups. It is then up to the Mayor to take any of the assessment recommendations on board.
- **Publication**: A final version of the IIA including this equalities impact assessment will be published with the final version of the CCMES. This will include a record of how recommendations from earlier stages of the assessment have been taken into account.
- **Review**: This assessment makes specific recommendations about monitoring the implementation of the CCMES, including highlighting key equalities monitoring questions.

2.4 Iterative Process

From Spring 2009 to the publication of the IIA, the consultants wrote informal commentaries on successive working documents which aimed to identify major significant impacts on the assessment objectives and suggest possible improvements. The main body of this Annex, however, includes the final comments pertaining to equalities that are in this version of the IIA, designed to be read in conjunction with the draft CCMES.

2.5 Structure of the IIA

The main part of the IIA consists of an assessment by each objective of the policies, using a matrix method with positive, neutral, and negative scores, as well as a symbol to indicate where the policy's effect is uncertain or dependent on how it is implemented. The matrices generally compare policies with what would happen without the policy. It is important to point out that a positive score does not necessarily mean that more could not be done to tackle climate change

and energy efficiency. The assessment considers this aspect. The scores are accompanied by commentary.

3. Evidence

The CCMES is a strategic document and, although the action points give details about implementation, it is often difficult to state the precise impact on equalities groups with certainty, since it will depend on exactly how successful the initiatives are in targeting and reaching equalities groups and low income households. Furthermore in many cases implementation will depend on the actions of others outside of the Mayor's control. These factors mean that the IIA is of necessity strategic and qualitative in its assessments, and uses professional judgement. Evidence to answer the equalities assessment questions was sourced where appropriate from relevant documents and statistics and is evidenced throughout this Annex as footnotes.

4. Consultation

The IIA has taken account of comments from a stakeholder consultation workshop held in April 2010 which was part of the IIA of three of the Mayor's developing strategies: Climate Change Mitigation, Air Quality and Waste. It sought to consult specifically on the impact of the strategies on health and wellbeing, equalities, and community safety. Invitees from the equalities sector included members of the HEAR network, a pan London third sector network set up to give mutual support on equalities matters. It also included a number of other specialist organisations with a known interest in the equalities impact of environmental strategies, such as London Friends of the Earth and the London Sustainability Exchange. The workshop was held at the time when all three strategies were far enough advanced and in the public domain that substantive discussions were possible, but still early enough to influence policy. With regard to climate change mitigation and energy the workshop raised the following points:

- Support for SMEs to install energy efficiency measures
- Cost incentives to encourage people to adopt energy saving measures which could benefit equality groups
- Awareness raising to home owners in an increased value of an energy efficient home
- Extended schools and more community use of schools means more energy is used
- The CCMES should look at what affects behaviour change

Some of these are detailed implementation issues, but we have addressed more strategic elements as far as possible in our assessment of the CCMES, particularly in relationship to SMEs and behaviour change.

Notes from the workshop have been sent to all those who had originally been invited with an invitation to respond. The one response received has been taken into account in the IIA.

The draft CCMES, along with the IIA, is currently out to consultation until 5 January 2011. People from equalities groups will be encouraged to participate in the consultation.

5. Likely effects of the CCMES and its proposed policies

This section summarises the equalities implications of the CCMES and its proposed policies from the main IIA report.

Overall: Many of the policies may promote equality but implementation will require particular targeting of equalities groups. The many energy efficiency initiatives may only benefit equalities groups and lower income households if they are specifically targeted and promoted in ways that will increase the take up by these groups. It is therefore necessary that lessons on barriers and success factors from past initiatives are learned. The Retrofit Employer Accord Project, giving green skills to unemployed people should also benefit disadvantaged people, but it will be important in the evaluation of the pilot to look at take up of the programme by equalities groups,

and consider targeting specific equalities groups under a positive action programme in the roll out of the initiative.

Measures to prevent, reduce and offset adverse effects: this section of the IIA scrutinises policies or decisions that could have a negative effect on IIA objectives and identifies various ways that positive benefits should be safeguarded and opportunities to obtain more. Points in the IIA that are pertinent to the equalities agenda include:

- The CCMES emphasises the business and job opportunities which the coming energy transition offers, and includes measures to train and equip Londoners to exploit these, including the Retrofit Employer Accord Programme, currently being piloted in a number of London boroughs. There is further potential in other areas of sustainable energy activity e.g. collection and processing of used cooking oil, construction/demolition timber, local digestion. We recommend that green energy business development should actively seek to provide skills and jobs to disadvantaged groups; there is an opportunity under positive action initiatives to target specific equality groups to benefit from such programmes.
- There have been numerous initiatives to motivate and promote energy saving since the mid 1980s and many have proved disappointing in uptake and results. It is therefore paramount that the Mayor ensures that the lessons of past experience have been learned, to ensure that effort is deployed effectively. We recommend that detailed design and implementation of initiatives to promote more sustainable energy behaviour needs to be informed by impartial assessment of previous initiatives, with particular reasons why uptake and effect have frequently fallen short of expectations. From an equalities point of view it is important that such assessment takes into account whether which schemes targeted particular groups, and what were the barriers or success factors contributing to low or high take up by different equalities groups.
- The IIA recommends that such measures should take account of how people form beliefs and values and what motivates them to change their behaviour. Different groups in society will be motivated in different ways and it is important that such measures should be targeted to reach different equalities groups and should be accessible to them.
- Disadvantaged groups (e.g. those on certain benefits) will particularly benefit from guidance on eligibility for energy efficiency initiatives.
- The IIA makes a number of more detailed recommendations and one which has particular equalities implications is under Policy 10 (minimising CO_2 emissions through a shift to more efficient modes of transport). The IIA points out that smaller, more local, schools, surgeries, hospitals, post offices, council offices etc may be 'inefficient in terms of cost per unit of service delivered, but may have benefits in reducing travel generated. This would also improve equality of access, particular by those groups who do not drive.

Assessment of the policies

Policy 1: Combining London's existing economic strengths and institutions with its influence and capacity to drive demand and attract inward investment in the low carbon economy: this policy contains a range of actions designed to use London's strengths to become a leader in the low carbon economy, through using for example, the London Green Fund for low carbon energy investments. It will do this through working with other partners and also encouraging central government, boroughs, and the financial sector to support the green economy. The London Green Fund in particular will lever in investment in programmes that tackle climate change such as decentralised energy and retrofitting buildings. This could potentially have a positive impact on low income households if some of the investments are to be targeted on social housing estates.

The development of ten low carbon zones to illustrate how carbon reduction programmes can be delivered in urban areas to stimulate demand for low carbon products and services may benefit equalities groups and low income households through the implementation of the package of measures each area has selected. For example Brixton, an area with a high proportion of BAME

residents and with high deprivation, will focus on behaviour change and developing social capital to tackle both fuel poverty and social exclusion. However not all low carbon areas are areas of high deprivation. It will be important to monitor the impact of the measures on equalities groups.

The policy also mentions campaigns to change behaviour of both businesses and individuals to encourage them to take up low carbon products and services, such as energy efficiency measures. The IIA emphasises the importance of evaluating past initiatives that have promoted behavioural change to see what lessons can be learned as to what influences take up. Certainly it will be important to look at barriers preventing take up amongst certain equalities groups and to specifically target equalities groups and those on low incomes in such campaigns.

Policy 2: Helping Londoners to gain the skills and experience needed to participate in the low carbon economy This policy aims to help Londoners develop the skills and knowledge required by businesses operating in the emerging low carbon economy. One of the actions is to understand how best to capitalise upon the opportunities afforded by the Mayor's climate change programmes, particularly in relation to the long-term workless, in particular through the Retrofit Employer Accord Pilot, a pilot to support workless Londoners to access jobs and training arising from RE:NEW and RE:FIT. This scheme should have a positive impact on workless people, and, if equalities groups are targeted, a positive impact on these groups.

Policy 3: Enabling the identification and development of decentralised energy opportunities and building capacity to deliver decentralised energy projects This policy has not been appraised since it is concerned with identifying and spreading information about decentralised energy opportunities.

Policy 4: Delivering decentralised energy through the planning system This is about supporting the expansion of existing decentralised energy systems in new developments or including new systems on site. This will have an uncertain impact on equalities groups, depending on the location of new developments and which groups move there. This should be a consideration in any EQIA conducted on new developments.

Policy 5: Enabling the commercialisation of the decentralised energy market to deliver decentralised energy on a wide scale in London Of greater significance is the actual implementation of decentralised energy systems. Enabling the commercialisation of the decentralised energy system market to deliver decentralised energy on a wide scale has the potential to benefit residents on urban regeneration sites; for example Southwark Council has secured energy demands for a decentralised energy scheme by pledging social housing estates such as Elephant and Castle and the Aylesbury Estate to the scheme. Again, it is important that the potential benefits to residents from equalities groups be assessed in any local EQIA.

Policy 6: Retrofitting existing homes with energy efficiency measures along with low and zero carbon energy generating technologies This policy has the potential to impact positively on equalities groups, but again implementation is key. Government programmes such as the Community Energy Saving Programme (CESP) helps households in areas of low income to install energy efficient mechanisms, and seven out of the ten Low Carbon Zones have applied for this. Warm Front is targeted at those struggling to keep warm affordably. The Decent Homes programme aims to ensure minimum standards for social housing, and that all vulnerable people in private housing have a home meeting a standard of decency by 2016. The Social Housing Energy Savings Programme aims to reduce fuel bills for social housing tenants through cavity wall insulation. The Mayor, through RE:NEW, aims to install energy savings measures to 200,000 homes. However, it will only be through monitoring of take up of these schemes by equalities groups and low income households that actual benefits will be proved. The Green Homes Concierge Service, a service to get over the barriers of anxiety about the hassle and uncertainty of energy efficiency installation, was only taken up by a small number of households, so it is important that barriers to take up of such schemes specifically amongst equalities groups are explored.

Policy 7: Tackle fuel poverty in London This is a most important policy which aims to tackle fuel poverty amongst those with low household incomes and high housing costs. A range of actions is included such as arguing the case for more up-to-date data at a regional level, increasing the take-up of Warm Front, and maximising the income of fuel poverty households by including benefits checks as part of the 'easy measures' package delivered to homes. However, increasing the take-up of Warm Front will not tackle fuel poverty in some of London's most vulnerable groups since it is only available for privately owned or rented property and excludes the social rented sector, where the incidence of fuel poverty is higher[22] The CCMES will also specifically promote energy efficient measures to older people through the Mayor's Older People's Strategy. However, according to the GLA's Fuel Poverty study[23] the proportion of older person households in fuel poverty is not as high as those households with children under 16, with a long-term sick or disabled person, or BAME households – using the equivalised definition where larger households are more likely to be fuel poor than smaller ones[24]. Therefore measures to target these equalities groups should be considered. The CCMES recognises that the roll-out of RE:NEW across London can be effective in reducing the incidence of fuel poverty; It will be particularly important to target social housing under the RE:NEW programme since people living in social housing are more likely to be fuel poor. While the range of measures suggested should do much to tackle fuel poverty, it will be important to monitor reach and take up by equalities groups and vulnerable people. In the implementation of RE:NEW it will be important to monitor how far fuel poverty households have benefited. One measure which appears to be missing in the CCMES is to lobby energy suppliers to reduce their higher pre-paid charges as this disproportionately affects those on lower incomes.

Policy 8: Minimising CO_2 emissions from London's existing workplaces This policy commits the Mayor, along with the LDA (or its successor) and other partners, to support organisations to reduce CO_2 emissions from their existing buildings by retrofitting them with energy efficient measures, building the knowledge and capacity of workplaces to use energy more efficiently, and sharing best practice. Actions include considering support for SMEs which represent 99% of the total businesses in the capital. The LDA's report 'Redefining London's BME-owned Businesses'[25] estimates that there are 66.000 BAME-owned businesses in London (around 22% of the London total), as well as 93,000 self employed people from BAME communities. The majority of them are small, with around 25% of them employing less than 5 people, so targeting them will be a challenge. For this policy to benefit BAME owned businesses will require specific promotional material and targeting through business support agencies, including BAME enterprise support agencies. Targeting specific sectors such as retail is also likely to reach a higher proportion of BAME owned firms. A GLA Economics paper[26] found that BAME people make up around 42% of the self employed in the retail sector in London. This is far higher than their share in the population.

Policy 9: Minimising CO_2 emissions and energy use from London's new buildings This policy includes implementing climate change policies set out in the draft replacement London Plan and the Mayor's Housing Strategy. This has an uncertain effect on equalities groups since it depends on who occupies the new buildings. Certainly occupants of new social housing will stand to benefit from lower energy use. For example new developments in the Upper Lee Valley as a result of the Olympic Village legacy could benefit lower income residents of East London, although it is difficult to say at the present time who will occupy these flats.

Policy 10: Minimising CO_2 emissions through a shift to more efficient modes of transport This policy will reduce air pollution by encouraging and supporting less polluting transport behaviours, especially by encouraging access to transport modes other than private cars,

[22] Association for the Conservation of Energy, *Fuel Poverty in London* (GLA, 2009)
[23] Ibid
[24] BAME households are more likely to be fuel poor than white households if the equivalised definition of fuel poverty is used where disposable income after housing costs is also adjusted for household size.
[25] Tom Cannon, Jeffrey St Paul and Richard Joseph Victory, *Redefining London's BME-owned Businesses* (LDA, 2005)
[26] GLA Economics, Retail and the Labour Market (GLA, 2006)

including the encouragement of walking. This will reduce inequality by increasing access to public transport and cars (through car clubs and car sharing) since many people from equalities target groups are less likely to own a car. Women in particular are less likely to possess a driving licence[27] and will benefit from improvements in public transport. Such policies would also help to reduce the cost of living since car ownership would not markedly improve transport accessibility. People from BAME groups are more likely to perceive costs of travel in London as a problem[28]; thus publicity and information about the benefits of public transport and car clubs should particularly highlight cost savings as well as being good for the environment.
The IIA includes a recommendation for the GLA to include support for delivering public services in a way that reduces the need to travel and this will have a beneficial effect on those who do not possess a car including women and some disabled people.

Policy 11: Minimising CO_2 emissions through more efficient operation of transport This includes supporting individuals to use fuel efficient driving techniques. It will be important that methods to promote behavioural change targets equalities groups if this policy is to benefit them. Care should be taken to ensure that any traffic smoothing measures that entail the phasing of traffic lights leave adequate time for a person with mobility problems to cross the road. Campaigns to encourage cycling should particularly target people from BAME communities and women who are currently less likely to cycle[29]. Walking initiatives should give information about accessibility for disabled people.

Policy 12: Minimising CO_2 emissions from transport through the use of low carbon vehicles, technologies and fuels Although a laudable policy in itself, people from low income households may be less likely to afford new low emission vehicles since the upfront costs are higher than for conventionally fuelled vehicles or second hand cars. However, the encouragement of more fuel efficient vehicles is unlikely to impact positively on low income households who may not be able to afford the more expensive lower emission vehicles.

Policy 13: Setting challenging targets and measuring and publicly reporting CO_2 emissions Setting CO_2 emissions reductions targets is clearly beneficial overall, but it is difficult to say such overall targets would affect equalities groups differentially.

Policy 14: Reducing energy use and CO_2 emissions from GLA group buildings and 15: Driving down CO_2 emissions from transport in the GLA group. These are welcome but they are likely to have neutral equalities impacts.

Policy 16: Demonstrating what can be achieved through demanding low carbon goods and services Green procurement aims to increase business opportunities for firms providing low carbon products and services to bid for GLA contracts. Overall this is likely to have a neutral equalities impact, but if linked to Policy 2 on helping Londoners to gain the skills needed to participate in the low carbon economy, formerly unemployed people gaining jobs in firms bidding successfully for GLA contracts would benefit.

Policy 17: Measuring London's CO_2 emissions is not appraised with a matrix since it will not in itself make any difference to achievement of the IIA objectives.

Monitoring

The purpose of monitoring is to answer questions about the effectiveness of the strategy in delivering desired results. With respect to equalities groups two questions are important to ask which focus on firstly on targeting and secondly on actual benefit. We have also added a specific

[27] Regional Transport Statistics (Department of Transport, November 2008)
[28] Travel in London, Report 2 (Transport for London, 2010)
[29] Travel in London, Report 2 (Transport for London, 2010)

question on fuel poverty as we feel this is a significant equalities issue which might be tackled by some of the initiatives proposed in the CCMES:

- How far have equalities groups and those on low incomes been targeted as beneficiaries to the initiatives proposed by the CCMES e.g. the Governments' energy efficiency schemes such as Warm Front, CESP, SHESP etc. - and what has been the degree of take up?
- How far have particular equalities groups benefited from these initiatives e.g. RE:NEW, RE:FIT, REAP, low carbon skills programme, campaigns to promote cycling?
- Has the incidence of fuel poverty within vulnerable households decreased?

6. Modification

The IIA has been an iterative process with the consultants commenting on the emerging policies in Spring 2009 and on drafts of the CCMES. Once the consultation on the IIA and the CCMES has been completed a further round of assessment will be completed. Any recommendations and changes that affect equalities groups will be documented.

Annex 2: Rationale behind proposed policies

The following table records the reasons the policies in the draft CCMES were adopted and some alternatives rejected. The first four columns are as provided by GLA officers unchanged. The original final column, 'evidence', has been replaced by one giving the assessors' comments.

RATIONALE BEHIND PROPOSED POLICIES FOR CLIMATE CHANGE MITIGATION AND ENERGY STRATEGY				
Proposed Policy	**Proposals**	**Summary of alternative policies considered? (if yes give details)**	**Summary rationale for decision**	**Appraisal comment**
Target: Reduce London's CO_2 emissions by 60% on 1990 levels, by 2025.		Continuation of existing target OR Reduce target OR Increase target	Target kept at current level to reflect the leading role that London can take in reducing CO_2 emissions.	Agree. Latest climate science confirms that this is a prudent minimum rate of reduction: there is now a case for an even higher target. Recommend that Mayor explicitly says that his target for London will be kept at least as stringent as any UK Climate Change Committee recommendation
Policy 1 – Combining London's economic strengths, institutions, funding capability and brand to create the conditions that support low carbon growth and enable London's low carbon economy to prosper.	Supporting and developing London's existing economy, supporting inward investment, and lobbying, the Mayor will help to create the conditions in London that will drive low carbon growth. Proposals include: – Establishment of the London Green Fund – Using Mayoral climate change mitigation programmes to stimulate supply and demand for low carbon	Continue as usual or Working with partners and the GLA Group, the Mayor will ensure that London is well positioned to exploit its existing strengths and able to identify opportunities to develop new strengths so that it can capture, at least, its share of the future low carbon economy.	Reflected the role that London is best placed to undertake in supporting the transition from the strengths and existing sectors that it already has.	Agree. It is sensible to seek to exploit London's strengths to get economic benefit from actions required for environmental reasons.

	products and services – Developing the Green Enterprise District – Promote existing low carbon R&D programmes	Or Working with partners and the functional bodies, the Mayor will both stimulate demand for low carbon products and services and support business to access the associated supply chain opportunities. Or Combining London's economic strengths, institutions, funding capability and brand to create the conditions that support low carbon growth and enable London's low carbon economy to prosper. Or Deploying London's influence, capacity and resources to drive demand for and leverage investment in activity that promotes low carbon growth. Or Pursue a high carbon economic activity path over the medium-term and only move to low carbon activity when no high carbon economic options are available to London's businesses.	Reflected the role that London is playing in establishing large-scale programme and the demand this will create in the relevant sectors. Also plays to the existing R&D strengths that London has that will support product development, commercialisation and supply chain development.	
Policy 2 - Helping Londoners to gain the skills and experience needed to participate	Co-ordinating the requirements for low carbon skills training and employment support, and lobbying government to provide the right policy framework, the	Continue as usual Or Identify key sectors within the low carbon economy that	The skill sets that will be required to make the transition will be wide-ranging, so they need to be identified and mechanisms	Agree. See policy 1.

in the low carbon economy	Mayor will ensure that Londoners have the skills and awareness to participate in the low carbon economy. Proposals include: – understanding the employment and skills needed to support the low carbon sector in London – creating jobs and training opportunities through the Mayor's programmes.	Londoners need to develop skills in and support them to do so. Or Helping Londoners to participate in the low carbon economy. Or The Mayor, through the London Development Agency and working with partners, will help create the conditions that ensure London's businesses are able to access market opportunities in the low carbon economy and Londoners are adequately skilled to compete effectively for the jobs created in the sector. Or The Mayor, working with partners and through the London Development Agency, will encourage the creation of jobs in the new low carbon economy, and ensure that Londoners are adequately skilled to fill the jobs. Or Develop Londoners' skills and experience in high carbon sectors to ensure that Londoners are able to access high carbon economic opportunities.	developed to impart these skills to people.	

Policy 3 – Enabling the identification and development of decentralised energy opportunities and building capacity to deliver decentralised energy projects.	Proposals include: – continually updating the London Heat Map – undertaking a detailed assessment of London's low and zero carbon energy resources – supporting London boroughs to produce local heat maps and energy masterplans	These 3 policies commit the Mayor, with partners, to delivering a target of 25 per cent of London's energy supply from decentralised sources by 2025. Alternative policies included: – Removing the 25 per cent target – Increasing the 25 per cent target – Focus planning and implementation on the delivery of onsite renewables.	Total CO_2 emissions from electricity use = 22.5 $MtCO_2$ in 2008 (51% of London's total CO_2 emissions) Total CO_2 emissions from energy supply, including heating = 36.05 $MtCO_2$ (81% of London's total CO_2 emissions). Therefore, tackling CO_2 emissions from energy supply can bring substantial CO_2 emissions reductions. London's high building densities are for the most part well suited to the deployment of decentralised energy systems and their development will provide cost effective carbon savings versus alternative options. A 2008 London First study on delivering decentralised energy in London concluded that the potential capacity for decentralised energy in London could be 30 TWh per year.	Agree. London has good opportunities for decentralised energy. This will often be more effective and cost effective than on site renewables. The policy takes a sensible pragmatic approach.
Policy 4 – Delivering decentralised energy through the planning system	Proposals include: – all new development will, wherever possible, either support the expansion of existing decentralised energy systems or include new systems on-site.			

Policy 5 – Enabling the commercialisation of the decentralised energy market to deliver decentralised energy on a wide scale in London	Proposals include: The wide range of opportunities for decentralised energy schemes in London will be identified and developed by the GLA group, London boroughs and the private sector. The focus will be exemplar decentralised energy projects and the provision to boroughs and developers of the tools to identify decentralised energy opportunities and the support to deliver them. To facilitate the move towards zero carbon energy supply programmes the Mayor will encourage renewable energy projects.			

Policy 6 – Retrofitting existing homes with energy efficiency measures, along with low and zero carbon energy generating technologies, to reduce their CO_2 emissions.	The Mayor will work to provide London wide retrofitting of whole-house energy saving measures in existing homes, and encourage London's households to change the way they think about and use energy at home. The Mayor will also create mechanisms to allow Londoners to install more expensive measures such as renewables in their homes. This will be delivered through the RE:NEW. Proposals include: – Working with boroughs, energy suppliers, government and partners, to install easy energy efficiency measures into 1.2 million homes and loft and cavity wall insulation into those where appropriate by 2015 – Maximising uptake of more expensive energy efficiency and renewables measures – Developing effective community based approaches to delivering home energy efficiency measures	Continuation of London Homes Concierge Service, Or Reliance on existing government schemes and measures.	– London's homes (buildings) are responsible for 15.73 $MtCO_2$ - 36% of London's CO_2 emissions in 2008. – Previous scheme to reduce CO_2 emissions from households was the Homes Concierge Service. This was only taken-up by a relatively small number of households and resulted in a reduction in CO_2 emission of 723 tonnes. – The whole-house approach has been proven to be effective in previous pilots eg Kirklees. – London receives less than its equitable share of national funding for homes energy efficiency. For example, a London Assembly report found London receives only 4.5% of CERT funding, compared with having 12% of the UK population. A large scale programme can therefore lever in this funding.	Agree that retrofit is extremely important and that the whole house approach appears promising. However the concierge scheme also appeared very promising after research and piloting. GLA should understand why take up was then so disappointing, and show how lessons have been learned in the new scheme.
Policy 7 – Tackling fuel poverty in London	The Mayor will work to minimise fuel poverty in London through the focused delivery of appropriate climate change mitigation and energy programmes: – RE:NEW – includes benefits checks as part of energy audits, therefore increasing uptake of Warm Front funding – Call on energy suppliers to implement social tariffs	Continue as before	By making homes more energy efficient, it will reduce fuel bills and therefore contribute towards reducing fuel poverty.	Agree.

	– Promote the living wage and increase affordable housing provision			
Policy 8 – Minimising CO_2 emissions from London's existing workplaces	The Mayor, working with the LDA and other partners, will support organisations to reduce CO_2 emissions from their existing buildings by retrofitting them with energy efficiency measures, building the knowledge and capacity of workplaces to use energy more efficiently, and sharing best practice. This will be delivered through: – RE:FIT – The Green500 and successor schemes – The Better Buildings Partnership	Continuation of Green500 in current form or Extending help to SMEs or Working with other organisations, e.g. the Carbon Trust. Or Rely on national schemes for retrofitting public buildings.	London's workplaces responsible for 19.17 $MtCO_2$ in 2008 (43% of London's CO_2 emissions) A number of barriers were identified to the public sector implementing energy efficiency measures. As they are responsible for 30% of energy consumption in the service sector it presents a good opportunity for reducing CO_2 emissions. Continuing without RE:FIT would have missed this. A number of smaller organisations do not have the capacity to reduce their own CO_2 emissions, so further support was required. Continuing with the Green500 as was, would have missed this.	Agree.
Policy 9 – Minimising CO_2 emissions and energy use from London's new buildings	Implementing climate change policies set out in the draft replacement London Plan, developing additional guidance and best practice support, and working to deliver exemplar new build projects, specifically: – Making all new residential new build zero-carbon from 2016, with an improvement on 2006 building regs of 44% from 2010 and 55% from 2013 – Making all non-residential new build	Continuation of previous London Plan targets: – 20% of energy supplied by renewables for new development – Go no further than building regulations	– The overall targets for CO_2 reduction present a more holistic response to CO_2 emissions from new build and support the implementation of the mayor's energy hierarchy. – The targets align to (and are more challenging than) nationwide UK targets – The previous target led to distortion of the energy hierarchy, with renewable	Agree. Carbon reduction is the measure that matters, so it is better to set targets in terms of this than any of the technical means to achieve it. The lean / clean / green hierarchy is a good rule of thumb, though should be applied pragmatically and flexibly

	zero-carbon from 2019, with an improvement on 2006 buildings regs of 44% from 2010, 55% from 2013, and as per new building regulations from 2016. – Applying the Mayor's energy hierarchy: Be lean, be clean, be green.		energy placed higher than 'being clean'. – The LSBU report (see next column), supported the target levels set.	
Policy 10 - Minimising CO_2 emissions through a shift to more efficient modes of transport	Reducing the need to travel where possible and encouraging people to switch to public transport, walking and cycling; and encouraging freight to switch from road to rail and water.	As per Mayor's transport strategy	As per Mayor's transport strategy Transport responsible for 9.61 Mt CO_2 (21% of London's CO_2 emissions) in 2008.	Agree. Though there is little practical action on reducing the need to travel, which if applying the lean / clean / green hierarchy should have top priority.
Policy 11 - Minimising CO_2 emissions through more efficient operation of transport	Improving driving technique on public transport, raising awareness of fuel efficient driving styles, and smoothing traffic flows.			
Policy 12 - Minimising CO_2 emissions from transport through the use of low carbon vehicles, technologies and fuels	Supporting and encouraging the uptake of low emission vehicles, reducing the use of energy by transport infrastructure, and supporting the use of sustainable biofuels.			
Policy 13 - Setting challenging targets and measuring and publicly reporting CO_2 emissions	Setting interim targets to reduce CO_2 emissions, reporting progress against targets, and identifying further opportunities for CO_2 reduction.	Continue as before.	Research shows that households and SMEs are more likely to take up energy efficiency measures if government takes a lead.	Agree.
Policy 14 – Reducing energy use and CO_2 emissions from GLA group buildings	Retrofitting existing buildings with energy efficiency measures, minimising the energy use in new buildings, and utilising decentralised energy.			
Policy 15 - Driving down CO_2 emissions from transport in the GLA group	Driving fleet vehicles in fuel efficient ways, and procuring low CO_2 emitting vehicles into the GLA group fleet.			

Policy 16 - Demonstrating what can be achieved through demanding low carbon goods and services	Procuring low carbon products and services, working through the GLA group's responsible procurement policy, and using the GLA group's procurement as a model to the wider public sector.			
Policy 17 – Measuring London's CO_2 emissions	Develop and maintain an up-to-date emissions inventory covering London's direct and indirect CO_2 emissions.	Continuing to measure CO_2 emissions with an up to three-year time lag Or Continuing to not measure London's indirect CO_2 emissions	The time lag makes it difficult for the Mayor to assess the impact of programmes. Measuring indirect emissions will give London a more complete picture of its CO_2 emissions and understand if and where further CO_2 savings could be made in the future.	