Climatic factors

1.1 Introduction climatic factors

Policy context

Kyoto Protocol on Climate Change
Signing up to the 1997 Kyoto Protocol, 38 Countries (plus the EU) have committed to individual, legally-binding targets to limit or reduce their greenhouse gas emissions. These add up to a total cut in greenhouse-gas emissions of at least 5% from 1990 levels in the commitment period 2008-2012. The UK has committed to an 8% reduction (base year = 1990).
Objectives, Targets and Indicators
Achieve a reduction in anthropogenic CO2 levels to at least 5% below 1990 levels by 2012. Consider afforestation and reforestation as carbon sinks.

Our Energy Future – Creating a Low Carbon Economy
The White paper defines a long-term strategic vision for energy policy combining our environmental, security of supply, competitiveness and social goals.
Objectives, Targets and Indicators
Stimulate new, more efficient sources of power generation, and cut emissions from the transport and agricultural sector.

Climate Change: The UK Programme.
The UK's programme is a significant contribution to the global response to climate change. It sets out a strategic, far reaching package of policies and measures across all sectors of the economy, to achieve the targets set.
Objectives, Targets and Indicators
Cutting UK Carbon Dioxide emissions by 60% by 2050.

Luton Local Plan (Second Deposit Draft)
The Local Plan is to guide development and the use of land. It contains policies and proposals for land use and transportation.
Objectives, Targets and Indicators
Reduce motorised transport's contribution to greenhouse gases.

Baseline Review

1.1.1 This section addresses baseline Climatic Factors for Bedfordshire and Luton.

1.1.2 The Hadley Centre for Climate Prediction and Research, which is part of the Met Office, has identified that the global temperature has risen by 0.6c since the beginning of the twentieth century, and over the last thirty years UK winters have been getting warmer and summers dryer.

1.1.3 Some current UK regional climate change predictions to 2080 from the most recent UKCIP02 climate change scenarios report relevant to Bedfordshire include:

- Annual average temperatures look set to rise by between 2C and 3.5C by the 2080's. The south and east of the UK will most likely see the largest rise in temperature.
- Temperatures in the south east may rise by as much as 5C on average, by 2080's, according to the 'high emissions' scenario and over 4C with the 'medium-high emissions'.
- Precipitation in winter will increase in all areas of the country, in every one of the scenarios.
- The summer will see less precipitation than we see now and will therefore be much drier.
- The 'low emissions' scenario predicts the country to become up to 35% drier. Whereas the 'high emissions' scenario forecasts 50% less rainfall than we experience now, by the 2080's. The largest changes are predicted for the southern and eastern part of England
- Less snow will fall throughout the UK - a decline of up to 90%.

1.1.4 This will lead to the following challenges and opportunities.

Challenges:

- Increased flooding risks during winter periods;
- Increased drainage capacity required to cope with more extreme rainfall events;
- Increased risk of damage to infrastructure by subsidence or flooding;
- Potential future requirement to cool properties in summer increasing energy use;
- Increased risk of vegetation fires in summer;
- Increased risks of water shortages in summer due to lack of rainfall (Bedfordshire has no over ground reservoirs) putting increased pressure on local rivers and underground resources).

Opportunities:

- Reduced need to salt roads during winter;
- Reduced winter heating requirements;
- Potentially fewer accidents due to frost and ice.

1.1.5 Potential Implications for waste and minerals sector include:

- Reduced requirements for road and other salts for winter maintenance;
- Drainage of sites may become more expensive;
- Water resources become scarcer during the summer months requiring a higher level of reuse and recycling.

1.1.6 To reduce the impacts of climate change Bedfordshire and Luton Councils should encourage the reduction of the emissions of Greenhouse Gases such as Carbon Dioxide.

1.1.7 Opportunities for reducing Greenhouse gas emissions include:

- Specifying local authority contracts to encourage suppliers to reduce emissions of greenhouse gases;
- Working with existing industry waste and mineral sector environmental initiatives to maximise greenhouse gas reductions;
- Specifying delivery times of construction materials and waste removal away from peak periods to minimise the emission from vehicles stuck in congestion;
- The use of the ICE demolition protocol as a planning requirement to maximise the use of recycled materials reused on sites see www.wrap.org.uk for further details;
- Using the proximity principle to identify relevant mineral resources and waste management facilities t o prevent excessive transport of materials and wastes.

1.1.8 The Carbon Trust through a local authority carbon management programme provides councils with technical and change management support and guidance to help them realise carbon emissions savings. A partially subsidised fund is available to enable councils to "Invest to save" energy and thus greenhouse gas emissions.

Sources of data

- The Carbon Trust www.thecarbontrust.co.uk
- The Metrological Office / Hadley Centre www.meto.gov.uk/research/hadleycentre/index.html
- Waste & Resources Action Programme www.wrap.org.uk
- Department for Transport ALSF-T programme – Joint Industry protocol and key stakeholder initiatives.
- Improvement and Development Agency - www.idea-knowledge.gov.uk

Trends

1.1.9 With a business as usual scenario the emissions of Greenhouse gases will increase.

1.1.10 The Local authorities of Bedford and Luton will need to show leadership to persuade local residents, businesses and non-governmental organisations to reduce primary mineral use, reduce waste and source materials locally.

1.1.11 Thus if the minerals and Local Waste Plans show that they are stabilising or cutting greenhouse gas emissions in these sectors, especially relating to transport, overall this will be an improvement.

Data Gaps

1.1.12 None identified

Implications for minerals planning and SA in Bedfordshire

Key issues from the policy context:

How the minerals local plan should address climatic factors

1.1.13 The MDPDs should have regard to climate change when developing policy options. The SA of the plan should contain objectives for reducing emissions and coping with the effects of climate change. The plan could contribute to UK greenhouse gas reduction targets, for instance through encouraging industrial efficiency, procurement of renewable energy, and more sustainable transport of materials and personnel. The proximity principle in particular needs to be built into site selection for the plan.

Relevant objectives for the SA

- MLDF should encourage development and innovation in renewables and energy efficiency and seek to provide impetus towards a low carbon economy.
- MLDF should encourage a reduction in motorised trips

Key issues arising from the baseline review:

- Potential future requirement to cool properties in summer increasing energy use.
- Increased risk of vegetation fires in summer.
- Increased flooding risks during winter periods and the drainage of sites may become more difficult and expensive.
- Water resources reduced during summer periods, need to consider water recovery and recycling in new developments.

Key issues arising from the scoping consultation:

Are these the key sustainability issues under this topic area? or are there others?

- mineral removal allows water storage for run off from new developments and flash floods caused by climate change
- impact of transportation on local and global environment

What are the main implications of these issues for minerals and waste planning?

- use of flooded pits as water resource for urban areas and/or agriculture; also potential for flood control

What sustainability objectives do you think should be set for each of these topic areas?

- none suggested.