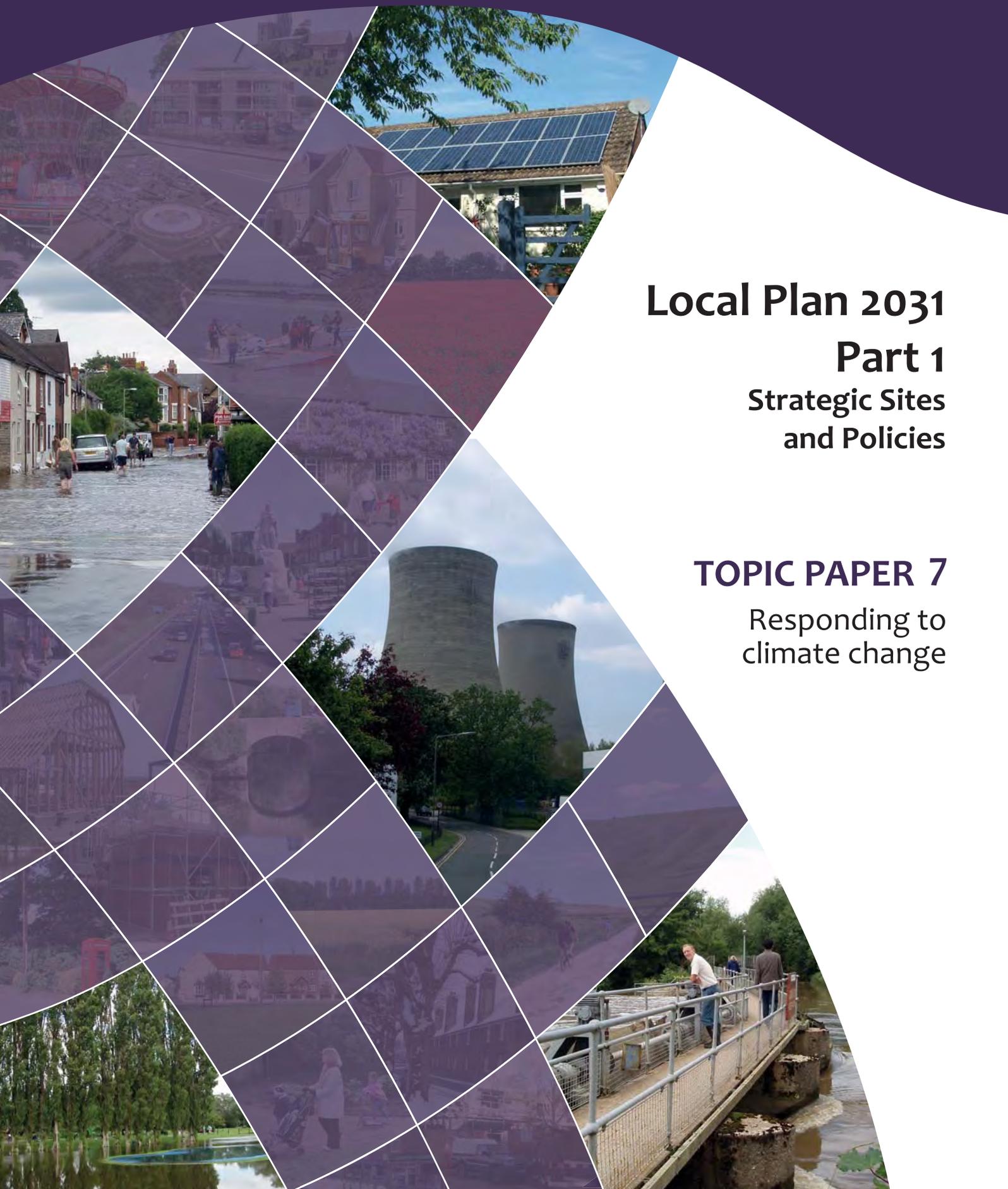




**Vale
of White Horse**
District Council

Publication Version
November 2014



Local Plan 2031

Part 1

Strategic Sites and Policies

TOPIC PAPER 7

Responding to
climate change

This paper is one of 9 topic papers, listed below, which form part of the evidence base in support of the Publication Version of the Local Plan 2031 Part 1: Strategic Sites and Policies.

These topic papers have been produced to present a coordinated view of the evidence that has been considered in drafting the local plan. It is hoped that this will make it easier to understand how we have reached our conclusions.

The papers are all available from the council website:
www.whitehorsedc.gov.uk/evidencebase

Topic Papers

- 1: Duty to cooperate and cross boundary issues
- 2: Spatial strategy
- 3: Strategic sites selection
- 4: Housing
- 5: Supporting economic prosperity
- 6: Transport and accessibility
- 7: Responding to climate change
- 8: The built environment and historic environment
- 9: The natural environment

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Section 1: Introduction

- 1.1 This topic paper provides a brief summary of the evidence relating to the topic of climate change and how it may affect the Vale. This includes climate change adaptation, renewable energy generation, flooding and water management, pollution and waste management / minimisation.
- 1.2 The evidence summarised in this paper has helped to inform the preparation of the Publication Version Local Plan 2031 Part 1 – Strategic Sites and Policies.
- 1.3 The Local Plan 2031 Part 1 will set the strategic priorities for the district to deliver sustainable development. It will identify the number of new homes and jobs to be provided in the area for the plan period up to 2031, as well as make appropriate provision for retail, leisure and commercial development, as well as the supporting infrastructure. It also includes strategic policies to address climate change and natural environmental issues.
- 1.4 Significant work has already been carried out to inform the Local Plan 2031, starting in 2007, and several stages of consultation have already been undertaken with the public and stakeholders over the last few years. These stages have informed the preparation of the Local Plan 2031 and include:
 - Issues and Options (November 2007) – which identified a range of options for how we should plan for the Vale.
 - Preferred Options (January 2009) – which outlined the council’s preferred approach for planning for the Vale.
 - Additional Consultation (January 2010) – which consulted on a few additional policies relating to specific issues.
 - Draft Local Plan Consultation (February 2013) – which consulted on a complete draft of the Local Plan 2031.
 - Housing Delivery Update (February 2014) - which set out the updated housing target for the district and the strategic sites package needed to meet the new target.
- 1.6 The purpose of this topic paper is to summarise the key evidence that has informed the drafting of policies to be included in the Local Plan 2031 relating to climate change.
- 1.7 It is important that the options we develop for policies are also tested through Sustainability Appraisal (SA). This is a legislative requirement of the plan making process¹ and has taken place alongside the preparation of the plan. The SA helps to identify a preferred policy option to inform the preparation of the plan, mitigate any potential adverse impact and helps ensure that the

¹ For more information see the Sustainability Appraisal at www.whitehorsedc.gov.uk/evidence

strategy/proposals being taken forward are the most sustainable, when considered against all the reasonable alternatives.

1.8 This topic paper is arranged into the following sections:

- Section 2: Policy review** – a brief summary of how any national, regional and local policies should influence the preparation of the local plan.
- Section 3: Evidence** – a short summary of any key issues identified from previous stages of consultation; and any other evidence that should inform the plan preparation.
- Section 4: Issues (challenges and opportunities)** – a brief summary of any issues identified from Sections 2 and 3 of the paper that the Local Plan 2031 will need to respond to.
- Section 5: Policy options** – an overview of those policy options which have been tested for possible inclusion within the Local Plan 2031.
- Section 6: Recommendations** – the key findings for how this topic area should be addressed in the Local Plan 2031.

Section 2: Policy review – national policy

- 2.1 This section gives a brief outline of the relevant national, regional and local policy relating to climate change adaptation, renewable energy generation, flooding and water management, pollution, and waste management and minimisation. This includes consideration of any key requirements set out in the National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG) that should guide the development of the Local Plan 2031 relating to how we respond to climate change.

Legislation

EU Directive 2009/28/EC

- 2.2 This Directive relates to the promotion of the use of energy from renewable sources, where the UK has committed to sourcing 15% of its energy from renewable sources by 2020 through the Renewable Energy Directive 2009.
- 2.3 On 23 October 2014, European Union leaders committed to reduce greenhouse gas emissions by at least 40% (on 1990 levels) by 2030. They also agreed to boost the use of renewable energy to 27% and to increase energy efficiency to at least 27%.

The Climate Change Act 2008

- 2.4 The aim of the Act is to improve carbon management in the UK, helping the transition towards a low-carbon economy. It introduced a statutory target of reducing carbon emissions by 80% below 1990 levels by 2050, with an interim target of 34% by 2020.

National Planning Policy Framework 2012 and National Planning Practice Guidance 2014

Climate Change

- 2.5 The key policy requirements set out relating to this topic are:
- Local plans should include strategic policies to deliver the provision of infrastructure for waste management, water supply, wastewater, flood risk and the provision of minerals and energy².
 - Local plans should include strategic policies to deliver climate change mitigation and adaptation³. Plans should pay attention to integrating

² NPPF para 156 bullet point 3

³ NPPF para 156 bullet point 5

adaptation and mitigation approaches and looking for ‘win-win’ solutions, to support sustainable development⁴.

- The planning system should support the transition to a low carbon future in a changing climate, taking full account of flood risk, and encouraging the reuse of existing resources, including conversion of existing buildings, and encouraging the use of renewable resources (e.g. via the development of renewable energy)⁵.
- The planning system should contribute to conserving and enhancing the natural environment and reducing pollution. Allocations of land for development should prefer land of lesser environmental value, where consistent with other policies in this NPPF⁶.
- Local planning authorities should adopt proactive strategies to mitigate and adapt to climate change, taking full account of flood risk and water supply and demand consideration⁷.

2.6 In moving to a low carbon future, local planning authorities should:

- plan for new development in locations and ways that reduce greenhouse gas emissions
- actively support energy efficiency improvements to existing buildings, and
- when setting any local requirement for a building’s sustainability, do so in ways consistent with the Government’s zero carbon buildings policy and adopt nationally described standards⁸. They will need to be based on robust and credible evidence and pay careful attention to viability⁹.

Renewable and Low Carbon Energy

2.7 In promoting the use of renewable and low carbon energy, local planning authorities should:

- have a positive strategy to promote energy from renewable and local carbon sources
- design their policies to maximise renewable and low carbon energy development while ensuring that adverse impacts are addressed satisfactorily, including cumulative landscape and visual impacts
- consider identifying suitable areas for renewable and low carbon energy sources and supporting infrastructure
- support community-led initiatives for renewable and low carbon energy, and

⁴ NPPG, Paragraph: 004 Reference ID: 6-004-20140612

⁵ NPPF para 17 bullet point 6

⁶ NPPF para 17 bullet point 7

⁷ NPPF para 94

⁸ NPPF para 95

⁹ NPPG, Paragraph: 009 Reference ID: 6-009-20140306

- identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers¹⁰.

2.8 The preparation of a local plan should consider:

- the local potential for renewable and low carbon energy generation.
- a range of technologies, their impacts and policies to encourage them in the right locations.
- that there is a legal commitment to cut greenhouse gases and meet increased energy demand from renewable sources.
- Policies should be designed to maximise renewable and low carbon energy development, even though there is no quota identified for local plans to meet¹¹.
- delivering renewable and low carbon energy infrastructure in locations where the environmental impact is acceptable¹².

2.9 Criteria based policies for renewable or low carbon energy should be clear that:

- the need does not automatically override environmental protections
- cumulative impacts require particular attention, especially the increasing impact that wind turbines and large scale solar farms can have on landscape and local amenity
- local topography is an important factor in assessing whether wind turbines and large scale solar farms could have a damaging effect on landscape
- care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including impact on views important to their setting
- proposals in National Parks and AONBs, and in areas close to them where there could be an adverse impact need careful consideration, and
- protecting local amenity is an important consideration¹³.

Flood Risk

- Local plans should be supported by a Strategic Flood Risk Assessment and develop policies to manage flood risk from all sources. Local plans should apply a sequential risk-based approach to the location of development, and if necessary apply the exceptions test¹⁴.

¹⁰ NPPF para 97

¹¹ NPPG, Paragraph: 003 Reference ID: 5-003-20140306

¹² NPPG, Paragraph: 001 Reference ID: 5-001-20140306

¹³ NPPG, Paragraph: 007 Reference ID: 5-007-20140306

¹⁴ NPPF para 100

Pollution and Land Instability

- In preparing plans to meet development needs, the aim should be to minimise pollution and other adverse effects on the local and natural environment. Plans should allocate land with the least environmental and amenity value¹⁵.
- Planning policies should encourage the effective use of land by re-using land that has been previously developed, provided that it is not of high environmental value¹⁶.
- Local authorities may continue to consider the case for setting a locally appropriate target for the use of brownfield land¹⁷, and
- To prevent unacceptable risks from pollutions and land instability, planning policies should ensure that new development is appropriate for its location.

2.10 In relation to air quality, local plans may need to consider:

- air quality management areas and other areas where there could be specific requirements or limitations on new development (via Environment Impact Assessment (EIA) or Sustainability Appraisal (SA))
- the potential cumulative impact of a potential development on the air quality of a management area, and the impact of point sources of air pollution
- ways in which new development would be appropriate in locations where air quality is or likely to be a concern and not give rise to unacceptable risks from pollution¹⁸.

Water supply, Wastewater and Water Quality

2.11 Plan making may need to consider:

- identifying suitable sites for water and waste water, and ensure their timely delivery, to support sustainable development
- measures to protect and enhance local surface water and groundwater
- expectations relating to sustainable drainage systems can improve water quality, speed up replenishment of groundwater, reduce flood risk, and
- the sufficiency and capacity of wastewater infrastructure¹⁹.
- adequate water and wastewater infrastructure is needed to support sustainable development.

¹⁵ NPPF 110

¹⁶ NPPF para 111

¹⁷ NPPF para 111

¹⁸ NPPG, Paragraph: 002 Reference ID: 32-002-20140306

¹⁹ NPPG, Paragraph: 005 Reference ID: 32-005-20140306 and Paragraph: 006 Reference ID: 32-006-20140306

- a healthy water environment will help enhance the natural environment and adapt to climate change²⁰.

Housing Standards Review (2013 and 2014)

- 2.12 The Government completed a Housing Standards Review consultation in 2013. A Ministerial Statement was issued in response to this in 2014²¹. This indicated that standards relating to water efficiency, energy efficiency, access (including Lifetime Homes) and security will be consolidated into Building Regulations. It was announced that the Government intended to wind down the Code for Sustainable Homes and to incorporate energy efficiency standards into Building Regulations.
- 2.13 In October 2014 the Government published a Technical Consultation on the Housing Standards Review²². This sought views on the detail of proposals for implementation and the technical standards it was proposed to put in place. New standards will replace the Code for Sustainable Homes and will be incorporated into Building Regulations and will include optional higher standards for access and water efficiency.
- 2.14 The consultation suggests amending Part G of the Building Regulations so that a new dwelling must not exceed the minimum requirement of 125 litres per day but that local authorities in water stressed areas can restrict the requirement to 110 litres per day.

Policy review – regional and local policy

South East Plan 2009

- 2.15 The Government revoked the South East Plan in March 2013²³, as part of their ongoing devolution of planning powers from Regional Authorities to Local Authorities and Communities (under the Localism Act 2011).
- 2.16 The South East Plan (SEP) policies were evaluated to ensure that the Vale Local Plan policies address any important considerations once the SEP was revoked.²⁴ This is set out in Appendix 1.

Vale of White Horse District Council Local Plan 2006

²⁰ NPPG, Paragraph: 001 Reference ID: 32-001-20140306

²¹

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/340590/13_Mar_ch_HSR_Written_Ministerial_Statement.pdf

²²

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/354154/140911_HSR_CONSULTATION_DOCUMENT_-_FINAL.pdf

²³ See Topic Paper 7: Responding to Climate Change (2013) for details

²⁴ See Table 2.1, Topic Paper 7: Responding to Climate Change (2013) for details

- 2.17 An assessment of the Local Plan 2011 policies has been conducted to ascertain if any of them should be incorporated into new policies in the Local Plan 2031 or if they should be saved for review and possible inclusion in the Local Plan 2031 part 2²⁵ (Appendix 2). The policies have also been assessed for their conformity with the NPPF to ensure they are still appropriate to be relied upon. The NPPF advises that weight should be given to saved policies depending on their degree of consistency with the NPPF²⁶.

Sustainable Design and Construction Supplementary Planning Document (SPD) 2009

- 2.18 This SPD was produced to ensure that developers considered the potential inclusion of a full range of sustainability and resource efficiency measures in their proposals for residential and commercial developments. This SPD will be partially replaced by a new Design Guide which is being published alongside the Local Plan Part 1. Other aspects of the SPD may be replaced by policies included within the Local Plan 2031 Part 2.
- 2.19 This SPD confirmed that the Council's preferred assessment tool for commercial developments was Building Research Establishment Environmental Assessment Methodology (BREEAM}. All new proposals are required to achieve an overall performance equivalent to BREEAM excellent. Very good is acceptable in instances where developers are able to present a robust case of why an excellent rating is not viable for their development.
- 2.20 The SPD also referenced the Code for Sustainable Homes for residential development. However, the Code will now be subsumed into amendments to Building Regulations in accordance with the Government's Housing Standards Review and is therefore no longer relevant.

Draft Design Guide SPD Consultation Document (2014)

- 2.21 The Vale of White Horse District Council has prepared this guidance to set out clear design principles to guide future development within the district and to encourage a design-led approach to development. This provides detailed guidance to support the strategic policies in the Local Plan 2031 and for the determination of applications.
- 2.22 Section 7 (Building performance) of the document includes design principles to encourage potential developments to incorporate measures to improve their overall sustainability in line with BREEAM and the proposed amendments to the Building Regulations. This is in terms of encouraging energy/resource efficiency and low carbon/renewable energy.

The Vale Partnership – A Sustainable Strategy for Communities 2008-2016

²⁵ The Council intend to prepare the Local Plan 2031 Part 2: Detailed Polices and Local Sites once the Part 1 document is adopted. This will include more detailed development management policies to inform day-to-day decisions on planning applications.

²⁶ NPPF Paragraph 215

2.23 The Sustainable Community Strategy sets out the vision for the future of the Vale and identifies issues and priority actions to help achieve them. It particularly identifies how local plans can help deliver these priority actions. The strategy takes into consideration the aspirations of local residents, employers and community organisations.

2.24 The priorities for action and how local plans can help fulfil them are:

A Low Carbon Vale

- encouraging developers to make new buildings energy and resource efficient and so reduce carbon dioxide emissions, and
- making sure that land allocated for new development is located near to jobs and services and can be accessed by public transport, cycling or walking.

Living with extreme weather

- require adequate flood storage capacity as part of all proposals for major new developments (measures could include new wetlands on to which rivers could be allowed to flood and mechanisms like 'balancing' ponds which collect and store surface run-off)
- use planning controls to restrict development in locations within known flood risk areas
- make sure that flood risk assessments are carried out for all developments within known areas of flood risk
- design new housing areas to include cooling, shading areas of open space and landscaping, and
- encourage changes in housing design to cope with changing weather patterns (including passive cooling in their design; adequate guttering to cope with heavy downpours and gravel driveways and other porous surfaces to reduce surface water run-off).

Using resources more widely

- seek a high standard of water efficiency in new buildings on major development sites through such measures as recycling 'grey' water that has already been used and harvesting rainwater for use in the building and gardens
- identify as many previously developed ('brownfield') sites as possible in the right locations to help meet future needs for new development
- encourage appropriate reuse of existing buildings
- encourage more efficient use of land in all developments and re-developments, but without harming the character or quality of the environment, and
- wherever possible avoid the use of high quality farmland and land containing mineral reserves that may be needed in the future.

Reducing waste and increasing recycling

- Ensure that space is available for recycling and composting in all new developments, including flats, and
- Seek financial contributions, from developers of residential schemes, towards the cost of equipment for collecting waste and recyclable materials.

Oxfordshire 2030: Sustainable Community Strategy

2.25 This document sets out the long-term vision for the future of Oxfordshire. One of the strategic objectives for the strategy is *“Environment and climate change: To respond to the challenges of climate change by minimising the effects of flooding, looking after our environment, reducing waste and use of energy to improve the quality of life for all.”* Tackling and adapting to climate change and protecting our environment are recognised as two of the most important issues Oxfordshire is facing.

2.26 The key issues required to respond to this objective are:

- reducing our carbon footprint and adapting to climate change
- ensuring that all developments reduce carbon emissions and increase resilience to climate change
- preserving and enhancing the character of our city, our market towns and villages
- enhancing the quality of the natural environment, landscapes and biodiversity
- addressing flooding risks
- reducing the landfill of waste
- dealing with the environmental impact of population growth and development while maintaining the character of our towns, villages and countryside, and
- protecting and enhancing biodiversity.

2.27 The strategy makes a pledge to:

- reduce carbon emissions and improve energy and water efficiency in the public sector and encourage residents and businesses to do the same
- reduce waste and increase re-use and recycling by households and businesses
- minimise the effects and risk of flooding
- ensure new development is built to high environmental standards
- support individuals, communities and businesses, to respond to climate change and to improve efficiency in their use of energy and water
- keep Oxfordshire clean and green
- protect and enhance the biodiversity of the county, and

- reduce the gap between the best and worse off by targeting work appropriately.

Section 3: Evidence

- 3.1 This section outlines the key documents and evidence relating to the topic area of responding to climate change and how they have informed the preparation of the Local Plan 2031.

Summary of previous consultation stages and key issues

- 3.2 There have been several stages of consultation undertaken to inform the preparation of the Local Plan 2031 (these are listed by Paragraph 1.4). A high level summary of key matters relating to the climate change topic are set out below. Responses to the Issues and Options Consultation are not summarised in this way as these were in response to general principles and were fed into the Preferred Options Consultation.

Preferred Options Consultation (January 2009)

- 3.3 The review of comments to the Preferred Options Consultation identified a number of actions to help inform the Local Plan 2031. These included:
- Thames Water was concerned that important policy elements relating to new development, such as water efficiency, foul and surface water drainage and treatment, new utility infrastructure, amenity issues and reduction of carbon emissions, will be left out of the Local Plan
 - because the Strategic Flood Risk Assessment will refine the Agency's flood zones (by showing flood zone 3b), the policy approach to flooding should refer to both the risk assessment and the flood zones. The risk assessment will assess flooding from a number of sources (e.g. surface water, groundwater & sewers)
 - the Environment Agency supported the protection of natural resources such as using water & construction materials efficiently, and
 - the South East England Regional Assembly stated that the plan should take forward a vision for minimising waste in line with policies W1 and W2 of the South East Plan.
- 3.4 A policy safeguarding the Upper Thames Reservoir was not included in the Preferred Options document as it was considered that adopted Local Plan 2011 Policy CF9 could continue to be relied upon. There was opposition to this approach, not only from stakeholders such as Thames Water and the South East England Regional Assembly but also from the public. Comments also highlighted the importance of securing benefits to mitigate the impact of the reservoir, should it be needed. Examples of mitigation suggested included:
- re-routing of the Wilts and Berks Canal
 - creation of wildlife habitats
 - recreational opportunities
 - protection from flooding

- transport issues
- re-routing of Hanney to Steventon Road, and
- minimising environmental impacts

3.5 With regard to the wording of the policy, it was pointed out that as the Council would not be the decision making authority the wording of the policy should reflect this. It was requested that the wording of the policy was not overly restrictive in terms of uses to be allowed for the safeguarded land. Rather than a blanket restriction on any use of the land, wording should only restrict development that might prejudice the implementation of the reservoir.

Draft Local Plan Consultation (February 2013)

3.7 The Draft Local Plan Consultation included a set of policies relating to helping to mitigate and adapt the impacts of climate change. These included: sustainable design/construction, renewable energy, flood risk and natural resources.

The main issues raised are outlined below:

Flooding

- concerns that development will increase flood risk and no specific proposals have been identified to address this
- The Environment Agency raised issues concerning lack of Sequential Test to support allocation of sites in Flood Zone 2 and 3. The EA suggested text for a flooding policy.
- The EA confirmed they are in the advance stages of investigating the potential Western Conveyance channel flood alleviation scheme. It slightly impinges into South Hinksey and should be included as a constraint and safeguarded in the Plan.

Sustainable Design and Construction

- no evidence provided to justify the local plan requirement for development to attain Code for Sustainable Homes (CfSH) level 4 or BREEAM very good, above national standards, for new developments (e.g. viability/deliverability) and is contrary to NPPF
- higher CfSH standards should be included for energy efficiency, as all new homes will have to be zero carbon by 2016 and Building Regulations will be updated

Renewable Energy

- a quantifiable target should be included for reducing CO₂ emissions and a strategy for achieving this, in line with the Climate Change Act 2008
- the plan should include higher standards to challenge developers

- a more proactive strategy is required to encourage de-centralised low carbon and renewable energy, through exploring options (ie ground source heating, CHP), as well as identifying suitable locations (ie across Science Vale), and
- contrary to NPPF (Para 93), is not seeking to radically reduce CO₂ emissions.

Natural Resources

- in line with the NPPF, the plan should include reference to protecting the best and most versatile agricultural land
- the use of brownfield sites should be prioritised, to minimise the use of Greenfield sites or agricultural land
- concern that no reference/targets have been included to monitor, manage and improve the air quality of management areas (ie. Abingdon, Botley).

Thames Reservoir

- objections were raised to the proposed reservoir due to its potential impact on landscape, potential flood risk and archaeological assets
- Thames Water confirmed that the reservoir is likely to remain an option for addressing future water supply issues and will be assessed further in their management plan, and
- a site promoter suggested that the reservoir site is no longer required by Thames Water and should be considered for a Garden City.

Water

- a Water Cycle Study (WCS) is required to assess the capacity of water infrastructure and identify additional provisions
- all new developments should include effective water conservation schemes, and
- as the district is an extremely water stressed area, a stronger policy approach is required to encourage higher water standards (CfSH) and adapt to climate change.

Housing Delivery Update Consultation (February 2014)

3.6 The Housing Delivery Update set out a new housing target and proposed a set of additional strategic sites. The document did not include any specific policies relating to the topic area of climate change. But the following issues were raised:

- the redevelopment of brownfield sites should be prioritised, before environmentally sensitive greenfield sites are considered (eg in Green Belt or AONB)
- a robust policy for encouraging green technology is required

- concern that the plan will fail to minimise CO2 emissions as it is not encouraging self-containment and sustainable modes of transport
- concern that development is being proposed on the best and most versatile agricultural land, which may impact food security (e.g. at Harwell)
- carbon must be reduced in building materials, construction and use. The target for Code for Sustainable Homes should be increased to CfSH6 (or zero carbon)
- the plan should clarify how development may contribute towards offsite carbon emissions
- reductions of carbon emissions from transport are an essential part of the Climate Change Act and can be achieved by encouraging sustainable transport, and
- the Plan has failed to outline flooding issues (ie. surface water at Grove airfield and Challows, Didcot, Great Western Park) or how they should be addressed.

Other evidence

Climate Change

Intergovernmental Panel on Climate Change (IPCC) Synthesis Report²⁷

- 3.7 The Intergovernmental Panel on Climate Change (IPCC) adopted a report on 1 November 2014 stating that that most of the world's electricity can, and must, be produced from low-carbon sources by 2050. The report states that reducing emissions is crucial if global warming is to be limited to 2C, a target acknowledged in 2009 as the threshold of dangerous climate change. The report suggests renewables will have to grow from their current 30% share to 80% of the power sector by 2050. In the longer term, the report states that fossil fuel power generation without carbon capture and storage (CCS) technology would need to be "phased out almost entirely by 2100".
- 3.8 The report summarises three previous reports from the IPCC, which outlined the causes, the impacts and the potential solutions to climate change. It re-states many familiar positions:
- Warming is "unequivocal" and the human influence on climate is clear
 - The period from 1983 to 2012, it says, was likely the warmest 30 year period of the last 1,400 years

²⁷ <http://www.ipcc-syr.nl/>

- Warming impacts are already being seen around the globe, in the acidification of the oceans, the melting of arctic ice and poorer crop yields in many parts
- Without concerted action on carbon, temperatures will increase over the coming decades and could be almost 5C above pre-industrial levels by the end of this century.

The UK Climate Projections (UKCP09)²⁸

- 3.9 The UK Climate Projections (UKCP09) are published by the Met Office Hadley Centre, which undertakes predictive modelling of climate change impact. This shows that over the next 50 - 80 years Oxfordshire should expect:
- warmer, drier summers.
 - milder, wetter winters, and
 - more frequent extremes of temperature and rainfall.
- 3.10 These changes in our climate could lead to reduced air quality and higher concentrations of low level ozone (a pollutant that can cause health problems including breathing difficulties).
- 3.11 The modelling provides probabilistic data for 30 year time periods centred on every decade to the end of the century, within three greenhouse gas emissions scenarios. Under a high greenhouse gas emissions scenario Oxfordshire could experience:
- summer average daily maximum temperatures in the 2050s are likely to be 22-27°C (this represents a rise of approximately 2-7°C from the baseline period)
 - winter average temperatures for the same time period and emissions scenario will be 7-10°C (a likely increase of approx 1-4°C)
 - the likely change in summer average rainfall ranges from a 12% increase through to a 40% decrease (this shows the difficulty of preparing for the range of changes to Oxfordshire's climate that we might see), and
 - average rainfall in winter is likely to increase by between 3% and 37%.
- 3.12 The figures also show that in general, the South East will be warmer year round, wetter in the winter and drier in the summer, compared to the other regions in the UK.

Renewable Energy in the Thames Valley in 2012 - Report to VOWH on the development of renewable energy sources 2012

²⁸ <http://ukclimateprojections.metoffice.gov.uk/>

- 3.13 This document outlines the renewable energy generation in the Thames Valley, where it comes from and how it is progressing with meeting the government's statutory target
- 3.14 It shows that there is 205.39 Mega Watt equivalents (MWe) of installed renewable energy capacity across the Thames Valley. There has been an increase in the use of other renewable technologies since 2011 (the time of the last data gathering) and renewable heat, in particular, has increased. The majority of this is landfill gas at 72MWe; however this fell by 2MWe since 2011. The use of landfill gas is anticipated to continue to fall over the next few decades as the gas producing waste ages and becomes less productive.
- 3.15 The total renewable electricity installed capacity in the Thames Valley has been increasing annually since 2005 and is currently at 134 MWe. This trend can be seen in Figure 3.1. Although, the Thames Valley saw a large increase in renewable energy installations from 2009 to 2010 which was sustained into 2011 and 2012.

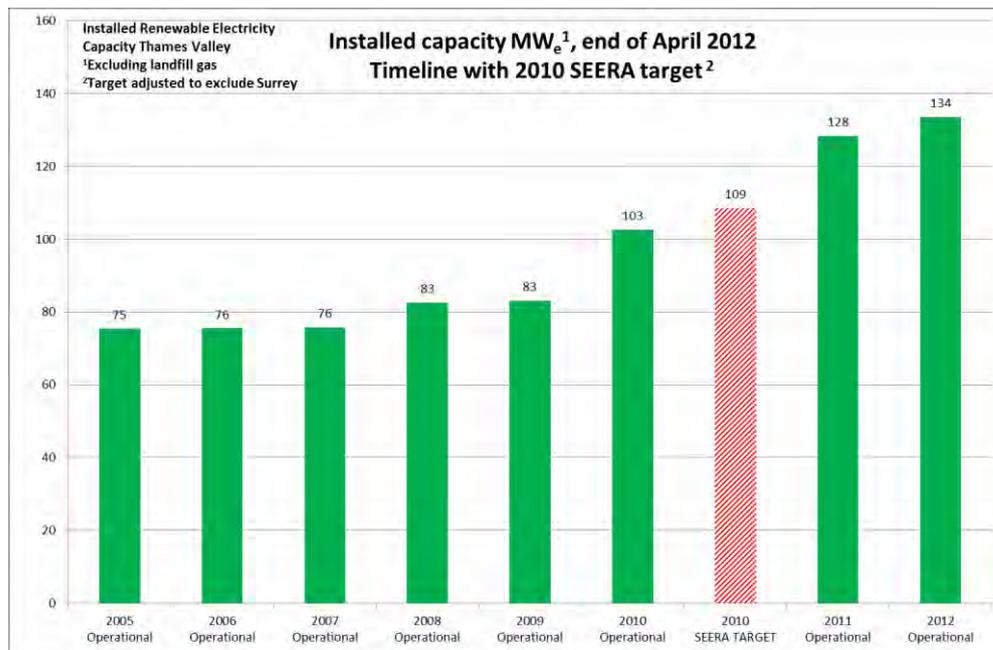


Figure 3.1: Installed capacity over time in the Thames Valley and 2010 SEERA target²⁹

- 3.16 In addition to the renewable electricity installed capacity, the renewable heat installed capacity within the Thames Valley totalled 58MWh at the end of April 2012. Of the total installed capacity of renewable heat, 50MWh comes from biomass thermal while the remaining 8MWh comes from the other thermal technologies. There was an increase in installed capacity of renewable heat of around 21MW since November 2011 with biomass

²⁹ TV Energy, Renewable Energy in the Thames Valley in 2012 Report to VOWH on the Development of Renewable Energy Sources, September 2012 page 9

thermal increasing around 66% and other thermal technologies increasing by around 33%.

- 3.17 To meet the EU target of 15% of energy consumption from renewables by 2020, 8,303MWh of renewable energy would need to be generated in the Thames Valley. This would require a rapid increase in deployment in the next 8 years of about 22% annually to ensure the Thames Valley provides its share of renewable energy towards the UK target. In contrast, if the Thames Valley continues on a 'Business as usual' trend then it will be 2061 before we meet a 15% contribution, based on a 4% increase each year.
- 3.18 Of the three counties in the Thames Valley, Oxfordshire generates the least energy from renewables and falls furthest behind in meeting the 15% renewable generation by 2020, currently at 3.3%. With the landfill gas outputs expected to fall as well as the closure of the co-firing plant in Oxfordshire (Didcot A), the number of installations of other technologies, and thus the outputs, needs to increase if the renewable energy targets are to be reached.
- 3.19 Of the energy consumed in the Vale of White Horse district, around 8.8% of energy is generated from renewable sources. This represents a decrease of 2.7% on last year due to a decrease in Landfill gas generation, which will continue to decline in coming years. The figures below show that a significant amount of energy is also generated by the co-firing power station in the district. This is the Didcot A Power Station, which closed in 2013.

Table 3.1: Vale of White Horse renewable energy installation data³⁰

| 2012 figures | Number of installations | kW_e | kW_{th} | MWh_e | MWh_{th} |
|---------------------|--------------------------------|-----------------------|------------------------|------------------------|-------------------------|
| Biogas | 0 | 0 | | 0 | |
| Biomass | 4 | | 240 | | 372 |
| Co-firing | 1 | 20,189 | | 136,676 | |
| Hydro | 3 | 14 | | 42 | |
| Landfill gas | 3 | 14,893 | | 71,018 | |
| Wind | 4 | 6,521 | | 13,390 | |
| Solar PV | 682 | 2,287 | | 1,202 | |
| Other thermal | 24 | | 379 | | 1,308 |
| Total | 721 | 43,904 | 619 | 222,328 | 1,680 |

³⁰ TV Energy, Renewable Energy in the Thames Valley in 2012 Report to VOWH on the Development of Renewable Energy Sources, September 2012 page 21

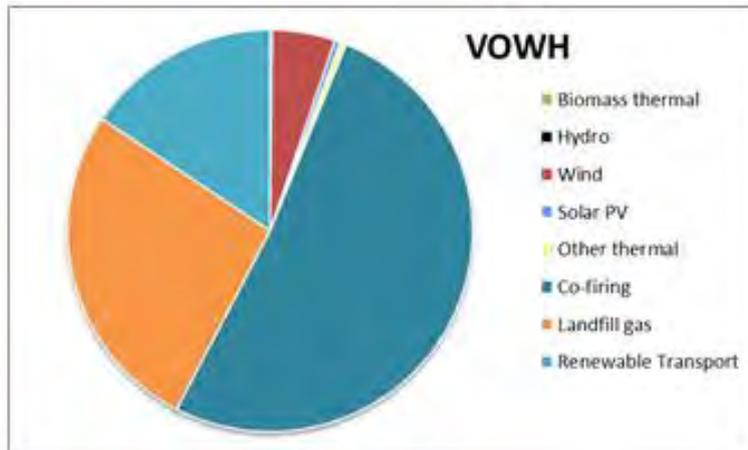


Figure 3.2: Renewable energy outputs (Mega Watt hours – MWh) for Vale of White Horse District³¹

3.20 Figure 3.3 shows the sources of renewable energy in the district if landfill gas, the co-firing power station and renewable transport are removed. This shows an almost total dominance of onshore wind as a renewable energy generator. However, solar installations and generation has increased significantly in the last two year period.

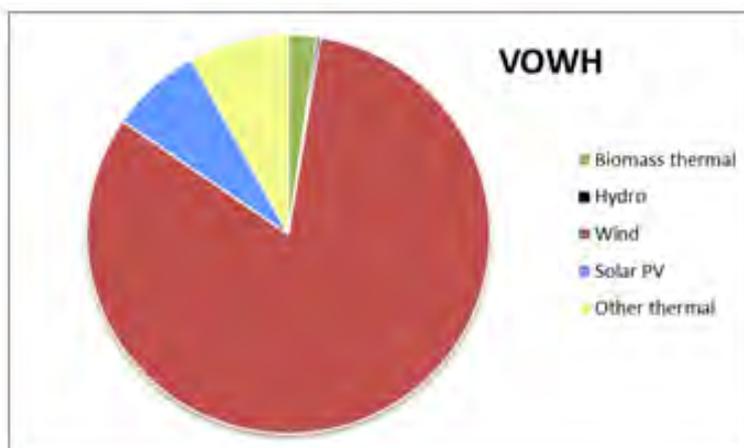


Figure 3.3: Renewable energy outputs (Mega Watt hours – MWh) outputs for Vale of White Horse District excluding landfill, co-firing and transport data³²

3.21 The UK as a whole is required to generate 15% of its energy from renewable sources. It currently produces 3.8%.

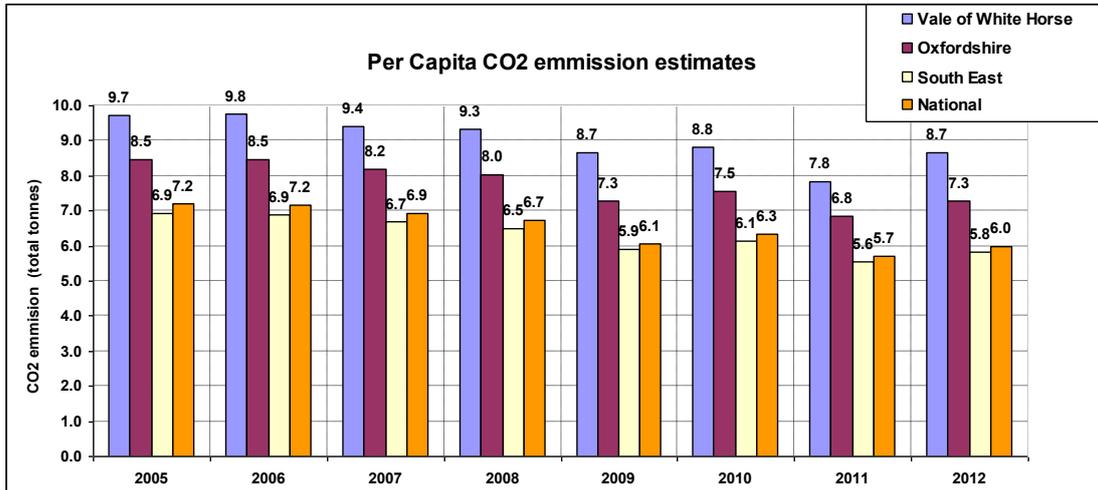
Department of Energy and Climate Change Statistics

³¹ TV Energy, Renewable Energy in the Thames Valley in 2012 Report to VOWH on the Development of Renewable Energy Sources, September 2012 page 25

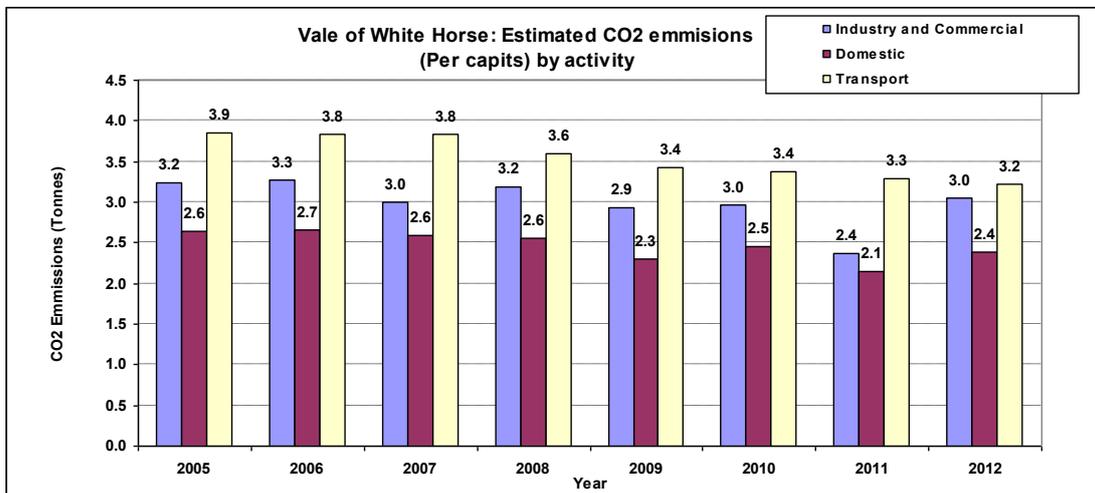
³² TV Energy, Renewable Energy in the Thames Valley in 2012 Report to VOWH on the Development of Renewable Energy Sources, September 2012 page 27

Carbon dioxide emissions within the scope of influence of local authorities

3.22 This dataset previously called National Indicator 186 under the National Indicator set, measures end-user carbon dioxide emissions in the local area from the industrial, domestic and transport sector. This dataset relies on a draw-down of information from the National Inventory of Greenhouse Gas emissions. This data was published on 23 June 2014³³.



3.27 The above figure shows estimated levels of CO₂ emissions (in tonnes) per capita/person from industrial and commercial, domestic and road transport activities combined. This indicates that the district has the highest level of CO₂ emissions (per capita), compared to the county, regional and national levels.



3.23 In breaking these figures down into the three sectors mentioned above, emissions from the domestic sector is slightly above the county, regional and national average. While industry figures were higher than the national and regional levels but below the County level. However the figure that raises the total is the emissions from road transport, which are higher than any other district in the South East.

³³ <https://www.gov.uk/government/statistics/local-authority-emissions-estimates>

High-level indicators of energy use at regional and local authority level

3.24 These indicators show the energy consumption of each local authority in the UK. They also highlight if a local authority's energy consumption is in the upper quartile or lower quartile in relation to the nation. They show that for the Vale, the total residential and vehicle consumption figures are all in the upper quartile.

Table 3.3: High-level indicators of energy use³⁴

| | Total final energy consumption per capita (kWh) | Total domestic energy consumption per capita (kWh) | Total industrial and commercial energy consumption/employee (kWh) | Total vehicle consumption/ capita (tonnes of fuel) | CO2 emissions/ Capita (tCO2) |
|---------------------|---|--|---|--|------------------------------|
| Cherwell | 41,000 | 8,760 | 26,000 | 1.5 | 11.8 |
| Oxford | 22,000 | 7,610 | 16,000 | 0.3 | 6.3 |
| South Oxfordshire | 32,800 | 10,470 | 18,900 | 1.1 | 10.0 |
| Vale of White Horse | 32,800 | 9,870 | 17,600 | 1.1 | 9.7 |
| West Oxfordshire | 25,000 | 9,860 | 18,000 | 0.6 | 7.7 |
| South East | 27,700 | 9,170 | 20,100 | 0.7 | 7.8 |

(2007, published 2010)

Updated Energy and Emissions Projections (September 2014)³⁵

3.25 The Department of Energy and Climate Change produces regular updated projections of energy demand, supply and greenhouse gas (GHG) emissions. The Climate Change Act 2008 introduced a legally binding target to reduce the UK's GHG emissions to at least 80 per cent below 1990 levels by 2050. To drive progress towards this target the Act introduces five-year "carbon budgets". These will define the emissions pathway to the 2050 target by limiting the total GHG emissions allowed in each five year period, beginning in 2008. The first four carbon budgets – for 2008-2012, 2013-2017, 2018-2022, and 2023-2027 – have now been set through secondary legislation.

3.26 The document shows that without new policies or extensions to existing policies, emissions will continue to reduce over the carbon budget periods. However, it will not fall enough to meet the fourth carbon budget level. The document shows that final energy demand is projected to fall until 2022 and then to increase over the period of the fourth carbon budget.

Water

³⁴ <https://www.gov.uk/government/publications/high-level-indicators-of-energy-use-at-regional-and-local-authority-level>

³⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/358135/Updated_energy_and_emissions_projections_2014.pdf

Thames Water: Water Resources Management Plan 2015-2040 (July 2014)

- 3.27 Thames Water have a legal duty to provide a secure supply of safe and clean water to their customers and every five years they are required to produce a Water Resources Management Plan, which sets out how demand for water is balanced against the available supply over the next 25 years.
- 3.28 This assessment produces the “supply demand balances” for each water resource zone to forecast whether there is sufficient water to meet customer’s needs or if there is a deficit.

Table 0-10: The supply demand balance in each of the water resource zones

| Water resource zone | 2011 | 2015 | 2020 | 2025 | 2030 | 2035 | 2040 |
|-------------------------------|-------|--------------|---------------|---------------|---------------|---------------|---------------|
| London | 18.8 | -59.4 | -132.7 | -213.1 | -291.7 | -361.1 | -415.9 |
| Swindon and Oxfordshire | 37.34 | 27.08 | -0.14 | -12.05 | -21.30 | -26.70 | -32.66 |
| Slough, Wycombe and Aylesbury | 21.47 | 11.57 | 7.93 | 4.89 | 0.77 | -2.60 | -6.09 |
| Guildford | 6.85 | 0.85 | 0.06 | -1.14 | -2.14 | -2.85 | -3.80 |
| Henley | 5.32 | 5.14 | 4.76 | 4.31 | 3.80 | 3.26 | 2.67 |
| Kennet Valley | 41.25 | 26.05 | 21.68 | 16.38 | 11.41 | 7.84 | 5.49 |

Note the data are in MI/d with deficits shown in bold red.

- 3.29 It indicated that the supply demand balances across our supply area have worsened since the dWRMP14. For the Swindon and Oxfordshire resource zone, it is predicted that a deficit on a dry year critical period growing from - 1 MI/d in 2020 to -33 MI/d by 2040. These changes are principally driven by the impact of climate change on groundwater sources and therefore a reduction in available deployable output.
- 3.30 The study has explored different demand and supply side measures to reduce this water resource deficit and has outlined three options that will continue to be tested:
- Wastewater reuse
 - Regional water transfers
 - Reservoir Storage
- 3.31 At the time of publishing the WRMP, wastewater reuse was Thames Water’s preferred option for a long term solution. However, the WRMP confirms that studies will continue and the best value option will be determined in the next WRMP in 2019.

Thames River Basin Management Plan (2009) and update

- 3.32 This plan is produced by the Environment Agency to cover the River Thames basin District, which covers an area of 16,133 square kilometres from the source of the River Thames in Gloucestershire through London to the North Sea. This is divided into 17 river catchments, one of which is the Vale of White Horse catchment. It is predominantly rural in character but contains the major centres of Swindon, Abingdon on Thames and Didcot,

which are to see growth and development in coming years. It contains the internationally important Cothill Fen as a Special Area of Conservation (SAC). Surface water quality in the catchment is generally good with the River Ock and the Ginge Brook amongst the poorest.

- 3.33 The document highlights the pressures faced by the Thames River Basin area; that high population densities and pressure for growth will affect discharges from sewage works, which impact on the quality of water and diffuse pollution. Arising from this growth is an extremely high demand for water in one of the driest districts in the country; therefore it is essential to safeguard supplies and the environment by protecting groundwater from pollution and managing the water resource.
- 3.34 The document recognises the role that local Government can play in maintaining and improving the water environment. This is by ensuring that planning policies take into account the objectives of the Thames River Basin Management Plan to improve water quality. Promotion of sustainable drainage systems and water efficiency in new development are also recognised as actions.
- 3.35 A consultation updating the River Basin Management Plans is open 10 October 2014 until 10 April 2015. This shows that in 2013 there was an increase in the number of water bodies found to be in modern or poor condition and a decrease in those being found to be of good or bad quality. The Ock operational catchment follows this particular trend in cycle 1 with this trend predicted to reverse in cycle 2. Pollution from waste water and industrial discharge causing high phosphate concentrations in rivers has been identified as one of the most important issues in the Ock operational catchment. Pollution from rural areas arising from land run-off and general land management are also experienced in the Ock.
- 3.36 The Upper Thames Gravels catchment area was poor in 2009 and is predicted to remain poor in cycle 2. The implementation of actions for sewage management could provide improved qualitative status within a short time period. However, measures to reduce the risk from rural areas are not likely to be adopted by farmers and therefore haven't been taken forward.
- 3.37 The Vale of White Horse Chalk operational catchment was poor in 2009 but it predicted to gain good status in cycle 2.

Water Resources in England and Wales - current state and future pressures - December 2008 – The Environment Agency

- 3.38 Defra advised that most of the South East and Eastern England is seriously water stressed by international standards. This highlights where there is the greatest need to target water efficiency measures. This was calculated taking into account where current and future household demand for water is a high proportion of the available freshwater resources. The South East is

the one of the driest parts of England and Wales, coupled with the highest population density and household water use.

Water for People and the Environment - Water Resources Strategy for England and Wales - Environment Agency (2009)

- 3.39 As the climate warms, rainfall patterns will change. Summers are likely to get hotter and drier, significantly increasing demand for water, and winters warmer and wetter. More rainfall may come in big downpours. This could lead to droughts and floods, possibly at the same time. Predictions are that the amount of water naturally finding its way to rivers will decline drastically, and vital groundwater supplies – which usually replenish in the early autumn – will be hit.
- 3.40 EA forecasts show that total demand for water is likely to continue to rise steadily over the next 10 years. By 2020, demand could be around five per cent (800 million litres of water per day) more than it is today. By the 2050s, there may be an increase of between two and four per cent in domestic demand from climate change alone.
- 3.41 The current situation is that, per person per day, around 150 litres of water is used. Defra has an aspiration to reduce this to 130 litres by 2030, possibly 120 litres depending on new technological developments and innovation. The water companies reporting the highest use per person are all in South East England. The document makes clear that water resources are not being shared effectively, particularly in the South East of England. The document explains that the South East of England is approaching crisis point and that planned levels of investment by water companies would result in demand exceeding supply when the South East of England is considered as a whole.
- 3.42 Water capture and recycling technologies, such as rainwater harvesting and effluent re-use, will have an increasingly important role to play in reducing the pressure on resources in some areas. The Environment Agency welcomes increased interest in using these technologies where they are cost effective, appropriate and used together with other demand management measures. Using water more efficiently would help stretch current supplies further. This is particularly important in parts of the south and east of England, where high levels of growth in new housing and communities are planned.
- 3.43 Local planning authorities (through development planning controls) can set standards of water efficiency even higher than the Building Regulations standards, particularly in seriously water stressed areas. In the longer term, developers in areas where water resources are, or are forecast to become, under high levels of pressure could be required to achieve greater levels of water efficiency than is the norm. This could involve moving towards 'water neutrality'. This means no overall increase in total water demand as a result of new development. New buildings would need to be highly water efficient

with their residual demand for water 'off-set' in the surrounding area through retrofitting, using variable tariffs and minimising water lost through leakage.

- 3.44 Developers should work in partnership with water companies and others to explore the feasibility of achieving water neutrality when new housing developments are proposed, within the context of a water cycle strategy.
- 3.45 For non-household buildings, developers should have to demonstrate how they have considered water efficiency and conservation in the design and maintenance of buildings.
- 3.46 With regard to large-scale reservoirs, whilst recognising the benefits, the document states that they can be costly and controversial. Further to this, reservoirs have a large environmental footprint as they require large quantities of water to be pumped into them at times of high flow. It suggests that where reservoirs are promoted, the Environment Agency need to be fully satisfied that they are the most appropriate response to water resources pressures in the long term and that effective water efficiency measures have been put in place first.

Vale of White Horse District Council - Water Cycle Study - Phase 1 Study (2014)

- 3.47 This study looked the implications of the construction of a large number of homes on the provision of clean water, safe disposal of wastewater and protection from flooding. It also considered potential climate change challenges, including increased intensive rainfall and a higher frequency of drought that would put pressure on the existing infrastructure. The key focus was on 21 potential housing allocation sites. The report shows that there are concerns surrounding long term water resource for sewage infrastructure for all sites and water supply and wastewater treatment works capacity for the majority of sites.

Strategic Flood Risk Assessment (2013) and Addendum (2014)

- 3.48 A Joint Strategic Flood Risk Assessment (SFRA) was prepared for areas covering Vale and South Oxfordshire District Council. This investigated the extent of flood risk from all sources in locations across the district and explores measures for minimising / eliminating this, where necessary.
- 3.49 The overall aim of this is to ensure that sequentially preferable sites with lowest risk of flooding (ie flood zone 1) are given preference for future development. In instances, where this is not possible, further studies are undertaken to ensure measures are implemented to reduce potential risks of flooding, make potential development safe and not increase risk to third parties in other locations.
- 3.50 The SFRA is a key piece of evidence that has been used to inform the plan-making process. It will also be used, along with policies in the Plan, to determine applications for potential development.

Vale of White Horse Local Climate Impact Profile (LCLIP) Report – 2009

- 3.51 The LCLIP was designed by the UK Climate Impacts Programme as a tool for assessing risks and opportunities to services, plans and estates by reviewing past experiences. By gathering an evidence base from the last five years and identifying action priorities, the Profile contributes to the Vale's climate change planning to enable better preparation for future weather and climate scenarios.
- 3.52 The Profile shows that river flooding is the highest weather risk for the Vale, while other types of extreme weather had a marginal impact on district services. Owing to river watershed topography, the Vale as a geographical district is significantly less well-buffered against flood weather impacts than sister authority South Oxfordshire. Altering seasonality may raise costs slightly for the Vale, as the summer season extends under occasionally very wet summers.

Sequential and Exception Test 2014

- 3.53 The Council has undertaken a Sequential and Exception test for sites proposed for allocation that contain any land in Flood Zone 2 or 3, as required by national policy. The Sequential and Exception Test found that there are no suitable alternative sites in flood risk terms, that the sites could be developed entirely in the Flood Zone 1 land (apart from Monks Farm, North of Grove) and that the benefit of developing these sites outweighed the flood risk.

Pollution

Draft Air Quality Action Plan Consultation Document (2014)

- 3.54 The air quality of the district is generally very good. However, parts of Abingdon and Botley have been designated as air quality management areas (AQMA), as the air quality standards in these locations are not in line with the European and UK regulations. In Abingdon the AQMA covers the ring roads in the centre of town. In Botley, the AQMA covers properties in close proximity to the A34 trunk road or Southern Bypass. The main source of air quality issues in these locations is road traffic emissions.
- 3.55 The Council has produced an Air Quality Action Plan Consultation document to address the air quality issues in these two locations; in order to improve air quality to meet current air quality standards, to encourage sustainable development, encourage greener transport, and reduce air pollution. The consultation document is seeking to identify the most appropriate means to achieving this.
- 3.56 In relation to Abingdon, it indicated that the integrated transport strategy (implemented via previous action plan) improved the air quality of the area.

This was achieved through encouraging sustainable modes of transport and reducing congestion.

- 3.57 In contrast, it noted that identifying specific actions to improve air quality in Botley is very difficult because pollution is created by the busy trunk road controlled by the Highway Agency.
- 3.58 Some of the actions that are being considered are:
- creating emissions strategy/zones depending upon findings of a study.
 - installing electric car charging points
 - parking permits/pricing for green vehicles(e.g. electrical cars)
 - feasibility study for a freight transport consolidation centre, where goods can be dispatched into smaller greener vehicles
 - improved use and enforcement of traffic regulations orders
 - produce Air quality planning guidance, and
 - introduce a south facing slip roads to Lodge Hill interchange (ie make A34 Lodge Hill into a four way interchange by providing slip roads).
- 3.59 At present there are no entries in the Vale of White Horse contaminated land public register.

Habitat Regulations Assessment

- 3.60 The District Council commissioned a Habitat Regulations Assessment to support to proposed growth set out in the Local Plan 2031 Part 1. The assessment found that the growth is unlikely to have significant environmental effects. However, it did raise concerns around air quality impacts on the Oxford Meadows SAC owing to its proximity to the A34.

Waste and Minerals

Oxfordshire County Council Minerals and Waste Local Plan 1996 and Core Strategy Consultation Draft (2014)

- 3.61 The County Council is the authority responsible for making plans in relation to Waste and Minerals and for determining planning applications on these matters. The Mineral and Waste Local Plan 1996 will continue to be part of the Vale of White Horse development plan until the Core Strategy is adopted. The Core Strategy sets out the vision, objectives, spatial strategy and core policies for meeting minerals and waste development requirements in Oxfordshire over the period to 2030. As well as allocating sites for this purpose, the document explains that the vision is to encourage re-use and recycling of materials and waste wherever possible.

Section 4: Issues (Challenges and Opportunities)

4.1 This section summarises all the issues identified in the previous sections and highlights any matters that will need to be addressed in the Local Plan. Each issue will be assessed to ascertain whether it is strategic or non-strategic and therefore whether it should be dealt with as Part 1 or Part 2 of the Local Plan or another mechanism.

4.2 The following key issues and actions have been identified in relation to climate change and renewable energy generation:

- Legislation requires a reduction in carbon emissions and an increase in renewable energy generation. Evidence supports the need to do so in the Vale due to higher than average emission levels. Further investigation needs to be undertaken to gain up-to-date information on why emissions are higher than average so that this can be properly addressed in Local Plan 2031 Part 2.
- National policy requires Local Plans to include strategic policies to deliver climate change adaptation. It also requires Local Planning Authorities to have a positive strategy to promote energy from renewable and local carbon sources but to ensure that adverse impacts are addressed.
- National Policy suggests that local authorities should consider suitable areas for renewable and low carbon energy sources. However, the Council does not have the evidence to support such policies in Local Plan 2031 Part 1. This will be addressed in Local Plan 2031 Part 2.
- When setting any local requirements for a building's sustainability, Local Planning Authorities must do so in ways that are consistent with the Government's zero carbon buildings policy and adopt nationally described standards. The Housing Standards Review will set energy efficiency requirements for buildings in the Building Regulations.
- The renewable energy resources in the Vale are reduced following the closure of Didcot A.
- Climate Change adaptation measures are required to protect against increased temperatures and rainfall.

4.3 The key following issues and actions have been identified in relation to the water environment:

- Local Plans should be supported by a Strategic Flood Risk Assessment (SFRA) and develop policies to manage flood risk from all sources. Local Plans should apply a sequential risk-based approach to the location of development.
- Suitable provision should be made for water and wastewater infrastructure. Assessment needs to be made to ensure growth does not adversely affect water quality. A Water Cycle Study for the district needs to be undertaken to ensure this is achieved. The Council is working with

developers and Thames Water to ensure infrastructure is provided in a timely fashion to support growth.

- The Housing Standards Review proposes to allow water stressed areas such as the Vale to set stricter requirements in Part G of the Building Regulations. However, this cannot be introduced until further clarity is provided on how this is to be achieved. Flexibility should be retained in policies to allow this to be brought into effect because the area is severely water stressed.
- The site for the Upper Thames Reservoir needs to remain an option for long term, strategic water supply until 2019 when it will be decided in the next iteration of Thames Water's Water Resources Management Plan. The policy should include benefits to be provided should the reservoir go ahead.
- The Environment Agency requested land is safeguarded for the Western Conveyance Channel Flood Alleviation Scheme. However this is not considered to be necessary because the section of the scheme in the Vale is minimal and largely focused within the current floodplain.
- The Environment Agency suggested wording for a flood risk policy that would meet their requirements.
- Sustainable Drainage Systems and water efficiency should be required in new developments.

4.4 The following issues and actions have been identified in relation to the pollution:

- Plans should minimise pollution and other adverse effects on the environment.
- Planning policies should allocate land with the least environmental and amenity value and should ensure development is appropriate for its location.
- Local Plans need to consider air quality, particularly in Air Quality Management Areas.

4.5 The following issues and actions have been identified in relation to use of natural resources:

- Planning policies should encourage the effective use of land by re-using land that has been previously developed, provided that it is not of high environmental value.
- The Local Plan should include reference to protecting the best and most versatile agricultural land.
- Ensure that space is available for recycling in new developments.

Section 5: Strategic Policy Options

- 5.1 This section draws conclusions from the previous sections to provide broad options for the direction of policies to be included in the Local Plan 2031 Part 1. In some cases there will not be any suitable options, because evidence, or the NPPF, or other aspects are already suitably effective. Where options are identified, they have been assessed through Stage 1 of the Sustainability Appraisal. These options were assessed against a 'business as usual' approach, which compares the policy options with the option of not producing a policy and relying on the existing policies and guidance.
- 5.2 Section 4 highlighted the need for strategic policies on climate change adaptation and the provision of energy (including heat), flood risk and the Upper Thames Reservoir. It also highlighted the need to use natural resources efficiently and to minimise pollution arising from new development.
- 5.3 With regard to climate change adaptation a policy relating to sustainable design and construction will be included. This will need to be criteria based policy to ensure that development meets certain standards of design to adopt and mitigate the potential climate change impacts. Therefore there are not considered to be any reasonable alternative options.
- 5.4 The Sustainability Appraisal previously tested options for Code for Sustainable Homes and BREEAM levels that could be set in policy. However, as such standards are to be set through Building Regulations the Council has decided that it does not need to set standards through policy.
- 5.5 The evidence from previous sections shows that the Local Plan should contain a positive strategy to promote energy from renewable and low carbon sources, subject to adverse impacts being addressed. This is quite prescriptive and therefore there are not considered to be any reasonable alternative policy options.
- 5.6 The NPPF requires that strategic policies deliver the provision of infrastructure for flood risk and should develop policies to manage flood risk from all sources applying a sequential risk-based approach to the location of development. This would include reference to the importance of incorporating sustainable drainage systems to minimise surface water run-off, to improve water quality and any risks of surface water flooding. The contents of such a policy will be largely guided by the NPPF and the contents of the Strategic Flood Risk Assessment (SFRA), so there are not considered to be any reasonable alternative policy options.
- 5.7 The purpose of a policy on the Upper Thames Reservoir will be to safeguard the land required for such a scheme, pending the additional work that will be undertaken in relation to the Thames Water Resources Management Plan 2014. This will include a list of benefits the scheme should deliver. There are not considered to be any reasonable alternative policy options.

5.8 The NPPF does not require strategic policies on the efficient use of natural resources or on managing air quality. However, the assessment of issues in Section 4 shows that a general policy covering environmental quality issues should ensure that these are considered in decision making. Such a policy could cover :

- making adequate provision for the recycling of waste
- using recycled and energy efficient materials
- minimising waste
- maximising passive solar heating, lighting, natural ventilation, energy and water efficiency and reuse of materials
- causing no deterioration and, where possible, achieving improvements in water or air quality
- remediation of contaminated land, where necessary
- protecting the most 'best and most versatile' agricultural land, unless there are a lack of alternatives and it is considered sustainable, and
- re-use of previously developed land.

5.9 There are not considered to be any reasonable alternative options for such a policy as the list of criteria are not mutually exclusive.

Section 6: Recommendations

- 6.1 The policy on climate change adaptation (ie. a policy for sustainable design/construction) should require development to be well insulated, take advantage of natural light and heat from the sun and to use natural air movement for ventilation, whilst maximising cooling in the summer. Also reference to ensuring new developments are designed to be flood resilient and the importance of encouraging higher water efficiency standards.
- 6.2 Local Plan 2031 Part 1 should include a policy supporting schemes for renewable energy and low carbon energy generation, subject to adverse impacts being addressed. Such impacts should include landscape and visual impacts. The policy should be flexible to allow for a variety of schemes to come forward.
- 6.3 A strategic policy on flood risk should seek to manage risk from all types of flooding, not just in the Environment Agency flood zones. It should support the sequential approach to flood risk and exceptions test (if necessary), in line with the SFRA, as set out in the NPPF. The policy should require all development to incorporate SUDS or techniques to limit surface water runoff. The Environment Agency has suggested wording for a policy, which should be incorporated.
- 6.4 A policy safeguarding land for the Upper Thames Reservoir, pending the outcome of the examination of the Thames Water's Water Resources Management Plan is to be included in Local Plan 2031 Part. Development that might prejudice the implementation of the reservoir should be refused. Policy wording has been prepared with Thames Water and reflects the fact that the council will not be the decision maker for any planning application for the reservoir.
- 6.5 A policy on making efficient use of natural resources should be included in Local Plan 2031 Part 1 and should cover:
- the recycling of waste
 - efficient use of materials
 - minimising waste
 - maximising passive solar heating, lighting, natural ventilation, energy and water efficiency and reuse of materials
 - causing no deterioration and where possible, achieving improvements in water, air quality (including management areas)
 - ensuring that land is of suitable quality for development and any remediation that is necessary takes place
 - re-using previously developed land that is not of environmental value.
 - efficient use of water (ie.110 LPD), and
 - protecting the best most versatile agricultural land from development, in preference of lower grade land.

6.6 Adopted Local Plan Policies 2011 DC7, DC9, DC10 & DC12 should continue to be saved to provide more specific interpretation of the strategic policy.

Appendix 1: Policies relating to climate change set out within the South East Plan³⁶

| Policy | Summary | Consistency with NPPF | Issue Identified |
|---|---|---|--|
| CC1: Sustainable Development | Outlines sustainable development priorities for the region | Partially consistent – Core principles in para 17 cover a wider range of topics, not just in relation to climate change | None – covered in by Sections 8, 10 and 11 of the NPPF. |
| CC2: Climate Change | Reduce the region's carbon dioxide emissions by at least 20% below 1990 levels by 2010, by at least 25% below 1990 levels by 2015 and by 80% by 2050. | Consistent in principle | Interim targets will be lost but 2050 target is enshrined in the Climate Change Act. |
| CC3: Resource Use | Stabilise the South East's ecological footprint. | Consistent in principle. | No reference to ecological footprint in the NPPF or any adopted Vale documents. |
| CC4: Sustainable Design and Construction | Outlines sustainable construction standards and techniques. | Consistent in principle. | None – covered by Section 10: Meeting the challenge of climate change, flooding and coastal change of the NPPF. |
| NRM1: Sustainable Water Resources and Groundwater Quality | Water supply and ground water will be maintained and enhanced through avoiding adverse effects of development on the water environment. | Consistent – not covered directly but consistent in principle. | Ensure Local Plan assists in achieving aims of Thames River Basin Management Plan. Set out the circumstances under which sustainable drainage solutions should be incorporated into new development. |
| NRM2: Water Quality | Maintain and enhance water quality, work with infrastructure providers and the Environment Agency | Consistent – not covered directly but consistent in principle | None – Water quality is covered by adopted Local Plan Policy DC12. |
| NRM3: Strategic Water Resources Development | Upper Thames reservoir, Oxfordshire identified as a strategic water resource. Safeguarded site should be allocated in Local Plan | Consistent – not covered directly but consistent in principle | Site should be safeguarded for Upper Thames Reservoir. |

³⁶ Government Office for the South East (2009) The South East Plan/ Regional Spatial Strategy for the South East of England.

| Policy | Summary | Consistency with NPPF | Issue Identified |
|--|--|---|--|
| NRM4: Sustainable Flood Risk Management | Sequential approach to be applied to development. SFRA should be undertaken. | Consistent | <ul style="list-style-type: none"> • Take account of River Basin Management Plans, Catchment Flood Management Plans and Surface Water Management Plans • Require incorporation of SUDs • Take account of increased surface water drainage and sewage effluent flows on fluvial flood risk. |
| NRM9: Air Quality | Plans should contribute to sustaining downward trend in air pollution, including seeking improvements to air quality. | Consistent – not covered directly but consistent in principle | <ul style="list-style-type: none"> • Ensure consistency with Air Quality Management Plans. • Reduce impacts of traffic and support use of cleaner transport fuel. • Encourage best practice during construction. • Assess potential impacts of new development and increased traffic levels on internationally designated nature conservation sites. |
| NRM10: Noise Pollution | Noise pollution will be reduced through careful location of development, traffic management and soundproofing and attenuation. | Consistent – not covered directly but consistent in principle | None – covered by Section 11 of the NPPF and adopted Local Plan Policies DC9 and DC10. |
| NRM11: Development Design for Energy Efficiency and Renewable Energy | New developments of more than 10 dwellings or 1000sqm of non-residential floorspace should secure at least 10% of their energy from decentralised and renewable or low-carbon sources. | Consistent | None – Covered by Section 10 of the NPPF. |
| NRM 12: Combined Heat and Power | Encourage the integration of combined heat and power (CHP). The use of biomass fuel should be investigated and promoted where possible. | Consistent | Section 10 of the NPPF does not refer directly to CHP but does require strategic policies to provide for heat as well as energy. |

| Policy | Summary | Consistency with NPPF | Issue Identified |
|--|---|---|---|
| NRM 13: Regional Renewable Energy Targets | Sets minimum regional targets for electricity generation from renewable sources. | Consistent | Regional target will be lost. |
| NRM 14: Sub-Regional Targets for land-based Renewable Energy | Sets regional and indicative sub-regional targets for land-based renewable energy – 140 MW for 2010 and 209 MW for 2016 for the Thames Valley and Surrey. | Consistent | Sub-regional target will be lost. |
| NRM 15: Location of Renewable Energy Development | Encourage the development of renewable energy in order to achieve the regional and sub-regional targets. Proposals should be located and designed to minimise adverse impacts proposals and should be informed by landscape character assessment where available. | Consistent | None - Section 10 of the NPPF leaves it for local authorities to set the criteria for assessing renewable energy schemes. |
| NRM 16: Renewable Energy Development Criteria | Local authorities should in principle support the development of renewable energy. Local development documents should include criteria-based policies. | Partially consistent – para 98 of NPPF states that applicants should not be required to demonstrate overall need for energy development. NRM 16 requires a statement of contribution toward renewable energy targets. | None – covered by para 98 of NPPF. |
| W1: Waste Reduction | Reduce growth of all waste to 1% per annum by 2010 and 0.5% per annum by 2020. | Consistent | None – covered by PPS10 and adopted Local Plan Policy DC7. |
| W2: Sustainable Design, Construction and Demolition | Development plan documents will require development design, construction and demolition which minimises waste production and associated impacts. | Consistent | None – covered adopted Local Plan 2011 Policy DC7. |
| Policy M1: Sustainable Construction | Local development documents should promote the use of construction materials that reduce the demand for primary minerals by requiring new projects to include a proportion of recycled and secondary aggregates wherever practicable. | Consistent | None – covered by Section 13 of the NPPF. |

Appendix 2: Policies relating to climate change set out within the Vale of White Horse Local Plan 2011³⁷

| Policy | Summary | Consistency with NPPF | Issue Identified |
|---|--|--|--|
| DC2 – Energy and Resource Conservation (not saved) | Consideration should be given to measures to conserve energy and the use of other resources in new developments. | Consistent in part. The wording of this policy is not as strong as subsequent national and regional policy in requiring new development to meet targets laid out by the government. | Yes – Policy not saved because it was covered by draft SEP Policies CC3 & CC4. Table 1 identifies CC3 as not being covered in any other policy document. |
| Policy DC7 – Waste collection and recycling | New developments must make adequate provision for the sorting, storage and collection of waste and for home composting and other sustainable waste management initiatives. | Fully consistent | None |
| DC9 – The Impact of Development on Neighbouring Uses | Development will not be permitted if it would unacceptably harm the amenities of neighbouring properties and the wider environment. | Fully consistent | None |
| DC10 – The Effect of Neighbouring or Previous Uses on New Development | Development will not be permitted if it is likely to be adversely affected by existing or potential sources or noise, emissions or pollution. | Fully consistent | None |
| DC12 – Water Quality and Resources | Development will not be permitted if it would adversely affect the quality of water resources. | Fully consistent | None |
| DC13 – Flood Risk and Water Run-Off | Where a risk from flooding is identified development will not be permitted unless a flood risk assessment is submitted showing possible effects and any mitigation measures. | Not consistent | None – covered by paragraphs 100 to 104 of NPPF. |

³⁷ Vale of White Horse District Council (2006) Local Plan 2011/ Adopted Plan July 2006.

| Policy | Summary | Consistency with NPPF | Issue Identified |
|-------------------------------------|---|------------------------------|-------------------------------------|
| DC14 – Flood Risk and Water Run-Off | Development generating surface water run-off will not be permitted unless it is attenuated and sustainable drainage is used. | Not consistent | None – covered by para 113 of NPPF. |
| CF9 – Proposed Reservoir | Any proposal for a new reservoir will not be permitted unless the need cannot be met by other means, it is economically viable, it is the best option for the environment, infrastructure, biodiversity and it provides recreational opportunities. | Fully consistent | None |

Appendix 3: List of abbreviations/Glossary

| Term | Acronym | Explanation |
|---|-----------------------|---|
| Building Research Establishment Environment Assessment Method | BREEAM | A widely used environmental assessment method for buildings. BREEAM assesses buildings against set criteria for sustainability building design, construction and operation and provides an overall score. |
| Climate Change Adaptation | | Adjustments to natural or human systems in response to actual or expected climate factors or their effects, including from changes in rainfall and rising temperatures, which moderate harm or exploit beneficial opportunities. |
| Code for Sustainable Homes | The Code | Provides a comprehensive measure of sustainability of a new home by rating and certifying new homes against nine categories of sustainable design: energy/CO ₂ , pollution, water, health and well-being, materials, management, surface water run-off, ecology and waste. |
| Habitats Regulations Assessment | HRA | Used to assess the impacts of proposals and land-use plans against the conservation objectives of a European Protected site and to ascertain whether it would adversely affect the integrity of that site. |
| Infrastructure Delivery Plan | IDP | A live document that identifies infrastructure identified by the council and other service providers as being needed to support the delivery of the Local Plan. It explains what is required, its cost and when it will be provided. |
| Local Plan Part 1 | LPP1 | This document contains long-term spatial vision and strategy policies that guide growth in the district. |
| Local Plan Part 2 | LPP2 | This document will contain the more detailed development management policies and site allocations for non-strategic sites. |
| National Planning Policy Framework | NPPF or The Framework | This sets out the Government's planning policies for England and how these are expected to be applied at a local level. |
| National Planning Practice Guidance | NPPG | This is a web based resource providing detailed information to help practitioners interpret the National Planning Policy Framework. |
| Sequential Test | | A planning principle that seeks to identify, allocate or develop certain types of locations of land before others. With regard to flood |

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| | | risk, it seeks to locate development in areas of lower floor risk (Flood Zone 1) before considering Flood Zones 2 or 3. |
| Strategic Flood Risk Assessment | SFRA | The purpose of the SRA is to identify and analyse current and future broad scale flooding issues for key locations across the district. The Vale's SFRA has been prepared jointly with South Oxfordshire District Council. |
| Strategic Housing Market Assessment | SHMA | Technical study undertaken on behalf of the Oxfordshire authorities to help the local authorities understand how many homes will be needed in the period 2011-2031. |
| Sustainability Appraisal | SA | The process of assessing the economic, social and environmental effects of a proposed plan. This process implements the requirements of the SEA Directive. |
| Sustainable Urban Drainage Systems | SUDS | SUDS seek to manage surface water as close to the source as possible, mimicking surface water flows arising from a site prior to the proposed development. Typically SUDS involve a move away from piped systems to softer engineering solutions inspired by natural drainage processes. |

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