Wealden District (Incorporating Part of the South Downs National Park) Core Strategy Hearing Statement on Behalf of South East Water

Matter 14: The Environment, Climate Change and Sustainable Construction
14h): Should the Core Strategy give more guidance on the approach to water efficiency in new development?

1. Universal metering and a Water Efficiency programme are central to South East Water's statutory Water Resources Management Plan (WRMP) approved in December 2010. This explains how South East Water plan to maintain the long-term balance between increasing demand for water and its available supplies over the next 25 years. Reviewed every 5 years, the WRMP sets out the long term strategy (the current plan covers the period to 2035) for investment in water infrastructure and demonstrate that it can serve the level of growth proposed within its area. The WRMP has also been subject to Strategic Environmental Assessment.

2. Wealden district lies within an area classed by the Environment Agency (EA) as 'water stressed' but the Core Strategy fails to acknowledge that climate change will have a double impact on the provision of water infrastructure and the demand for water supplies in the future. It is imperative that the Core Strategy takes steps to ensure that water efficiency measures must be incorporated into new development to support South East Water with its continuing programme of efficiency measures. Without this support South East Water suggests the Core Strategy is unsound because it will not be effective in mitigating or adapting to the effects of climate change.

3. South East Water request that the Core Strategy includes a specific policy imposing stringent per captia consumption limits for new properties as set out in the Code for Sustainable Homes. This should be followed up with monitoring and evaluation of the effectiveness of such a policy to determine the level of water efficiency achieved. This will assist South East Water in the Company's demand forecasting in determining the actual sustainable levels of water efficiency savings that achieved, which in turn can be used in reviews of the WRMP.

4. Recent studies undertaken by the EA to support the Governments Water White Paper, 'Water for All' (December 2011), states that "*climate change is likely to alter the water cycle significantly in the future*" (paragraph 3.1 'The case for change – current and future water availability', December 2011) (Appendix A). While there is uncertainty about future changes to the amount and distribution of rainfall, it is recognised that climate change will increase the pressure of available water resources. This is likely to result in longer drier summers but with higher than average use. In terms of supply, this will result in significantly less deployable output from surface water and groundwater sources being available. The scenarios considered by the EA based on the latest UK climate Projections looking forward to the 2050s for autumn (September to November) and winter months (December to February) suggest a mixed pattern emerging suggesting drier, similar or wetter patterns of weather. Most of the scenarios considered by the EA indicate a decrease in flows in the south and east of the country during the autumn months.

5. South East Water request that the following changes are made to the Core Strategy to take full account of the likely forecast implications of climate change by changing **Policy SP09** to say:

> **Policy SPO9** We will ensure development takes full account (by mitigation or adaptation) of the likely forecast impacts of climate change including: minimising the emissions of greenhouse gases; the use of non-renewable energy ~~and~~ natural resources and water; and by encouragement of construction using sustainable techniques.

6. In addition, changes should be made to paragraphs 7.30 and 7.31 with a new policy should be inserted after paragraph 7.31 as follows:

> **7.30** It is acknowledged that Wealden is located in a water stress area~~,~~. ~~however,~~ The district council will support the water company in its programme of water efficiency measures including compulsory water metering ~~and~~ which together with changes in Building Regulations requiring measures to restrict water usage will assist in demand management. In addition, the district council intends to impose targets on new development to ensure water efficiency measures are included in any development proposals. ~~and it is considered any imposition of targets would duplicate other legislation.~~
>
> **7.31** The Code for Sustainable Homes is a rating system which considers a number of factors in relation to residential dwellings ranging from carbon efficiency and lifetime homes to bin storage facilities. A number of matters including biodiversity, flood risk and surface water run off are already considered in other parts of the strategy and provide for local circumstances. Further detailed design requirements will be included as part of the Delivery and Site Allocations DPD, which will seek to mitigate and adapt to the effects of climate change. Guidance regarding development in flood risk areas is contained within Planning Policy Statement 25 and will not be duplicated in the Core Strategy or any other DPD. ~~It is considered all relevant justifiable requirements are already considered as part of the strategy and therefore imposition of a code level is not considered necessary. Further guidance is available in the Council's formally adopted Supplementary Planning Document Wealden Design Guide based upon saved polices in the adopted Wealden Local Plan.~~
>
> **Policy WCS14: All new residential developments should meet the minimum requirement of Code Level 4 from (date) and achieve water use of less than 105 litres per head per day. Non-residential developments must meet BREEAM 'Very Good' standard.**

Matter 14: The Environment, Climate Change and Sustainable Construction
14j): Should the Core Strategy make provision for the potential need to enlarge Bewl reservoir?

7. As explained, South East Water has significant concerns about the deliverability and soundness of the Core Strategy as submitted as it fails to address potential water deficit issues with the district.

8. South East Water considers it imperative that the Core Strategy provides explicit policy support for necessary new water supply infrastructure, and is sufficiently flexible to deliver planned water demand and infrastructure improvements identified within the Company's statutory WRMP. These are improvements identified as being required to maintain the fine balance between what water is naturally available and the demand for water from customers, while supporting new development and meeting the challenges of climate change and changing environmental standards. A policy that supports the provision of new water supply infrastructure that maintains, improves and, where necessary, expands both the availability of water resources and the water supply network is considered essential by South East Water.

9. South East Water has previously explained that the references to the Company's draft revised Water Resources Management Plan in the Council's Infrastructure Delivery Plan should be updated to reflect the fact that the WRMP was approved by the Secretary of State in December 2010. This should be done. The final plan is essentially unchanged in respect of the need for further winter storage in the Ouse catchment and Bewl water dam raising.

10. Increasing the output from Bewl reservoir by raising the dam level is also part of Southern Water's WRMP. South East Water recognise that further investigation is needed to confirm the details of any proposal and to further consider alternatives.

11. In respect of the water winter storage in the Ouse catchment, South East Water's approved WRMP in section 10.6 (paragraph 135) (Appendix B) says:

> *"The company's latest options appraisal modelling for the post 2020 period continues to identify a local winter storage reservoir as the preferred solution. The dWRMP identified a site at Clay Hill, north of Ringmer. Subsequent company-level modelling confirms this to be the least cost and most sustainable long-term option on the basis of known information. However, other sites, in or close to the River Ouse catchment, could also meet the same need and could conceivably match or better the criteria used in the model. Whether this is the case can only be ascertained by further detailed studies that will be required to help formulate a proposal, prior to an application for planning or development consent, but which in themselves do not form part of this first stage, which is the separate WRMP process. The statutory process of an environmental assessment, which will be brought into play at that point, also requires consideration of possible alternatives. These will have to be identified and compared against a range of detailed planning and environmental policies set out in the statutory development plan and elsewhere."*

12. It is South East Water's intention to continue investigating options within the Ouse catchment (partly within Wealden district) before a final option or site is settled upon. The Company is committed to involving Wealden District Council and the South Downs National Park Authority in this process.

13. Without the inclusion of explicit policy support for water resources improvement and demand management measures the Core Strategy would fail to meet the challenges of climate change.

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Matter 14: The Environment, Climate Change and Sustainable Construction

14h): Should the Core Strategy give more guidance on the approach to water efficiency in new development?

Appendix A

Extract from The Case for Change – current and future water availability , Environment Agency December 2011

MATTER 14W/SEW

Environment Agency

The case for change - current and future water availability



Report – GEHO1111BVEP-E-E

A1

We are the Environment Agency. We protect and improve the environment and make it **a better place** for people and wildlife.

We operate at the place where environmental change has its greatest impact on people's lives. We reduce the risks to people and properties from flooding; make sure there is enough water for people and wildlife; protect and improve air, land and water quality and apply the environmental standards within which industry can operate.

Acting to reduce climate change and helping people and wildlife adapt to its consequences are at the heart of all that we do.

We cannot do this alone. We work closely with a wide range of partners including government, business, local authorities, other agencies, civil society groups and the communities we serve.

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MATTER 14h | SEW

3 Pressures on water resources

Climate change and population growth will be the biggest challenges to ensuring that there is enough water to meet future needs. With changes to the amount and distribution of rainfall and growing water demands, it will be a real challenge to protect the environment, let alone improve it. In this section we set out the potential impacts of future pressures on water resources.

3.1 Climate change

Climate change is likely to alter the water cycle significantly in the future. The amount and distribution of rainfall will change, although there are large uncertainties around the extent of the changes. This will affect water availability to support water dependent species and habitats and the availability of water for society and economic growth.

3.1.1 Climate change impacts on rivers and groundwater

Our current understanding of the impact of climate change on water resources in England and Wales is based on the latest UK Climate Projections (UKCP09). A recent study[8] provides a national assessment of seasonal changes in river flows and groundwater levels for the 2050s from 11 medium emission[9] Regional Climate Model (RCM) simulations (referenced by the letters A to K) that are one component of UKCP09.

The UKCP09 medium emission projections for the 2050s indicate that changes in summer mean temperatures may be greatest in parts of southern England (between 1.3 to 4.6°C with a median of 2.8°C[10]) and least in the north of England (1.1 to 3.9°C with a median of 2.3°C). In Wales, summer temperatures may increase between 1.2°C to 4.1°C with a median of 2.5°C.There may be little change in average annual rainfall, although summer rainfall may decrease[11]. However, there is a large range of projections for rainfall - including increases as well as decreases for summer - so we have a lot of uncertainty to deal with in planning how to manage water resources.

The percentage changes in mean river flow between the baseline and 2050s are shown in figure 3.1 for four seasons for each of the 11 RCM simulations. The overall pattern is varied, reflecting the complex nature of UK weather patterns and uncertainty in the impact of climate change. No one scenario is more likely to occur than any other.

- In winter (December, January, February) there is a mixed picture in England and Wales with drier, similar or wetter patterns, all within +40 per cent to -20 per cent change.
- In spring (March, April, May) more of the scenarios are drier for most of the UK, with decreases of up to 44 per cent. However, for four scenarios central England has increased flows (up to 40 per cent).
- In summer (June, July, August) scenarios predominantly show decreases in runoff through the UK, ranging from +20 per cent to -80 per cent. The largest

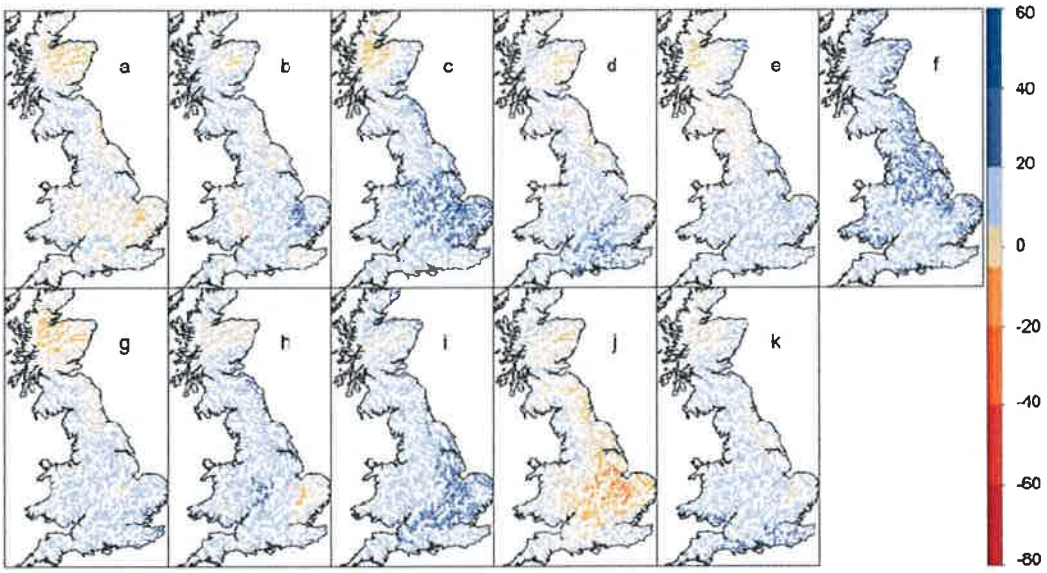
A3

percentage decreases are mainly in the north and west of the UK although the range in these areas between scenarios can be large (0 to 80 per cent).

- In autumn (September, October, November) there is a mixed pattern with a wide range of percentage changes (+60 to -80 per cent) across the UK. Most scenarios indicate decreases in flows, especially in the south and east (up to -80 per cent) whilst in the west and north changes can be small. One scenario shows no change or an increase in runoff across the UK.

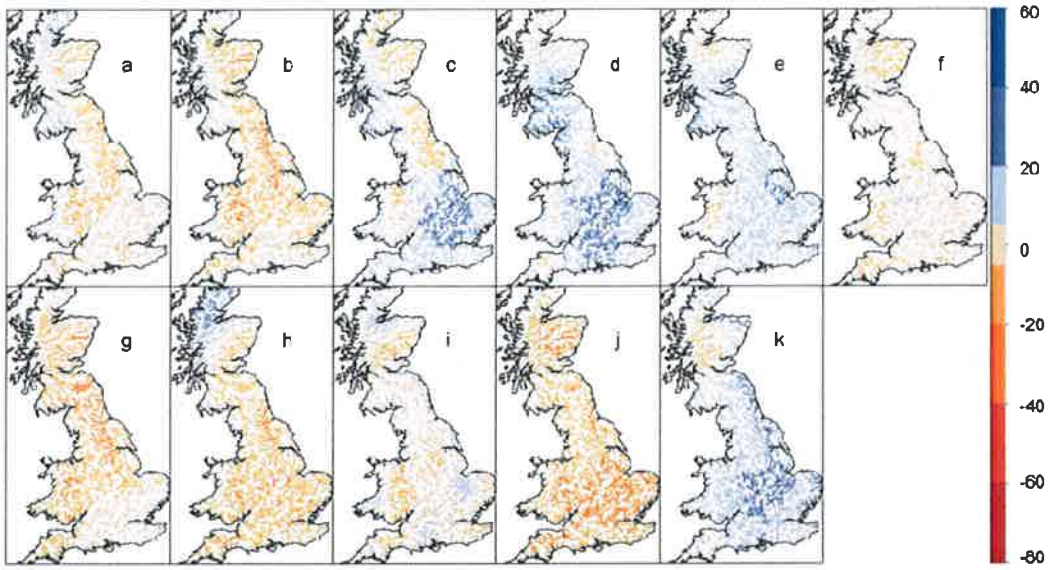
The scenarios are all different. Autumn and winter are especially mixed, but all scenarios show a decrease in flow in the summer almost everywhere. However, the differences between the scenarios at any location can be significant, especially in spring and autumn.

The picture for groundwater is still unclear. Early results suggest that in some climate scenarios increased winter rainfall leads to increased recharge and higher groundwater levels that persist into the summer, but in others recharge reduces, leading to lower groundwater levels and reduced availability of groundwater for abstraction.

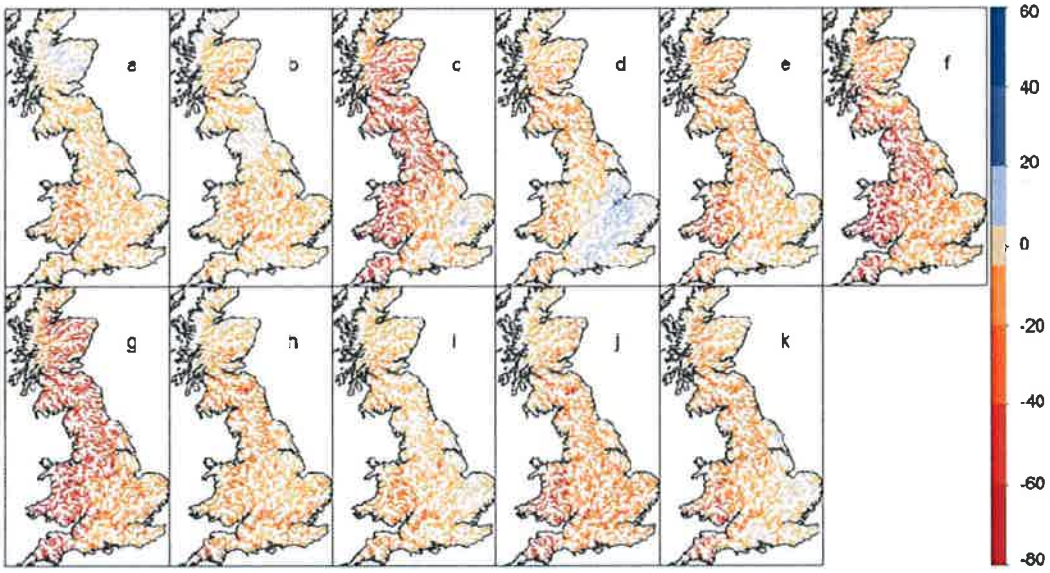


Winter (December, January, February)

AU



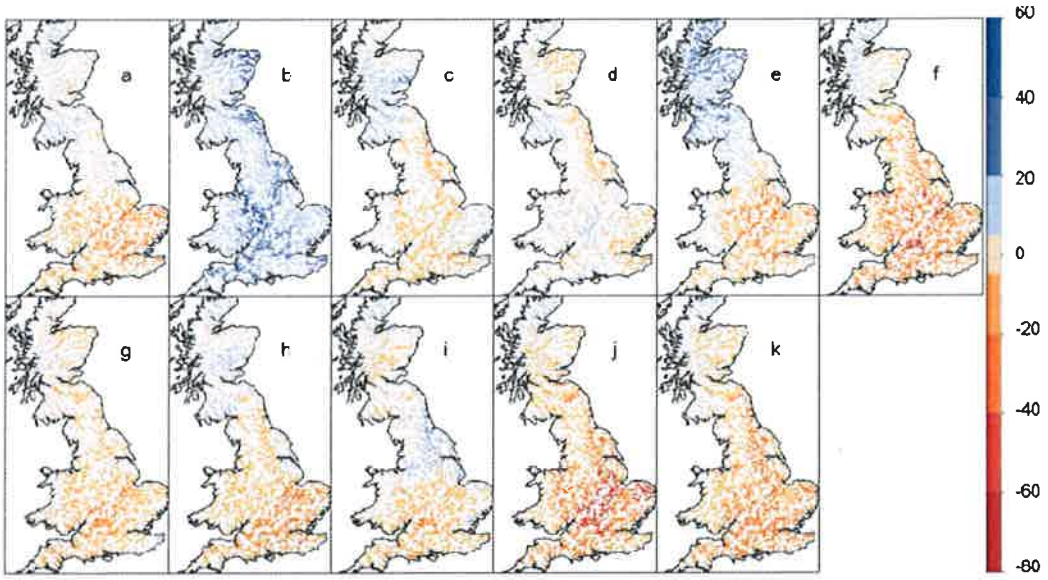
Spring (March, April, May)



Summer (June, July, August)

A5

MATTER 14h | SEW



Autumn (September, October, November)

Figure 3.1 Percentage change in mean natural seasonal flows by 2050. Increases in flow are indicated with shades of blue, decreases with shades of yellow/red and no change (-5 per cent to +5 per cent) is shown in buff.

Climate change is likely to affect the frequency of drought[12] conditions. A Met Office study[13] on how climate change could affect the frequency of extreme droughts in the UK found a range of possibilities - the majority of them showing that droughts, such as the one that occurred in 1976 (one of the most severe droughts on record), will become more common.

To assess how climate change might affect the amount of water available for new abstractions we have analysed the impact of reduced flow on resource reliability. The analysis assumes a scenario where underlying river flows reduce by 15 per cent. This simplification doesn't correspond directly to the climate change scenarios presented in section 3.1.1 but the results can be used to indicate how the current approach to allocating water resources could operate if natural river flows decrease due to climate change. Figure 3.2 compares the current baseline reliability for new licences compared with a 15 per cent flow reduction scenario. As more available water is licensed for abstraction the reliability of further new abstraction will decrease. In drier years, abstractions with the more restrictive hands off flows conditions will have a lower reliability of abstraction and will be prevented from abstracting more often.

AM

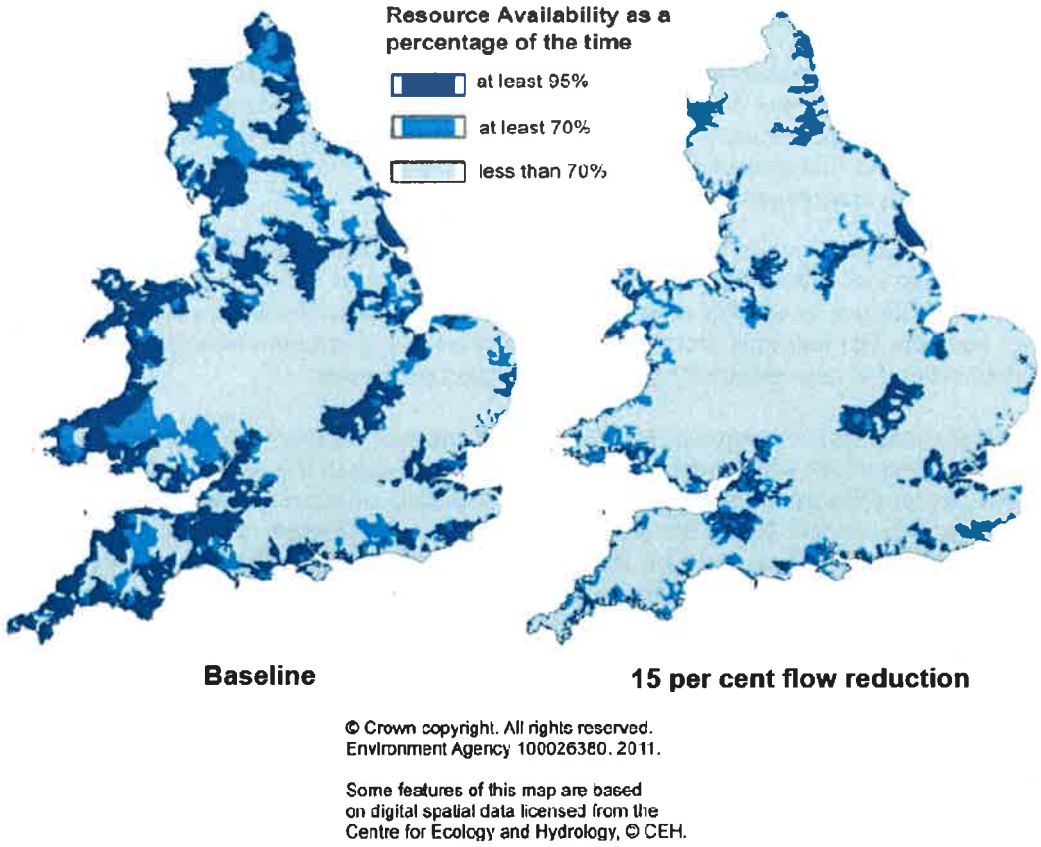


Figure 3.2: Water reliability - percentage of the time water (both surface and groundwater) would be available to abstract for new licences. The reliability of existing licences is defined by licence and physical conditions.

3.2 Protecting the water environment in the future

With changes to the amount and distribution of rainfall and an increase in temperatures, it is inevitable that the water environment of the future will be different to the environment seen today. Some species will be better suited to future conditions and thrive. But there is a risk that some important species and habitats could be lost. Iconic fish species such as Atlantic salmon and brown trout, which need cold water to thrive, may struggle to survive in some rivers. While plants and animals decline in some parts of England and Wales, they are likely to become more prevalent in other areas out competing species and habitats local to the area.

As the water environment changes with changing flow regimes and increased temperatures, we will need to reconsider what environmental flow limits we set (which could mean altering the Environmental Flow Indicators) and the implications for how much water we allow to be abstracted. This involves addressing very challenging questions as our understanding of the water needs of current water ecosystems is still developing. Climate change will create a new level of complexity on top of our current understanding which we have only just begun to tackle. We will need to work to improve our understanding so we can plan effectively for the future and integrate this understanding into future environmental protection standards.

3.3 Changing demands

One of the biggest pressures on water resources is the projected population growth. By the 2030s, the total population of England and Wales is expected to grow by an extra 9.6 million people (9.2 million people in England and 0.4 million people in Wales[14]). Figure 3.3 shows that projections vary from place to place with the population in some parts expected to increase by over 40 per cent.

More people and homes in the future mean that household demand for water is likely to increase. Expanding and new communities will need support services, for example schools and shops, which will all need water. Growth will also impact water demand in other sectors. For example more water may be needed to irrigate crops for food production and in new electricity generation cooling processes.

The relationship between growth and forecast demand is complex. Many factors will determine how much water people and businesses will use in the future including the climate, water efficient technology, incentives for people and businesses to use water wisely and regulations. When thinking about the demand for water we have to make assumptions about how people will live and work, the technology that will be available, how people will use their leisure time and how they'll value the environment.

We [15] have looked at the potential effect growth, societal change and climate will have on future demand. It is impossible to know what the future will look like and if we had based our analysis on one possible future then we would almost certainly be wrong. To overcome this, the assessment looks at a range of potential future scenarios (figure 3.4) based on different types of society (conservationist through to consumerist) and governance (growth-focused through to sustainability focused). This identifies an envelope of possible future demands within which the actual future may lie, with no one scenario more likely to occur than any other. We considered the demand from households, from industry and commerce, from agricultural spray irrigation, water company leakage and from power generation[16].

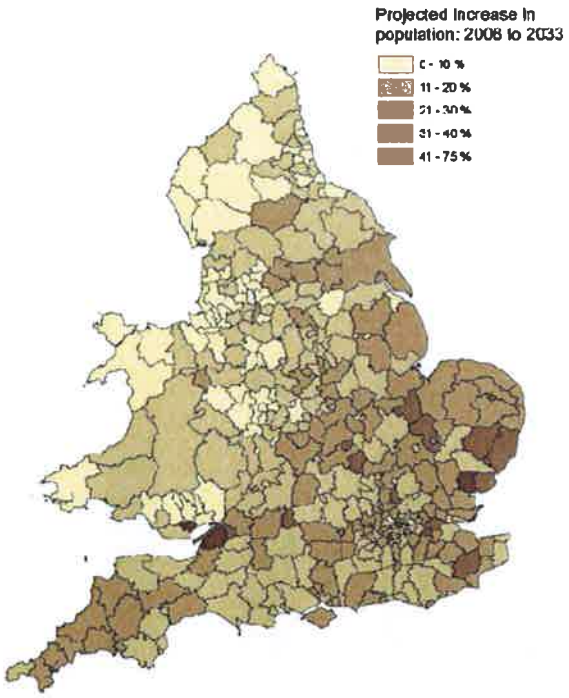


Figure 3.3: Projected population growth: 2008 to 2033 (Source ONS)

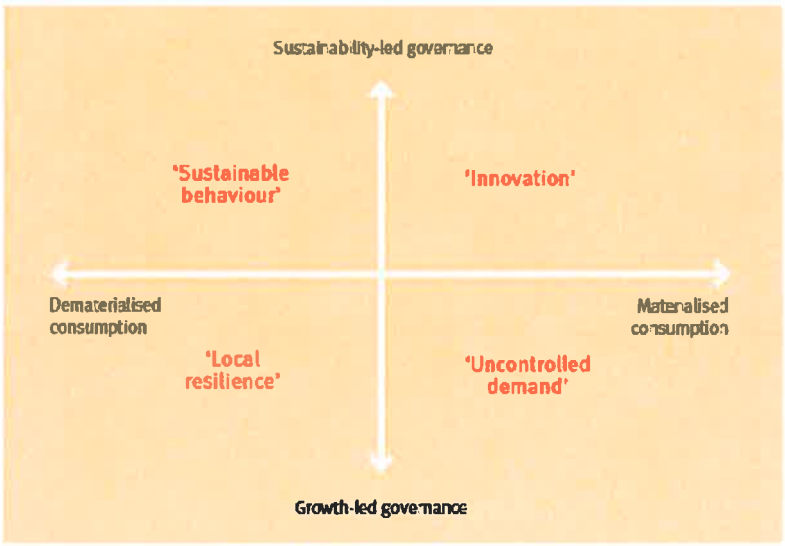


Figure 3.4: Future scenarios

By 2050, total water demand across the four scenarios varies from 15 per cent less than today to 35 per cent more (figure 3.5). The 'Sustainable Behaviour' and 'Innovation' scenarios indicate lower demand where people value water more and adapt to climate change through sustainable policies and substantial advances in technology respectively. The 'Uncontrolled Demand' scenario shows the extent to

which water demand could increase if policy and public attitudes do not focus on sustainable development. Appendix 1 provides details on the four scenarios.

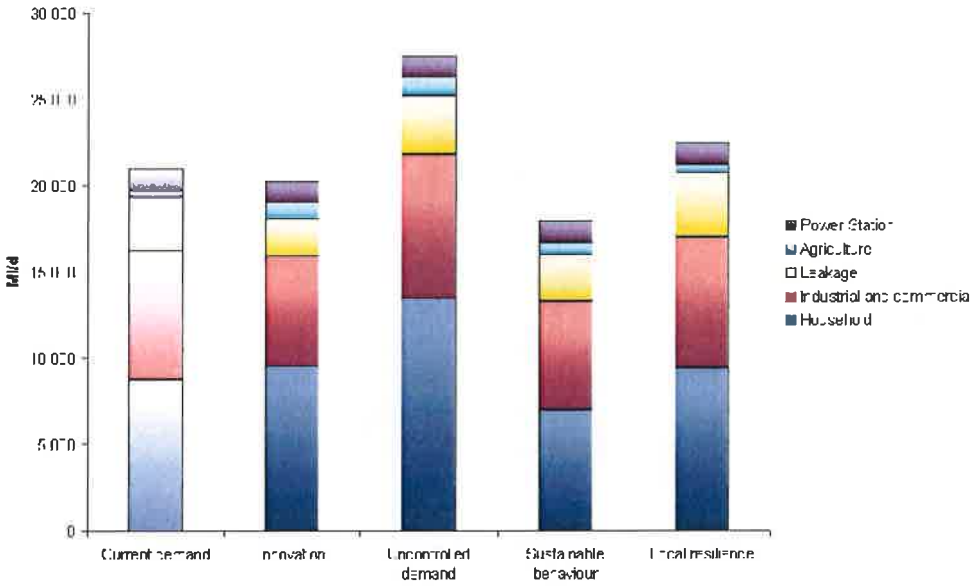


Figure 3.5: Trends in total water demand - 2008 to 2050 (England & Wales)[17]

Wealden District (Incorporating Part of the South Downs National Park) Core Strategy Hearing Statement on Behalf of South East Water

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Appendix B

Extract from South East Water's Water Resources Management Plan 2010 – 2035, December 2010

MATTER 14j /SEW

south east water

Water Resources Management Plan 2010 – 2035

Final Plan December 2010

South East Water
Rocfort Road
Snodland
Kent
ME6 5AH

B1

10.6 Resource Zone level overview of the final plan

Resource Zone 1

131. The strategy to 2020 makes use of existing inter-zone transfers from neighbouring RZs and improvements and enhancements to three existing Company sources located at Tonbridge, Pembury and Saints Hill. In addition, a new groundwater source is proposed at Browns Wood near Tonbridge.

132. After these initial investments, little further investment is necessary in RZ1. Instead, the forecasted deficits that occur in later years are resolved through the interplay and management of the Company's new and existing inter-resource zone transfers that have resulted as a benefit of the merger of the two former Mid Kent Water and South East Water companies. This is achieved by taking advantage of surpluses that are developed more cost effectively in neighbouring RZs throughout the planning period.

Resource Zones 2 and 3

133. The strategy makes use of existing inter-resource zone transfers in early years, and small improvement works at existing groundwater sources: rehabilitation work at Balcombe, improved treatment at Cowbeech, improvements at Eridge and improvements at Crowhurst Bridge. There are also supporting transfers both ways between RZ2 and RZ3, ensuring the supply demand balance is maintained in both zones.

134. Changes to the supply forecasts between the draft plan and the revised plan enable the company to achieve greater utilisation of its existing resource and inter-zone transfers ahead of the next major resource development. This enables the major capital investment proposed in the dWRMP at 2017 to be deferred to post 2020.

135. The company's latest options appraisal modelling for the post 2020 period continues to identify a local winter storage reservoir as the preferred solution. The dWRMP identified a site at Clay Hill, north of Ringmer. Subsequent company-level modelling confirms this to be the least cost and most sustainable long-term option on the basis of known information. However, other sites, in or close to the River Ouse catchment, could also meet the same need and could conceivably match or better the criteria used in the model. Whether this is the case can only be ascertained by further detailed studies that will be required to help formulate a proposal, prior to an application for planning or development consent, but which in themselves do not form part of this first stage, which is the separate WRMP process. The statutory process of an environmental assessment, which will be brought into play at that point, also requires consideration of possible alternatives. These will have to be identified and compared against a range of detailed planning and environmental policies set out in the statutory development plan and elsewhere.

136. Both the local winter storage reservoir solution and more regional transfer options would enable the supply-demand balance in RZ2 and RZ3 to be maintained through to the end of the 25 year planning period. Given the further work required on both of these options, and indeed other alternatives, further work must be progressed during AMP5.

Resource Zone 4

137. RZ4 has a surplus in supply in the early years of the planning period. Once that surplus has been removed by forecast increases in demand, it is proposed to transfer existing surplus supply in RZ5 to RZ4 via the existing Inter-Resource Zone transfer between the Zones.

138. RZ5 continues to provide part support to RZ4 throughout the remainder of the planning period to 2035. However, further groundwater resource development is still necessary in RZ4, currently proposed at Lasham, West Ham, and Woodgarston. All these options will require further investigation to determine their feasibility over the AMP5 and AMP6 periods

Resource Zone 5

139. RZ5 remains predominantly in surplus for the whole of the planning period to 2035 with the development of two ground water schemes, Greatham and East Meon at the end of the planning period. Some of the surplus in supply is used to support RZ4 for the duration of the planning period.

Resource Zone 6

140. RZ6 is not in deficit until 2016, but does support removal of deficits in RZ1 through inter-Resource Zone transfers. Post 2016, the strategy involves a revision to one of the company's existing Greensand group licences, and the development of a new groundwater source in the Greensand aquifer near Thurnham.

141. Post 2025, the Company's options modelling investigations support inter-zone transfer imports from RZ8, following proposed major resource developments in that zone, currently represented by a winter storage reservoir.

142. In the regional modeling work undertaken by the Water Resources in the South East (WRSE) collaborative group, Southern Water put forward a scheme to utilise effluent re-use at Aylesford as potentially forming part of a regional least cost strategy. South East Water has reviewed Southern Water's assessment and conclusions for the Aylesford effluent re-use scheme. While recognising the merits of the option, many uncertainties remain that would significantly impact or constrain the option's feasibility and costs, as alluded to by Southern Water in its own WRMP plan. Southern Water proposes to undertake further investigations during AMP5 to determine the environmental impacts, yield resilience, and the true cost of the scheme ahead of confirming the feasibility and justification of this scheme for AMP6. South East Water supports this further investigation of Aylesford effluent re-use scheme but has asked the EA to acknowledge the prudent need to at least 'keep live' the alternative options proposed in South East Water's final plan, certainly until more robust information for all the options are available during AMP5. That will then allow a more informed decision to be made so it can be incorporated in the next WRMP in 2014.

143. The EA has recently published its own report on effluent reuse schemes, including that at Aylesford. The report also highlights the need for considerable additional work to be undertaken.

144. South East Water has nonetheless undertaken revised options modelling to include the Aylesford Effluent reuse scheme as a candidate scheme in its WRMP plan.

Significantly, the results of both South East Water's and the WRSE group's modelling work have indicated that the Aylesford scheme would not be selected on least cost grounds until post 2030, and only after the proposed development of a winter storage reservoir (Broad Oak reservoir).

Resource Zone 7

145. Increasing the output from Bewl Reservoir by raising the level of the dam and making prudent changes to the River Medway Scheme licence featured strongly in South East Water's draft plan. Subsequent modelling by both South East Water and the WRSE group has confirmed the importance of these options, and both retained in the Company's revised plan. Progress on both elements will need to be achieved early in the AMP5 period from 2010 to 2015. Both options also featured strongly in the regional modeling work, and also in Southern Water's plan.

146. New boreholes in the Ashdown Beds close to Bewl Reservoir are also retained in South East Water's final plan, acknowledging further investigative work is necessary during AMP5 to confirm the feasibility of the option for delivery in AMP6.

147. A strong feature of South East Water's final plan is the transfer of resources from RZ8 to RZ7 and then indirectly to the other South East Water RZs. The continuation of this support post 2025 will be dependent on the outcome of the AMP5 investigations of: proposed RZ8 options; Bewl raising and licensing; the Aylesford effluent re-use option.

Resource Zone 8

148. RZ8 remains in surplus until almost 2020, and these pre 2020 surpluses are used to support exports to RZ7, and then indirectly the inter-Resource Zone transfers from RZ7 to RZ 1, 2, 3 and 6. Post 2020 a new groundwater scheme is planned for development at Hoplands Farm, near Canterbury, to maintain the supply demand balance to 2026.

149. From 2026, the preferred least cost solution is a new winter storage reservoir at Broad Oak. The selection of Broad Oak has been met with both challenge and support. South East Water has retained a winter storage reservoir (Broad Oak) in its plan but remains committed to investigating alternatives and finalising a regional solution during the AMP5 period from 2010 to 2015

150. South East Water has agreed with Folkestone and Dover Water Services to continue with the existing 2Ml/d export to them throughout the 25 year planning period. Further joint investigations will be undertaken during the AMP5 period from 2010 to 2015 to consider increasing the transfer to 4Ml/d from 2020.