

United Utilities Water PLC

2013 Draft Water Resources Management Plan

# Statement of Response

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A glossary of terms is in the Water Resources Management Plan main report, available at [corporate.unitedutilities.com/Water-Resources-Management-Plan](http://corporate.unitedutilities.com/Water-Resources-Management-Plan)

## 1 INTRODUCTION

United Utilities Water plc published its Draft Water Resources Management Plan for consultation from 14 May 2013 to 6 August 2013. During this period, we consulted widely with customers, regulators and other stakeholders. We emailed over 500 parties to encourage them to take part in the consultation, issued a press release and held five consultation events. We received 55 written representations. The comments and representations reflect a high level of stakeholder interest in the region's water supply and related environmental issues.

This Statement of Response describes how we have taken account of the representations and the changes we have made to the draft plan as a result of them. It has been sent to each of those who made representations on the draft plan and has also been sent to the Secretary of State for Environment, Food and Rural Affairs.

We have also prepared a revised draft Water Resources Management Plan, and a revised Strategic Environmental Assessment (SEA) and Habitats Regulation Assessment (HRA). These have also been sent to the Secretary of State for Environment, Food and Rural Affairs and we will publish these as a final Water Resources Management Plan once we have received direction to do so.

The publication of the draft plan and Statement of Response are statutory requirements set out in the Water Act 2003 and the Water Resources Management Plan Regulations 2007. We have complied with this legislation.

This Statement of Response is structured as follows:

- Section 1 explains the background to the document.
- Section 2 describes the consultation process we undertook.
- Section 3 summarises the comments we received and our views on them.
- Section 4 outlines the activities to finalise the Water Resources Management Plan.
- Appendix 1 details the representations we received on the draft plan and how we have taken account of each of them.

## 2 CONSULTATION PROCESS

### 2.1 CONSULTATION ON THE DRAFT WATER RESOURCES MANAGEMENT PLAN

The draft Water Resources Management Plan was published on 14 May 2013. It was emailed to 520 contacts including statutory consultees and local businesses, environmental organisations, leisure and recreation groups and local authorities. It was published on our company website and was available in hardcopy at our Head Office at Lingley Mere, Warrington. We also issued a press release and had good press coverage in Cumbria in particular.

The draft plan was available for public consultation for a 12-week period from 14 May 2013 to 6 August 2013. Consultation events were held in June in Chorley and Workington and in early July in Liverpool, Kendal and Manchester, in order to discuss the plan directly with interested parties.

A total of 55 written representations on the draft plan were submitted to the Secretary of State from the consultees shown in Table 1.

We also met with the Environment Agency on several occasions in order to discuss and clarify their comments.

**Table 1 Respondents to United Utilities' draft Water Resources Management Plan**

Respondents to United Utilities' draft water resources management plan
Association of Greater Manchester Authorities
Allerdale Council
Britain's Energy Coast
Buglife
Canal & River Trust
Cheshire West and Chester Council
Cheshire Wildlife Trust and The Wildlife Trust for Lancashire, Manchester & North Merseyside
Cleator Flood Action Group
Consumer Council for Water
Derwent Owners Association
Environment Agency
Friends of the Lake District
Group Against Reservoir Development
Garstang Against Fracking
Holker Estate
Individuals (20 representations)
Keswick Flood Action Group
Lake District National Park Authority
Manchester City Council
Natural England
Natural Resources Wales (2 representations)
Nuclear Decommissioning Authority
Ofwat
Parish Council of St John's Castlerigg & Wythburn
Peak District National Park Authority
Peel Utilities Holdings Ltd
River Eden & District Fisheries Association
South Lakeland District Council (2 representations)
St Bees Parish Council
St Helen's Council
West Cumbria Rivers Trust
Windermere Lake Cruisers
Windermere Lake User Forum
Wrexham Council

### 3 COMMENTS RECEIVED AND UNITED UTILITIES' RESPONSES

#### 3.1 REPRESENTATIONS RECEIVED

The representations received on the draft plan show a high level of interest in the region's water supply and related environmental issues. There were many expressions of support for the plan, as well as requests for modification, improvement and clarification.

We have carefully considered all the representations received and have taken account of these as detailed in the Appendix and summarised below.

Several respondents commented on more than one issue, or on different aspects of a single issue. As a result, the 55 representations gave rise to more than 200 detailed comments. The main issues are discussed in the following sections and all comments are set out in Appendix 1 together with our responses.

#### 3.2 REVOCATION OF OUR ENNERDALE ABSTRACTION LICENCE

In our draft plan, we said that to protect the ecology of the River Ehen our abstraction licence at Ennerdale Water needs to be revoked (withdrawn). We said that, without changes to our abstraction, England's only viable population of the internationally protected freshwater mussel could become extinct in England.



Five respondents questioned why abstractions at Ennerdale need to change at all, especially as any alternative will be costly to implement, and questioned whether there was sufficient evidence to justify the investment.

It is the Environment Agency's role to review the evidence relating to abstraction licences, with advice from Natural England, and determine what changes are required to comply with legislation. The proposed changes at Ennerdale are based on evidence from leading international experts and are required to comply with the Conservation of Habitats and Species Regulations (2010). The Environment Agency is also conducting its own consultation on significant water management issues in the North West<sup>1</sup>. The Environment Agency's consultation will close on 22 December 2013. United Utilities has supported a significant number of studies and investigations relating to Ennerdale, the Ehen and the freshwater mussels. We have also commissioned a peer review of the impact on the mussels, which concluded that the licence revocation was required. We accept the view that it would be helpful to set out more evidence in the Water Resources Management Plan, and have therefore included this in Section 2.6 of the revised draft plan.

#### 3.3 WEST CUMBRIA ALTERNATIVE PLANS

In our draft plan, we identified a significant water supply-demand deficit arising in our West Cumbria zone following revocation of our abstraction licence at Ennerdale. We

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<sup>1</sup> The Environment Agency's consultation is called "North West River Basin District: Challenges and choices, summary of significant water management issues, a consultation" and is available at <https://consult.environment-agency.gov.uk/file/2532679>

set out a preferred plan to supply water to West Cumbria from Thirlmere Reservoir in our large Integrated Zone, and two alternative plans. The first alternative was a combination of local sources within West Cumbria, which was the lowest cost solution, and the second alternative was a transfer of water from Kielder Reservoir in Northumberland. We particularly sought views in relation to the preferred plan and the alternatives.

Sixteen respondents raised the selection of West Cumbria options in their representation. Of those who expressed a clear preference for one of the three alternatives, the majority (10) agreed with the selection of Thirlmere as the preferred plan. Four respondents said that the Kielder alternative should become the preferred plan. One said that the lowest cost alternative should not be the preferred plan and another said that the Thirlmere option should be avoided. No respondents said that the lowest cost alternative should be selected as the long-term solution to the deficit in West Cumbria. Figure 1 shows a summary of the numbers of respondents who expressed preferences in relation to the three alternative options.

The Kielder alternative would involve buying water from Northumbrian Water and transferring it from Kielder Reservoir in the North Pennines. This would require a new water pipeline from Kielder Reservoir to a new water treatment works near Carlisle, and then a new treated water pipeline to West Cumbria. Four respondents preferred this option on the grounds that it provides a long term solution, Kielder reservoir is already developed, and the option is seen as having less landscape impact. These respondents were particularly concerned about impacts in the Lake District, especially at Windermere and Thirlmere. While respondents recognised that the Kielder alternative was a more expensive solution, they thought it represented genuine long-term thinking in so far as it would be a key element in a national water grid.

In our draft plan, we identified that the lowest cost alternative depends in part on an abstraction licence trade with a third party. The third party is the Nuclear Decommissioning Authority (NDA). In their representation, the NDA said that they were concerned about the viability of the trade and that United Utilities should not rely on this as its preferred plan. Natural England also raised concerns about the lowest cost plan in their representation. Natural England's concern relates to uncertainty in the impact of this plan on protected sites, which could mean either that implementation of this plan could be delayed or that the Thirlmere option would be required anyway.

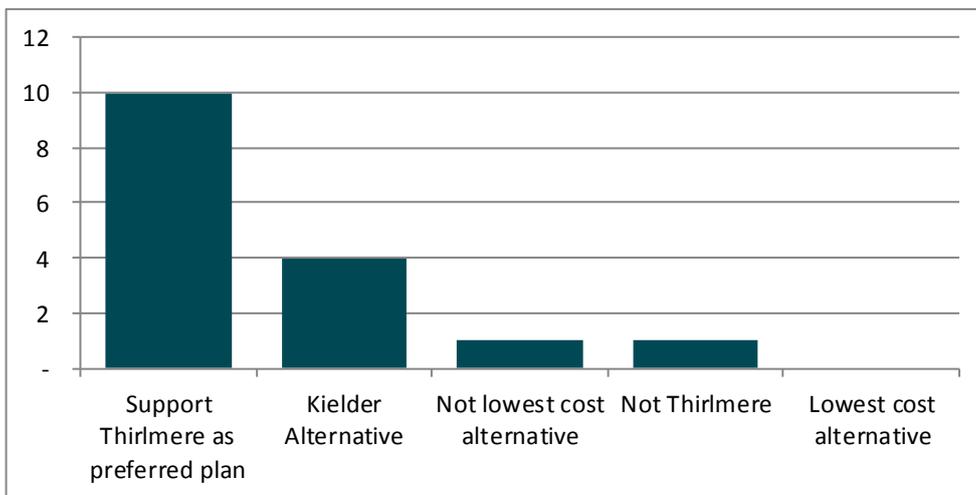
In our draft plan we said that although the Thirlmere option was more expensive it brought wider benefits. It means that we no longer need to take water from the most environmentally sensitive sites in West Cumbria. This would allow the sensitive and special habitats to return to a more natural condition. Ten respondents agreed that this should be the preferred plan. They recognised the wider environmental benefits. They recognised the increased safeguards of supply in potential drought situations. They recognised that it supports the development aspirations of the area while minimising the impact on the local environment. Overall, these respondents say that the proposals satisfy a high environmental need, are reasonable and feasible, and represent the best balance between cost and environmental need.

We have considered these views carefully. We have carried out more detailed engineering assessments of the three alternatives. We have carried out further water resources modelling of the impact of the West Cumbria transfer on our Integrated Resource Zone. We have also carried out further customer research: focus groups to understand how customers view the three alternatives and quantitative research to understand the value customers place on different options. We have reviewed our Strategic Environmental Assessment and Habitats Regulation Assessment in light of the representations received.

We have concluded that despite there being some advantages to the Kielder alternative it cannot remain in the plan because it would take an estimated 16 years to construct and this would not allow us to comply with our legal obligations under the Conservation of Habitats and Species Regulations. Also, the considerable additional cost of this option cannot be justified given the lack of widespread customer and stakeholder support.

The representations from the Nuclear Decommissioning Authority and Natural England mean that the lowest cost alternative could not be selected as the preferred plan at this stage. It would take at least two years of detailed assessment to investigate their concerns and it is highly uncertain as to whether they could be resolved to an extent to allow this option set to progress. We have also reconsidered all the other local options and concluded that there are no suitable substitutes that would give confidence in being able to resolve the issues in West Cumbria in a timely manner. We do not consider that it would be an efficient use of our customers' money to continue pursuing this alternative because of the considerable uncertainty and the clearly expressed views through the consultation process and customer research favouring the Thirlmere option.

Due to the fact that the majority of representations that expressed a clear preference supported the Thirlmere option, we have retained this as our preferred plan. The consultation process is an important part of our decision-making process which considers a wide range of factors. We have set out further details of this process in Section 10 of the revised draft plan.



**Figure 1 Respondents raising West Cumbria as their main issue**

### 3.4 WINDERMERE

In our draft plan we identified that the preferred solution to resolve the deficit in West Cumbria was to link West Cumbria into our Integrated Resource Zone by building a new transfer pipeline from Thirlmere Reservoir. We currently abstract from Windermere and it is one of over 180 different sources in our large Integrated Resource Zone.

Three organisations raised concerns over abstractions from Windermere due to effects on the environment, tourism and other businesses in the area. These concerns related to both our current abstraction and potential changes to the pattern of abstraction that may result from the Thirlmere transfer to West Cumbria. Two of these respondents suggested specific changes to our Windermere licence.

### 3.4.1 Operational and environmental controls

We have strong operational controls over abstractions from Windermere (and from Ullswater which is operated on a similar basis). These controls take account of environmental impacts as agreed with the Environment Agency, impacts on navigation, and the need to maintain an efficient supply to our customers. These impacts are balanced in the current abstraction licence conditions.

We abstract from Ullswater and Windermere in order to supplement storage in Haweswater. A number of different factors are used to help decide when to start pumping from these two sources. The main consideration is whether or not levels at Haweswater are below the levels expected for the time of year, but we also take account of weather forecasts and anticipated customer demand. In order to choose between Windermere and Ullswater we compare the current and predicted river flows against the respective “hands off flow” licence conditions and we also review the usage of each source against its annual abstraction licence.

We use an operational control rule to help decide at what point we should consider pumping from Ullswater or Windermere. The rule consists of an annual profile of Haweswater storage levels which varies according to the time of year. The rule is defined by detailed analysis of historical records of reservoir inflow to ensure that we don't pump from Windermere and Ullswater at times when Haweswater is very likely to refill naturally. This means that we will generally pump when water is available up until a storage level of 91% in April.

We have a duty to all of our customers to minimise the cost of our water services wherever possible. Changing the licence requirements to require pumping from Windermere and Ullswater at times when Haweswater is likely to refill naturally would have a significant impact on operational costs (plus associated carbon implications) but provide very little benefit to supplies. In the worst case it would mean pumping water from Ullswater and Windermere that will later result in water spilling from Haweswater, contributing to flood risk on the River Lowther, and being lost from the supply system altogether.

There are of course other considerations as well as maintaining an efficient water supply network, for example our responsibility to protect the environment. In the case of Windermere and Ullswater, environmental controls exist in the form of the River Leven and River Eamont hands off flow conditions. These constraints limit the amount of pumping we can undertake, especially during summer months. The Environment Agency recently reviewed the hands off flow requirements at Windermere as part of their Water Framework Directive (WFD) Stage 1 and 2 Assessments and determined the existing hands off flow conditions to be appropriate.

Under current WFD guidance, the scientific evidence indicates that the upper River Leven is achieving good ecological status. Furthermore, the results of an independent study of the suitability of the “hands off” flow condition undertaken in 2010 also determined the flow to be appropriate, including for migratory fish. There is also a waterbank operated by the Environment Agency with the purpose of assisting the conservation of fisheries and ecology in the River Leven. A waterbank is a notional volume of water, which can be used to support downstream flows without detriment to other uses such as public water supply or navigation. Therefore, there are no proposals to change the current hands off flow limits of 273 MI/d from May to September and 136 MI/d from October to April.

In addition to the abstraction licence, in early 2013 we agreed with the Environment Agency and Windermere local stakeholders to trial a revised waterbank agreement which significantly increases the waterbank from the annual limit of 2,273 MI to a monthly limit of 1,350 MI per month. The aim is to try to maintain river flows of at least 95 MI/d at Newby Bridge gauging station to protect the ecology of the River Leven such

as fish spawning grounds, juvenile fish habitats and maintaining connectivity between pools and riffles.

### 3.4.2 Impacts of proposed Thirlmere transfer on the Integrated Zone

We have undertaken further water resources modelling to assess the potential impacts of the Thirlmere transfer on Windermere and other sources in our Integrated Zone. We have compared how the system is currently operated with how it could be operated under our forecast for 2025, when the transfer would become operational. We have included other changes that are forecast to occur between these times. Table 2 below shows the key changes in the context of our total water available for use (WAFU) in 2012. The additional demand from West Cumbria accounts for only around 2% of WAFU, which is approximately half of the reduction in demand expected in the Integrated Resource Zone between 2012 and 2025. We are able to maintain a healthy supply-demand balance in 2025 and right through to the end of the planning period in 2040 (with a final surplus of around 70 MI/d) even after the West Cumbria transfer.

The surplus confirms that we can meet our stated level of service and will not need drought permits to be implemented more than once every 20 years on average.

**Table 2 Impact of proposed Thirlmere transfer on Water Available for Use**

Component	Supply-Demand Balance (MI/d)	Proportion of 2012 WAFU (%)
Water available for use (WAFU) in 2012	1907.5	-
<b>Supply surplus in 2012</b>	<b>116.9</b>	<b>6.1</b>
Reduction in Integrated Zone demand to 2025	+93.0	+4.9
Impact of climate change in 2025	-76.9	-4.0
Additional demand from West Cumbria (2025)	-46.6	-2.4
Other changes (including Southport groundwater)	+22.2	+1.2
<b>Supply surplus in 2025</b>	<b>108.7</b>	<b>5.7</b>

When testing the impact of these changes on the operation of the Integrated Resource Zone we created two models of the current supply network with customer demand recorded in 2012 and modelled the forecast position in 2025, including the impact of climate change. We ran simulations with our 1927-2010 hydrological sequences which contain key historical droughts such as 1933-34, 1984 and 1995-96. This gives us the confidence that our plans have been tested under a wide range of hydrological conditions. We also ran the model with “normal year” and “dry year” demand scenarios to reflect the fact that customer demand for water changes with the weather.

The model shows that the impact of the additional abstraction from Thirlmere is effectively mitigated by other sources in the Integrated Resource Zone. Whilst an average abstraction of 46.6 MI/d is required to meet demand in West Cumbria, the total simulated level of abstraction from Thirlmere only increases by 20-30 MI/d, depending on the hydrological conditions experienced.

The model simulations indicate that the influence of the Thirlmere transfer and other changes occurring between 2012 and 2025 is spread across much of the resource zone. For example, there is a simulated increase in water abstracted from Windermere and Ullswater, both of which are used to supplement supplies in Haweswater.

However, further analysis of the model results showed that in dry years, for example 1984, there was a large increase in winter abstraction from Windermere and Ullswater (22.8 MI/d or 36.6 %) but no increase in summer abstraction (April – September inclusive). This was also reflected in simulated annual minimum lake levels which were largely unaffected at Windermere and Ullswater. Looking over the longer term, using the 1927-2010 historical record, there was a simulated increase in average summer abstraction of less than 10 MI/d (10%) for both Windermere and Ullswater combined. To put this into context, it is equivalent to only an extra 3 days of summer pumping at the full combined capacity of 568 MI/d.

Overall the anticipated increase in abstraction from Windermere and Ullswater is small, and within existing licence limits. We will not need drought permits more often than the current level of service. The impact of climate change is the bigger cause of this increase rather than the transfer to West Cumbria. This analysis supports the conclusions made in the draft plan regarding the impacts and viability of the Thirlmere transfer.

### 3.5 THIRLMERE VISUAL IMPACT

In our draft plan we identified our preferred plan to supply water to West Cumbria from Thirlmere Reservoir. Four respondents raised concerns about the effects this may have on landscape and visual amenity at Thirlmere. They asked for more detailed consideration of landscape in our Strategic Environmental Assessment (SEA) and sought assurance that there would not be major impacts on the Lake District National Park landscape as a result of the operation of the transfer from Thirlmere to West Cumbria.

The approach undertaken to the assessment of landscape effects as part of the SEA is considered to be robust and proportionate to the strategic nature of the assessment and in accordance with Government guidance on SEA<sup>2</sup>.

The SEA framework used to undertake the assessment of the draft plan contains a specific objective related to landscape (SEA objective 12: to protect and enhance landscape character). A detailed assessment of the Thirlmere transfer during construction and operation against this objective is provided at Appendix E to the Environmental Report and in section 3.2.1 of the Environmental Report Addendum. Reflecting the need for a number of new assets in the Lake District National Park, the option was assessed as having a significant negative effect on landscape during construction.

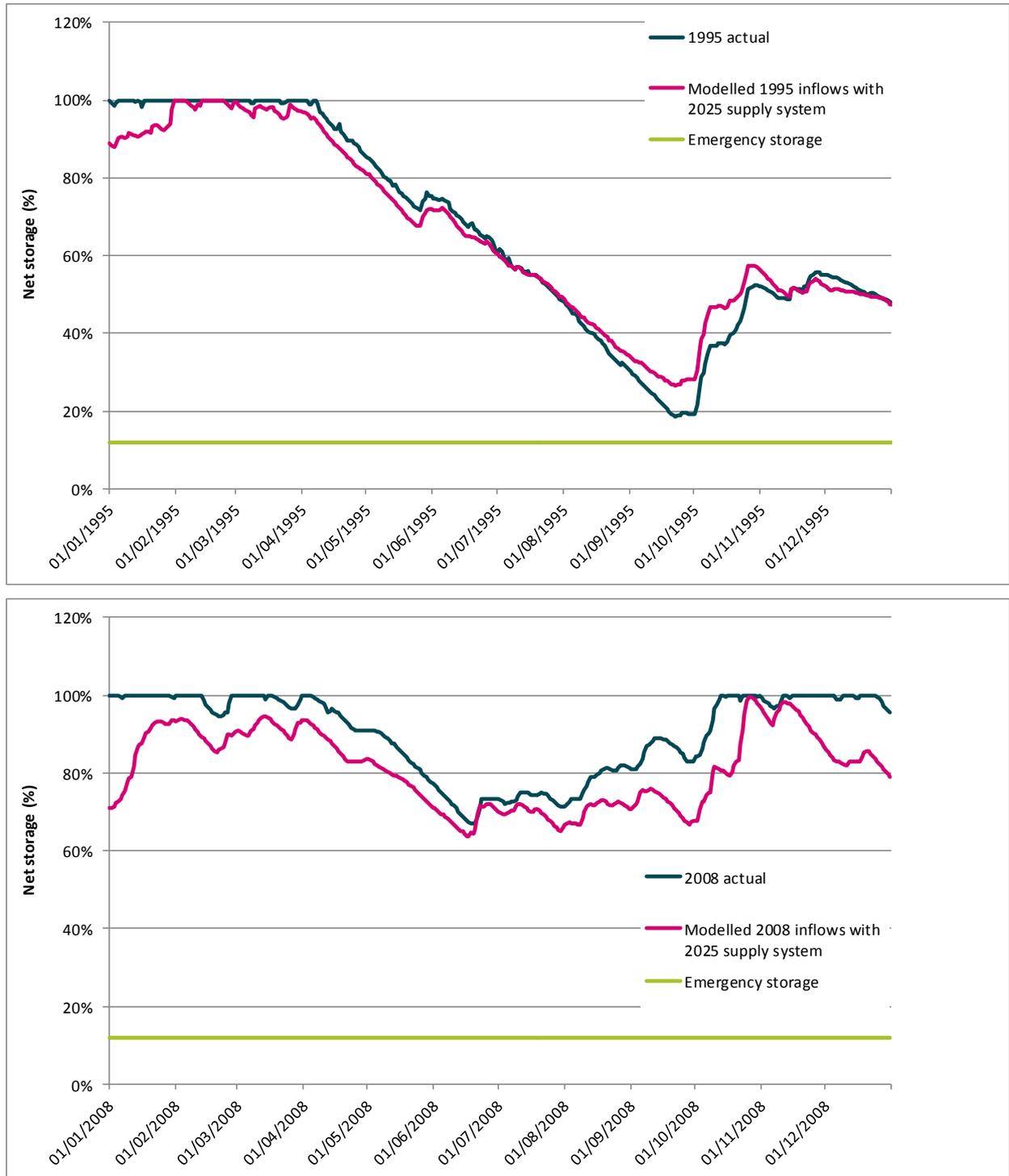
With regard to the operational effects of the Thirlmere transfer on landscape, the assessment concluded that negative effects are likely to be minor. This reflects the expectation that new/upgraded service reservoirs and pipeline will be buried and that planting and re-seeding will minimise any landscape effects associated with these assets in the longer term (i.e. within a year, depending on the season in which works are undertaken). The assessment did recognise the potential for new above ground infrastructure located within the Lake District National Park to have substantial landscape and visual impacts, particularly the proposed new water treatment works near Thirlmere. The assessment also highlighted that the operation would result in additional drawdown of Thirlmere Reservoir, which may be perceptible.

We have carried out further water resources modelling which confirms the view in the draft plan about drawdown of Thirlmere. Two examples are shown in Figure 2. This

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<sup>2</sup> Office of the Deputy Prime Minister (2005) 'A Practical Guide to the Strategic Environmental Assessment Directive'

shows that in a normal year (for example 2008), the reservoir is slightly more drawn-down than recorded historically. In a dry year (for example 1995), the reverse is true. The combined benefit of demand reductions and improvements to the supply system, for example the West East link, mean that Thirlmere will exhibit less drawdown in dry years than would have been the case historically.



**Figure 2 Model comparisons show the impact of the proposed supply system configuration in 2025 compared to actual drawdown of Thirlmere Reservoir.**

Taking into account the assumption that assets would be located at or adjacent to existing operational sites (including at the proposed new water treatment works near Thirlmere) alongside the implementation of appropriate mitigation such as screening, sympathetic design and use of local materials, the residual effect on landscape is assessed as being minor. Detailed design will aim to minimise the visual impact. Furthermore, at sites where existing water treatment works are decommissioned, there will be landscape benefits (although the assessment concluded that any benefits are likely to be negligible, as other water infrastructure would be retained on site).

It is not within the scope of an SEA to undertake a very detailed landscape impact assessment. Such an assessment will be conducted as part of an Environmental Impact Assessment (EIA) at the project stage when further details of proposals are known, and we will work closely with relevant organisations and stakeholders regarding design and mitigation. As set out in Section 3.5 of the Environmental Report, it should also be noted that the exact location of the new above ground infrastructure has yet to be determined. This will be established as part of detailed design and site selection at the project stage, informed by the EIA process.

In relation to more information being needed, all three alternative plans have been subject to the same level of assessment as part of the SEA with the findings of this assessment presented in Appendix E to the Environmental Report and in section 3.2.1 of the Environmental Report Addendum. The findings indicate that the landscape impacts of the Kielder and lowest cost alternatives would be less than those associated with the preferred plan during construction. This principally reflects the fact that, based on outline proposals at the time of publication, there would not be a potential requirement for substantial new above ground infrastructure within the Lake District National Park. The findings of the assessments are reflected in Section 5.2.4 of the Environmental Report, which compared the assessments of all three alternatives and highlighted the potential for significant landscape impacts associated with the preferred plan.

As part of the SEA process, we carried out further assessment of the three alternative plans in order to take into account representations and information derived from further work undertaken since publication of the draft plan. We report this assessment in an Addendum to the Environmental Report which we have submitted to the Secretary of State alongside the revised draft Water Resources Management Plan. It re-affirms the conclusions of the original assessment, i.e. that there is the potential for the preferred plan to generate significant negative effects on landscape during construction but that effects during operation are likely to be minor. Reflecting amendments to the Kielder alternative, which includes a new service reservoir at Ennerdale and pipeline through both the Lake District National Park and Northumberland National Park, the assessment identifies the potential for this option to have significant negative effects on landscape during construction. In consequence, from a landscape perspective, the performance of both the Thirlmere and Kielder options are considered similar.

We have included statements in Sections 10.4 and 10.5 of the revised plan explaining how landscape issues are addressed in the SEA Environmental Report.

As discussed in Section 3.3, we have decided that the Kielder alternative cannot remain in the plan and the Thirlmere transfer remains our preferred plan. We will work closely with relevant organisations and stakeholders regarding design and mitigation options for the Thirlmere scheme and will ensure that any changes in landscape (e.g. reservoir levels) are duly considered as part of this assessment. We will provide visualisations of the construction and post-construction impacts and the Thirlmere levels. We will also ensure that the positive impacts of the increased abstraction from Thirlmere Reservoir on other parts of the Lake District, such as the higher lake levels in Crummock Water, are considered.

### 3.6 THIRLMERE FLOOD RISK CONCERNS

In our draft plan we identified our preferred plan to supply water to West Cumbria from Thirlmere Reservoir. Five respondents raised issues about the effects of our plans on Thirlmere flood risk and on opportunities for alleviation measures. They requested that United Utilities confirm its commitment to operating Thirlmere Reservoir within agreed flood “trigger levels” and said that engineering work is needed to enable higher release rates from the reservoir to mitigate flood risk.



We confirm that flood management and the flood releases form a critical part of the operation of Thirlmere Reservoir. We are not proposing to make any changes to flood management “trigger levels” as a result of our preferred option. We are not planning to maintain higher storage levels in Thirlmere to compensate for the increase in demand from West Cumbria. The additional demand will be met by surplus which already exists in the Integrated Resource Zone. We can spread this demand across other sources in the Integrated Resource Zone due to its large size and high degree of connectivity.

We tested the feasibility of the preferred option for the draft Water Resources Management Plan using our sophisticated water resources computer model. The model incorporates the rules by which we operate the supply network including the current flood drawdown rules for Thirlmere Reservoir. The modelling work indicated that no change to any operational rule was required, for example to maintain higher levels in the reservoir. Whilst we haven’t undertaken a detailed assessment of the impact of the preferred option on flood releases, we anticipate that additional abstraction from Thirlmere Reservoir will be beneficial for flood prevention.

Overall, we remain committed to managing the agreed monthly reservoir levels within the natural constraints of weather patterns. Limitations to the speed of reservoir drawdown to meet these levels, caused by constraints at the dam outlet to St John’s Beck, are well understood and following studies potential solutions have been identified. These solutions will be considered as part of the detailed design of the modifications to abstraction infrastructure, new water treatment works and pipelines for the Thirlmere to West Cumbria transfer.

These outfall specific improvements should not be confused with wider engineering projects involving alterations to the dam or spillway. Such alternatives are outside the scope of our primary role, would move us away from flood consideration as part of normal operations and are not being considered further.

### 3.7 SHALE GAS

In our draft plan we said that we were in discussion with organisations involved with hydraulic fracturing for shale gas exploration about whether we can provide our services to them at various sites in the Fylde area. Non-household customers can request the provision of water and wastewater services from us at any time and we have a statutory duty to provide these services. We said that we did not consider that the provision of water for shale gas exploration would impact on the availability of water resources across our region, but that we will assess each request on a site by site basis to ensure that the quality and reliability of supplies to our existing customers are not adversely affected.

The group Garstang Against Fracking and 11 individuals made representations about shale gas extraction. Two other organisations raised it as a subsidiary issue. Concerns related to the use of our land for shale gas operations, the effects on tap water quality, the availability of water to support the shale gas industry and the risk of pollution to groundwater.

In the UK there is a robust framework of planning, environmental and health and safety regulation. For shale gas exploration to take place, a petroleum exploration and development licence is required from the Department of Energy and Climate Change, planning permission from the minerals planning authority (which is typically the local authority) supported by an Environmental Impact Assessment and in consultation with the Environment Agency, permits from the Environment Agency, approval of well design by the Health and safety Executive and drilling and flaring consents from the Department of Energy and Climate Change. We are monitoring the development of the shale gas industry and, through our own industry body Water UK, we are lobbying for water companies to be consulted in the planning process with regard to shale gas operations. We address the areas of concern below, and do not consider that changes to the Water Resources Management Plan are required.

### 3.7.1 Land use

Much of the land we own forms part of our water catchments, i.e. the gathering grounds for our reservoirs. All of our catchment land is important to us and we work hard to ensure that the water we take is only what we need and that we leave enough for the environment. The reason we own this land is to protect both the quality and reliability of these water supplies. Some of our catchment land is located in areas of environmental importance and natural beauty. It is unlikely that this land would be appropriate for shale gas exploration and production. However, we also own other sites for operational purposes which may be more appropriate for such uses and we would have to assess any suitability on a case by case basis. Any landowner could be approached by shale gas exploration companies to host operations, but the regulatory and planning regime would apply as outlined above and residents and organisations would be consulted in the usual way.

### 3.7.2 Tap water quality

Public health through the provision of a safe, clean water supply is one of our top priorities and North West England has some of the best tap water in the world. We would never compromise this for our customers.

We have considered the publically available information on this issue, and we take confidence from publications such as the Royal Society/Royal Academy of Engineering report "*Shale gas extraction in the UK: A review of hydraulic fracturing*" (June 2012) and the recent Public Health England draft report<sup>3</sup> which have both concluded that the risks to water quality are low providing operations are appropriately managed and regulated. These reports also present a number of key findings, which we have considered. We are keen to see that all the recommendations from these reports are progressed so that a robust regulatory regime is in place that protects water resources. While we will ensure the safety of the public drinking water supply, we do not provide drinking water to everyone in the North West. For example, some households, farms and industries use their own private water supplies which could be from groundwater, surface water or springs. The Environment Agency and Local Authorities, as the lead

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<sup>3</sup> Review of the Potential Public Health Impacts of Exposures to Chemical and Radioactive Pollutants as a Result of Shale Gas Extraction, Available from ([www.gov.uk/phe](http://www.gov.uk/phe))

agencies in environmental protection and the planning process, regulate these types of water supplies. We will seek reassurance from the Environment Agency that any groundwater used for public water supply is protected.

### 3.7.3 Water supply availability

In our draft plan we have not made a specific allowance for water requirements for shale gas extraction. Our approach is to take an aggregate view across many industrial uses, some of which will increase and others which will decline. It is very uncertain at this stage how much shale gas development there will be in the North West or where extraction sites will be located. We expect that the requirements for water in the context of our total volume supplied will be relatively small (based on the figures referenced from the Institute of Directors “*Getting Shale Gas Working*” report, May 2013). Hydraulic fracturing associated with shale gas extraction is generally a short duration activity and therefore it would have only a small impact on the annual average demand for water. Therefore, the allowance that we have made for industrial use of water and growth scenarios is adequate to allow for future shale gas development if public water supplies are utilised for this purpose without an adverse impact for our existing customers. If we are approached to supply treated water for shale gas operations, we will consider the supply arrangements for each individual site including any local network constraints. Local network reinforcement may be required to cope with short duration peaks in demand.

We cannot rule out the possibility of providing water to shale gas operations at this point in time because we have a statutory duty<sup>4</sup> to provide water supplies to premises in our area and to persons who demand them. However, we will never compromise our existing customers’ water supplies either in the short or long term.

### 3.7.4 Aquifer pollution risk

The protection of the environment, including groundwater stored in aquifers, is an area regulated by the Environment Agency. Any company proposing to carry out shale gas exploration or extraction will have to adhere to the relevant legislation. We are encouraged by the Government’s plans to draw together existing legislation to provide robust regulation of the industry and the conclusions of the published reports referenced in section 3.7.3. We will seek reassurance from the Environment Agency that any groundwater used for public water supply is protected.

## 3.8 DEMAND MANAGEMENT

In Section 5 of our draft plan we set out our current extensive range of demand management activity and in Section 6 of the plan we committed to maintain at least our current level of water efficiency promotion until 2040 and said that we expected 76% of household customers to be metered by 2040. We showed that this would give a surplus of supply over demand in three of our four water resource zones, covering more than 95% of the population in the North West, and save over £300m in avoided supply side schemes.

Five respondents said that we should consider



<sup>4</sup> Water Industry Act 1991 S37(1)

more ambitious demand management targets, and meter uptake in particular.

We have considered this carefully. Considering only the supply-demand balance, there is no further benefit to increasing current levels of demand management in three of our water resource zones. Therefore it is difficult to justify the additional cost of further demand management, which would increase the bills paid by our customers. In West Cumbria, the only zone with a forecast deficit, we already have enhanced levels of demand management. Because of the size of the deficit in this zone, we cannot substitute any supply side option with further demand management. However, we have identified ways of further increasing meter uptake across the region, which helps our customers to reduce their bills.

In addition to the number of meter installations included in the draft plan we are also focusing on customers whom we expect to apply for a meter but are unable to have a meter fitted, due to pipe work restrictions or other complexities. We are already reviewing our operating policies and contractor practices with a view to reducing meter rejections, allowing an additional 13,000 meters to be installed between 2015 and 2025. We continue to look at the options to help remaining customers who cannot have a meter installed.

As part of our plans to help customers who face affordability and subsequent debt issues, we are planning to promote the free meter option scheme to customers who are in debt. This will help reduce their on-going charges and will allow an additional 82,510 meters to be installed between 2015 and 2025.

With these changes we expect 80% of household properties to be metered by 2040. We have produced updated demand forecasts including the additional meter uptake in our revised draft plan (see Table 16).

### 3.9 LEAKAGE

In our draft plan we committed to reduce leakage to 462.7 MI/d by 2015 in line with our 2009 water resources plan, but said that following our assessment of the sustainable economic level of leakage further reductions cannot be justified. To reduce leakage further, below the sustainable level, would mean that customer bills would be higher. By not reducing leakage further, society as a whole has more resources to spend elsewhere, for example on other environmental or social improvements, which would give better benefits.

Five respondents were concerned that we concentrate on sustainable economic level of leakage rather than reducing leakage at all costs. Ofwat and the Environment Agency asked us to consider whether increasing meter penetration or customer willingness to pay would mean that a decline in leakage might be more economic and reflect customers' preferences.

We have considered these views carefully. We have carried out analysis on the relationship between meter penetration and leakage and we have conducted willingness-to-pay research to identify customers' willingness to pay for leakage reduction. We also conducted customer research to look at the overall acceptability of changes to customer bills, with alternative proposals for leakage.

Our analysis of over 2,000 District Meter Areas shows that there is no causal relationship between household meter penetration and the level of leakage. We investigated the minimum leakage levels achieved in DMAs between 2006 and 2012, a period when meter penetration increased from 19% to 32%. The minimum leakage levels achieved did not reduce. We could also find no evidence in the literature for a reduction in leakage as a result of increasing household metering.

Our willingness-to-pay research has shown that customers would be prepared to pay £1.2m per annum to reduce the level of leakage by 1 MI/d. This is very close to the cost of the reduction.

Our research into the overall acceptability of our bills showed that 79% of domestic customers and 76% of non-domestic customers agreed with our plans to maintain current leakage levels and that the impact on bills is acceptable. This research indicated that the overall size of bill was the overwhelming factor in determining acceptability. Increasing the bill to reduce leakage further would make the plan less acceptable to customers. Other areas of service are a bigger priority for our customers and therefore we are not proposing to reduce leakage further.

The situation in West Cumbria is different because of the need to protect habitats and maintain the security of supply for our customers. We have increased leakage control activity in this zone and will continue efforts to hold leakage at the lowest possible level. Some of the activities we have undertaken in West Cumbria are:



- increased proactive leakage detection resources
- increased the number of leak repair gangs
- more night-time leakage detection activity
- unmetered lengths of network all surveyed for leakage on a regular basis
- void properties checked for occupancy
- audits of district meter areas completed
- installing remote data loggers on 40 leakage meters across the zone to enable better targeting of leakage detection
- installed 15 new meters to make finding leaks easier
- reducing the time taken to repair leaks on customers' properties
- further pressure optimisation to reduce the breakout of leaks and the flow rate of leaks
- reducing operational use of water, including stopping all non-essential Service Reservoir cleaning, stopping all non-essential flushing activities and reducing operational use on wastewater treatment works.
- aerial surveys to identify potential trunk main leaks.

### 3.10 WATER TRADING

In developing our draft plan we engaged with other water companies and identified a number of potential imports and exports. We said that we considered that 180 MI/d was likely to be the maximum export from our Integrated Resource Zone and presented a scenario of how additional exports of this size would change the supply-demand balance. We identified the type of schemes that we could develop to maintain our

supply-demand balance with such exports and the total cost of these schemes. We published a report setting out the environmental assessment of options that could support an export alongside our draft plan.

Six respondents mentioned water trading in their representations. Five were supportive of water trading possibilities. One respondent identified a virtuous cycle where water trading can be used to fund leakage reduction, which creates a surplus to enable water trading. We agree that this would be a good way to reduce leakage levels in the North West without increasing our customers' bills, subject to there being a willing customer for the trade. Leakage reduction was identified in our draft plan as one of the ways in which we would be able to support a large scale export.

Only one respondent said that water should not be traded with water companies to the south. However, no reason was given in this response as to why customers in the North West should not benefit from this opportunity.

Any water trade will depend on the recipient company to determine whether an import from United Utilities would be an economic option to meet their supply-demand deficit. We will continue to work with potential trading partners and other relevant organisations to develop the proposals further.

## **4 FINALISATION OF THE WATER RESOURCES MANAGEMENT PLAN**

### **4.1 REVISED DRAFT WATER RESOURCES MANAGEMENT PLAN**

UU has prepared a revised draft Water Resources Management Plan that incorporates the changes we have made to our plan in order to take account of:

- comments received from consultees, as set out in Section 3 and Appendix 1
- further customer research
- further advice from regulators, including revisions to the Environment Agency's water resources planning guideline<sup>5</sup>, and revisions to planned sustainability changes to abstraction licences
- new information that has become available since publication of the draft plan (including updated assessment of climate change impact on demand<sup>6</sup> and updated population projections using the 2011 census results).

These changes have resulted in changes to the supply-demand balances for each water resource zone, and the costs of some of the options, but do not lead to a fundamental change in the preferred plan.

Following the publication of this Statement of Response, the Secretary of State for Environment, Food and Rural Affairs will decide whether we have adequately taken account of the representations. He will determine whether to direct United Utilities to further modify its Water Resources Management Plan. Subject to the approval of the Secretary of State, we expect to publish the final plan on our website in spring 2014.

### **4.2 FURTHER INFORMATION**

Copies of this Statement of Response, our revised draft plan and accompanying reports are available at:

[corporate.unitedutilities.com/Water-Resources-Management-Plan](http://corporate.unitedutilities.com/Water-Resources-Management-Plan)

If you require any further information please contact:

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<sup>5</sup> Water resources planning guideline August 2013

<sup>6</sup> UKWIR Impact of Climate Change on Water Demand, 13/CL/04/12

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## APPENDIX 1 DETAILS OF REPRESENTATIONS AND UNITED UTILITIES' RESPONSE

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Association of Greater Manchester Authorities	1	The respondent would welcome continued dialogue with United Utilities through existing mechanisms such as the Greater Manchester Low Carbon Hub, Local Nature Partnership, Planning and Housing Commission and Flood Risk and Water Management Board.	We will continue dialogue with the respondent through appropriate mechanisms.
Allerdale Council	1	The respondent says the preferred option, which involves abstraction from Thirlmere and then piped to West Cumbria, represents the most sustainable long term option. They recognise that this option brings greater security and resilience to the water supply and supports the development aspirations of the area while minimising the impact on the local environment.	We agree with this view and the transfer of water from Thirlmere to West Cumbria remains our preferred plan.
Allerdale Council	2	There is some concern that the short term solutions in West Cumbria need to be robust enough to ensure the community's water supply needs continue to be met until an alternative source is found.	We recognise that the environmental pressures at Ennerdale and the River Ehen cannot wait until the long-term solution is built and we are already taking steps to reduce the risk in the interim. We have added details on this in Section 2.6 of the revised plan.
Britain's Energy Coast	1	The respondent wishes to be better informed of the scale of investment for the three options presented to address the issues peculiar to West Cumbria and the cost implications for customers.	We present a summary of the costs of the alternatives in Section 10 of the plan. Further detail of the capital investment is in the Water Resources Planning tables accompanying the plan.  We have added details on the cost implications for customers into section 10 of the revised plan.
Britain's Energy Coast	2	The respondent's preferred option is the pipeline link from Thirlmere Reservoir to West Cumbria; it will have least impact on the environment, it has the potential to help address other identified environmental issues in West Cumbria by reducing the level of demand for water extraction from Ennerdale and Crummock, it would reduce the need for new boreholes and limit interference with subterranean water reserves, and it is less costly than a link to Kielder Reservoir.	We agree with this view and the transfer of water from Thirlmere to West Cumbria remains our preferred plan.
Buglife	1	The respondent notes that the preferred option will be beneficial	We recognise the sensitivity of freshwater mussels to

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		<p>to the freshwater mussels in the River Ehen. The respondent emphasises the importance of developing a detailed and specific sediment control regime to ensure that levels are maintained at the 10mg/l target level. They say that the scheme needs to be regularly reviewed as more design details are available and the project progresses. Monitoring is crucial to ensure that issues are detected before there is an impact on the freshwater mussel population.</p>	<p>construction-derived pollution, including sedimentation, and the need for dedicated and agreed construction management plans that include appropriate control measures and monitoring. One of the reasons for selecting the preferred plan was because it has less potential impact on the River Ehen.</p> <p>The preferred plan will be subject to scheme-level Habitats Regulations Assessment (and Environmental Impact Assessment), which will identify the measures required to avoid adverse effects on the interest features of the Special Area of Conservation. Specific measures cannot be identified in detail at the strategy level since they will depend on a range of construction details that are not yet defined (e.g. precise route; timing; construction methods). However, it is clear that any potential adverse effects of the scheme can be avoided through application of technological solutions (e.g. use of directional drilling) or established mitigation measures.</p>
Canal & River Trust	1	<p>The respondent notes that option IRZ47a Raw water transfer from our Whiteholme reservoir, to Yorkshire Water at 2.8 Ml/d is described but does not included any element of water transfer via the canal network. However Yorkshire Water in their Water Resources Management Plan (Page 149) identifies scheme D15a "Transfer from United Utilities Option 1 - This scheme proposes that United Utilities release 5 Ml/d of raw water into the Rochdale Canal for abstraction and treatment further downstream by Yorkshire Water.", We note that this scheme is not mentioned in the United Utilities Water Resources Management Plan.</p>	<p>United Utilities met with Yorkshire Water in July and August 2012 to discuss potential water trading options (imports and exports). In August and September 2013, both companies have clarified the option descriptions following comments received by the Canal and River Trust during the consultation period.</p> <p>A number of options were available for United Utilities to export to Yorkshire Water. One of the options is described as a transfer from the Blackstone Edge group of reservoirs (e.g. Whiteholme Reservoir). This is detailed in the United Utilities draft plan as IRZ47a. Two potential variants of this scheme were discussed.</p> <p>One scheme requires the release of water from Whiteholme reservoir to directly feed tributaries of Withens Clough reservoir. Yorkshire Water have confirmed in recent discussions that they do not have the additional infrastructure to supply this water to their customers. The alternative option is for United Utilities to release water from Chelburn into the Rochdale Canal, for treatment by Yorkshire Water at an existing water treatment works. United Utilities included the Whiteholme to Withens Clough transfer as option IRZ47a and Yorkshire Water included the Chelburn to Rochdale Canal scheme in their analysis,</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>detailed in their draft plan as "Transfer from UU Option 1".</p> <p>It was originally proposed that up to 5 MI/d could be made available to Yorkshire Water from this transfer. However, on further investigation United Utilities determined a scheme capacity of up to 3 MI/d was feasible providing a 2.8 MI/d benefit to Yorkshire Water. Although the text in the Yorkshire Water documentation was not updated from the initial 5 MI/d to 2.8 MI/d, Yorkshire Water have confirmed that they have used a figure of 2.8 MI/d in their optimisation model to determine a solution for meeting any potential deficit. Yorkshire Water has also confirmed that they have updated the description of "Transfer from UU Option 1" in their revised draft plan main report to state that the yield is 2.8 MI/d.</p> <p>Both companies have discussed the discrepancy in the description of the Blackstone Edge Group transfer option and have confirmed that both schemes would be available as potential exports to Yorkshire Water, if required. However, the option description has not been removed from either the United Utilities or Yorkshire Water revised draft Water Resources Management Plans. Yorkshire Water have confirmed that they do not require imports from United Utilities as part of their preferred plan.</p>
Canal & River Trust	2	The respondent notes that option IRZ47d involves the import of 4 MI/d of raw water from Yorkshire Water's Scammonden Reservoir to the Rochdale Canal. Water would be abstracted from the Rochdale Canal and transferred to Buckton Castle WTW inlet. This scheme is not mentioned in Yorkshire Water's Plan as a potential export. They note that the description of this scheme erroneously suggests that the transfer would be via the Rochdale Canal when it should be via the Huddersfield Narrow Canal.	Only one potential scheme was available for United Utilities to import from Yorkshire Water. This required a 5 MI/d release from Yorkshire Water's Scammonden Reservoir to the Huddersfield Narrow Canal and then a new abstraction point and transfer to United Utilities' Buckton Castle water treatment works. This is detailed in the United Utilities draft plan as option IRZ47d. Yorkshire Water have added an explanation of this scheme to their revised plan and we have corrected the name of the canal which was incorrectly described as the Rochdale Canal.
Canal & River Trust	3	The respondent comments on option IRZ49, which comprises the re-commissioning of Python Mill borehole, Littleborough (3 MI/d) and the transfer of raw water to the Rochdale Canal, offsetting compensation from the Chelburn system. This proposal would not be acceptable to the Trust as water from the Chelburn system enters the canal summit and can be used to	We note Canal and River Trust's concern in relation to option IRZ49, the operation of Python Mill borehole into the Rochdale Canal and the need to maintain a flexible compensation system from the Chelburn system. We have not removed the option from the revised plan because it has not been selected as a preferred option. However, we note that if this option is

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		supply western and eastern sections of the canal while a supply in Littleborough can only feed the lower western section of the Rochdale Canal. Given their concerns with this scheme, the Trust would welcome the opportunity to discuss this in more detail with us, although they note that this scheme is not actually a preferred option at this time.	considered for future plans, then discussions with the Canal and River Trust would be required to understand in more detail its feasibility.
Canal & River Trust	4	Raw water transfers (schemes IRZ44a IRZ44b and IRZ44e at rates of 30, 70, 80 or 180 MI/d) from Vyrnwy Reservoir releases to the River Severn to support Thames Water and/or Severn Trent Water and/or Bristol Water (the latter abstracted to the Gloucester and Sharpness Canal) are described in the draft plan. The Trust has an interest in these, as navigation authority for the River Severn from Stourport to Gloucester, and will collaborate with all interested parties to ensure that the River Severn Regulations are fit for purpose.	The potential for water trading options will be revisited as part of future plans and we will work with the Canal and River Trust, and other relevant organisations, as proposals are developed further.
Consumer Council for Water	1	The respondent would however like to see additional signposting on the website so the information is more accessible to the customer base.	We have added additional signposting to our customer website so that the Water Resources Management Plan is easier to find. See <a href="http://unitedutilities.com/WRMP">unitedutilities.com/WRMP</a>
Consumer Council for Water	2	The respondent is concerned about whether we have tested customer reaction to its specific proposals to tackle the potential West Cumbria Resource Zone deficit. They would like to understand how the views of domestic customers from outside the West Cumbria Resource Zone, and the views of agricultural and industry sectors have been considered.	We have surveyed a wide range of customers from across the region, looking at customer preferences, customer valuations and the overall acceptability of our business plan proposals (which include the proposals for West Cumbria).  We have also conducted further customer focus group research looking specifically at the views of household and business customers in West Cumbria.  We have added detail of this customer research into section 2.1 of the revised plan and we have added detail into section 10 of the revised plan explaining how we have taken customer research and customer bill impacts into account in our decision making.
Consumer Council for Water	3	The respondent would expect United Utilities to maintain its current levels of service in respect to drought and water restriction measures.	We have considered the different views of respondents on level of service and carried out further willingness-to-pay studies looking at levels of service in more detail.  We discuss the new surveys in section 2.1 of the revised plan. We added further discussion on levels of service, addressing

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>views of respondents, in section 2.5 of the revised plan. We set out our conclusions on levels of service in section 11.1 of the revised plan.</p> <p>In summary, we have concluded that we will maintain the current levels of service for this plan as this best reflects the overall balance of priorities for our customers and stakeholders.</p>
Consumer Council for Water	4	The respondent notes that the solution which is implemented must meet both environmental and customer needs, ensuring value for money and a strong focus on resilience for the future.	<p>We agree that these are all important issues and we have considered them in assessing our preferred solution.</p> <p>We have included more detail about how we have selected the preferred option in section 10 of the revised plan.</p>
Cheshire West & Chester	1	The respondent has shared details of their draft local development plan and points out that it complements the proposed strategy within the United Utilities Draft Water Resources Management Plan 2013	We thank the council for sharing its local plan and note the complementary nature.
Cleator Flood Action Group	1	The respondent notes that an alternative scenario, to vary the compensation flow at Ennerdale, which has previously received wide support as a measure to avoid harm to the freshwater mussel population in the River Ehen, is listed in Table 34 on page 111 of the draft plan but is not discussed further.	We have been advised by the Environment Agency to plan for revocation of the Ennerdale abstraction licence. Although an alternative scenario was considered that would involve a varying compensation flow, current evidence suggests that this would not allow compliance with the Habitats Regulations because it would not allow the freshwater mussel population to recover and therefore it is not considered further.
Cleator Flood Action Group	2	<p>The respondent is concerned that when current abstraction of water from Ennerdale ceases then there will be a consequent increase in the flood risk to communities such as Cleator, which sit alongside the downstream River Ehen.</p> <p>They consider that we have not assessed this environmental effect of our proposed options and that if this effect was considered then an alternative approach which did not increase the community flood risk would be preferred.</p>	<p>It is the Environment Agency's decision to revoke the Ennerdale abstraction licence in line with legislation. United Utilities must plan to comply with its statutory obligations and therefore cannot assess an option (such as retaining the Ennerdale abstraction) which did not comply with statutory obligations.</p> <p>Discussions will be required as to how the lake and River Ehen will operate after the licence is revoked.</p>
Derwent Owners Association	1	The respondent strongly supports our "Preferred Option" of supplying the West Cumbria Resource Zone by using spare capacity in Thirlmere. They say that it would mean that we no longer need to take water from the most environmentally sensitive sites in West Cumbria. This would allow the sensitive	We agree with this view and the transfer of water from Thirlmere to West Cumbria remains our preferred plan.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		and special habitats to return to a more natural condition and enhance the protection of salmon and sea trout in all West Cumbrian rivers, in addition to the endangered freshwater mussels in the River Ehen. It also would provide increased safeguards of supply in potential drought situations.	
Derwent Owners Association	2	The respondent hopes that United Utilities is still committed to operating Thirlmere with the agreed "trigger levels" and that the necessary engineering work that is needed in order to support these is completed as soon as possible as part of the work which allows the "Preferred Option" to be implemented.	We are committed to operating Thirlmere in this way and discuss the issue further in Section 3.6 of this Statement of Response.
Environment Agency	1	The agency says that Ennerdale must be resolved as quickly as possible during AMP6 and by March 2020 at the very latest. This may require a combination of solutions that provide a short term and long term solution.	<p>We recognise that the abstraction from Ennerdale should cease as quickly as possible and we are completely committed to doing so.</p> <p>We have undertaken a review of project delivery timescales and our best estimate of when this can be achieved is 2024/25. This is due to the size and complexity of the necessary scheme and the planning and environmental impact assessments required, especially within the National Park. We have added detail on this in Section 10.2 of the revised draft plan. We have invited the Environment Agency to review the details of how we derived our estimate.</p> <p>We are committed to completing the scheme as soon as possible and if we can deliver it earlier than 2024/25 we will do so. We are already starting to work on the scheme in AMP5.</p> <p>We recognise that the environmental pressures at Ennerdale and the River Ehen cannot wait until the long-term solution is built and we are already taking steps to reduce the risk in the interim. We have added details on this in Section 2.6 of the revised plan.</p>
Environment Agency	2	The agency says that we must provide within the plan a clear description of the two main options it has considered viable (Thirlmere transfer and local schemes), how each addresses the deficit taking into account local constraints, and the timescales for delivery along with any risks of delay or non-delivery. It should also set out what the risks to customers' security of supply, levels of service and the environment are until the	We have included a description of the two alternative plans in Section 10 of the revised draft plan and set out our re-appraisal of the options.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		solution is implemented. They ask us to reappraise the options for the zone using this information.	
Environment Agency	3	The agency says that we should continue to work in parallel on both the Thirlmere and local schemes solutions to enable all interested parties to understand and participate in decisions appropriately. Given the ongoing environmental damage and risks to public water supply in West Cumbria, the agency says the solution may have to include some short-term investment that is not needed in the longer term.	<p>We have continued to work in parallel on both the Thirlmere and local sources solution up to this point, but now is the time to focus on a single solution to give the best outcome for customers and the environment. We have undertaken public consultation and further customer research to enable all interested parties to understand and participate in decisions appropriately. We have also considered the impact on customers' bills.</p> <p>We recognise that the environmental pressures at Ennerdale and the River Ehen cannot wait until the long-term solution is built and we are already taking steps to reduce the risk in the interim. We have added details on this in Section 2.6 of the revised plan.</p>
Environment Agency	4	The agency says that we should include options that reduce demand on Ennerdale and Overwater in an incremental way to protect the environment and customer supplies.	<p>We recognise that the environmental pressures at Ennerdale and the River Ehen cannot wait until the long-term solution is built and we are already taking steps to reduce the risk in the interim. We have added details on this in Section 2.6 of the revised plan.</p> <p>The biggest constraint on delivery time for either the local sources option or the Thirlmere option is the need to obtain full planning permission. This will need to be obtained for the all the components of the combined scheme together which limits the scope for incremental delivery.</p>
Environment Agency	5	The agency says that our options appraisal should include the alternative options considered as part of the Habitats Regulations Assessment for potential West Cumbria drought orders.	<p>We have considered the outputs of the HRA Stage 3 Alternative Option Appraisal (Grontmij, 2013) to inform our list of constrained options for West Cumbria. Information on the other options considered is detailed in Section 8 of the revised plan.</p> <p>Of the options considered in this report, only two further schemes were considered viable - a redundant impounding reservoir and a new large scale effluent reuse scheme. The impounding reservoir in question was originally considered as an unconstrained option but did not pass the screening assessment. Effluent reuse was considered as a feasible option (option reference WC23) to non-household customers but on a</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>much smaller scale than the proposed treatment and transfer from the large coastal sewage works into the potable water supply system.</p> <p>For our revised plan, we have provided a new scope for the treatment of final effluent from Workington and Whitehaven waste water treatment works and the transfer to our West Cumbria water supply system. Therefore, option WC25 has been included in the feasible options list alongside the other options already assessed.</p> <p>Inclusion of these options in the appraisal did not change the selection of the preferred or lowest cost alternative plan.</p>
Environment Agency	6	The agency says that we should reconsider our plans not to increase our demand management activity to help resolve the deficit in the West Cumbria zone.	<p>We recognise that the environmental pressures at Ennerdale and the River Ehen cannot wait until the long-term solution is built and we are already taking steps to reduce the risk in the interim. We have added details on this in Section 2.6 of the revised plan.</p> <p>We are already managing demand as far as possible, with leakage below the long run economic level and promotion of water efficiency beyond what we committed to in our previous water resources management plan.</p> <p>Our options appraisal has considered demand management.</p>
Environment Agency	7	The agency says that we should provide evidence for how we estimated background leakage as part of our Sustainable Economic Level of Leakage (SELL) analysis. The industry-wide "Review of SELL" accepted that background leakage is the single most important component of the estimates of SELL, so the agency ask us to make it clear in the final plan.	<p>Background leakage levels were assessed by external consultants in 2012. More detail has been included in a Technical Report submitted to the Environment Agency.</p> <p>We have also added a statement to confirm this in Section 5.2.2 of the revised plan.</p>
Environment Agency	8	In our draft plan we forecast that total leakage will remain constant throughout the planning period. The agency says that this forecast does not take into account the benefits of metering, potential technological improvements in leakage detection and repair, asset replacement or customer willingness to pay. The agency expects us to better understand our baseline leakage level and assess options to further reduce leakage in line with Government expectations for a continued reduction in leakage.	<p>We have considered the impact of meter penetration on leakage levels. The hypothesis would be that increasing the number of household meters in district meter areas increases the accuracy of leakage estimates and therefore makes it easier to find leaks. We compared minimum achieved leakage levels from our assessment of background leakage in 2006 and 2012, a period when meter penetration increased from 19% to 32%. The minimum achieved leakage levels did not reduce over this</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		<p>They ask us to explain why meter penetration is increasing yet total leakage is not falling across the planning period. They ask us to ensure that customers' views are taken into account when forecasting leakage.</p>	<p>period. We have also reviewed the literature and found no evidence that our metering policy would lead to a reduction in leakage levels. We install meters in the house, which is the most cost effective method, but does not identify leaks on underground supply pipes.</p> <p>Given the risk to cost and performance associated with using new technology, only proven technology can be considered in the assessment of the SELL. We will continue to investigate new technology that could potentially improve the efficiency in leakage detection and repair. Any proven technology will be included in our next assessment of the SELL.</p> <p>Section 8 of the draft plan shows how 'Advanced replacement of infrastructure for leakage reasons' was appraised as part of the options appraisal. This option was not selected as part of the lowest cost plan, which means there are other schemes that will address the supply-demand balance more effectively. As a result, there will be no advanced replacement of infrastructure for leakage reasons during the planning period. Asset replacement as part of on-going maintenance will not be significant and therefore the impact on leakage levels was not considered in the SELL assessment. Our experience of extensive asset replacement shows that it does not lead to significant leakage reduction.</p> <p>Our customer research has shown that 80% of customers are willing to accept the bill impacts of maintaining the current level of leakage (i.e. no net increase in bills). Therefore, we do not propose to reduce leakage further.</p> <p>We discuss leakage further in Section 3.9 of the Statement of Response.</p>
Environment Agency	9	<p>The agency asks us to provide updated tables, making sure that from the proposed implementation date of the Thirlmere pipeline, the West Cumbria customer-base is reflected in the Integrated zone tables.</p>	<p>We have provided an updated set of tables reflecting the combined Integrated and West Cumbria Zone to the Environment Agency.</p>
Environment Agency	10	<p>The agency asks us to include in the plan a clear explanation of the potential impact of our potential new Thirlmere transfer into West Cumbria on the operation of our other water sources in the</p>	<p>We address the issue of potential impacts of the Thirlmere option on the Integrated Resource Zone in Section 3.4 of the</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		integrated zone.	Statement of Response.
Environment Agency	11	<p>The agency asks us to provide more information on how components of the cost of options have been derived including:</p> <ul style="list-style-type: none"> <li>· capital costs</li> <li>· operational costs</li> <li>· environmental, social and carbon costs and benefits</li> <li>· customer's willingness to pay.</li> </ul> <p>The agency asks us to include this information in the final plan.</p>	<p>More detail has been included in a Technical Report submitted to the Environment Agency with this Statement of Response and a summary has been provided in Appendix 9 of our revised plan.</p> <p>We have conducted detailed willingness-to-pay studies to assign willingness-to-pay values to different option types. The Customer Challenge Group, including the Willingness to Pay sub-group, reviewed the survey methodologies. The Environment Agency's representative on the Customer Challenge Group is also a member of the Willingness to Pay sub-group. We have included an explanation of the surveys in Section 2 of the revised plan and explained the impact of including willingness to pay on the alternative solutions for West Cumbria in Section 10.</p>
Environment Agency	12	<p>The agency says that we used a whole life cycle of 105 years in its options appraisal, instead of the 80 years suggested in the Guideline. They ask us to explain why we have chosen to use this whole life cycle (105 years) and the difference that this makes to the options appraisal process.</p>	<p>The Water Resources Planning Guideline states that all options should be assessed on an 80 year horizon. To ensure that any options implemented at the end of the 25 planning horizon to meet a deficit arising in 2040 are assessed over 80 years and in a consistent way with options selected earlier in the planning horizon it is necessary to conduct the full options appraisal over 25 + 80 years.</p> <p>In terms of AISCs and NPVs quoted in the plan it makes very little difference. For example, assessed over 80 years the NPV of the Thirlmere option is £175.6m and the AISC is 46.2p/m<sup>3</sup>, compared to £176.3m and 48.7p/m<sup>3</sup> assessed over 105 years and quoted in the revised plan. There is a maximum difference of 2.9% in the AISCs. The ranking of options does not change.</p> <p>More detail has been included in a Technical Report submitted to the Environment Agency with this Statement of Response.</p>
Environment Agency	13	<p>The agency notes that the length of record the company has used to assess the deployable output is very short in some cases. They ask us to extend the record or justify why there is no need to do so.</p>	<p>This issue relates to two sources in our Integrated Zone, the River Duddon and the River Dane, which together typically provide 0.64% of water supplied in the zone.</p> <p>We recognise that a lack of good quality, reliable observed data available for the calculation of inflow series for Aquator modelling is a limiting factor in deployable output assessments.</p>

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			<p>In attempts to overcome these limitations, we have considered a number of industry and scientifically recognised methods, including a single factoring approach and rainfall-runoff modelling, to extend available observed data records and generate synthetic series where no observed data is available. However, these methods can be time consuming and computationally complex with limited confidence in the resultant synthetic inflows dataset.</p> <p>We have considered other constraints in the model such as treatment works capacity and licence limits. We have concluded that an acceptable representation of the system is achieved with the current approach.</p> <p>More detail has been included in a Technical Report submitted to the Environment Agency with this Statement of Response.</p>
Environment Agency	14	In our draft plan we derived the dry year demand from 1995 data. This was a drought year with customer restrictions. The agency asks us explain and justify why we selected a drought year and not a dry (non-drought) year without customer restrictions.	<p>We have considered carefully our definition of the dry year demand and commissioned work by the Met Office to analyse weather effects on demand for a range of years.</p> <p>This has given us confidence to adopt a lower dry year factor in our revised plan. However, we have decided to continue basing our unconstrained dry year demand on the weather conditions experienced in 1995. In assessing our supply-demand balance we have assumed that the introduction of water use restrictions in our Aquator models will reduce demand from the unconstrained demand forecast.</p> <p>Although the Environment Agency has asked us to consider using a less extreme dry year another respondent asked us to consider using a more extreme dry year.</p> <p>We do not consider it appropriate to increase the level of risk to our customers by not planning to meet the level of demand we may experience in a repeat of 1995 weather conditions with water use restrictions implemented in accordance with our level of service and drought plan. This would increase the risk of customer demand not being met and the risk of more severe drought orders and permits being required (e.g. a second drought permit at Windermere). Our customer research and other consultation responses indicate that this would not be</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			acceptable to customers or stakeholders in the North West.
Environment Agency	15	The agency asks us to explain why actual raw water losses / operational use and process losses differ so significantly from those planned from 2015/16 for the Integrated Zone and West Cumbria.	<p>For the draft plan we calculated process and raw water losses for all resource zones using an improved technique compared to the 2009 plan. This better determines where the losses occur between source and water treatment works outlet. Raw water losses have been estimated using the Bursts and Background Estimates (BABE) analysis used for reporting upstream losses for leakage. To enable it to calculate raw water losses, estimates of raw water asset pressures and average age (from United Utilities' PIONEER common framework tool) were used. United Utilities' corporate GIS records were used to determine the raw water mains that feed into each water treatment works. Process losses were determined via a questionnaire to the Water Treatment Manager for every water treatment works for further distribution to Technical Officers and Process Controllers to collect information on typical losses. The results of this questionnaire were used to derive an average loss factor for each resource zone based on treatment works production. This was then applied to the dry year uplifted production for each resource zone.</p> <p>The impact of the new analysis is more a change in the proportion of losses between process and raw water. Therefore, looking at process or raw water losses in solitude will show a much greater effect than looking at the overall totals. For example, the overall total for the Integrated Resource Zone has increased by only 13% from 57.22 MI/d in Regulatory Reporting 2012 to 64.55 MI/d. Most of this increase is driven by the change to using dry year uplifted production. In the West Cumbria Resource Zone, the process and raw water losses were 2.56 MI/d in Regulatory Reporting 2012, but in Regulatory Reporting 2013, the figure is 0.98 MI/d. These figures are based on actual meter balances. The increase from 0.98 MI/d to 1.26 MI/d is explained by the use of dry year uplifted production and by the increase in process losses at the Water Treatment Works near Ennerdale due to the implementation of the South Egremont groundwater scheme.</p>
Friends of	1	The respondent questioned whether the preferred option of	We have considered this and undertaken further water

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
the Lake District		Thirlmere has sufficient resilience to meet future customer demand over a longer period for customers in the Integrated Zone, as they would be concerned if more resources would be needed.	resources modelling of the combined Integrated and West Cumbria Zone. This is discussed in Section 3.4 of the Statement of Response.  We have also reviewed and updated our demand forecasts, headroom and outage assessments for the combined zone.  The supply demand balance for the combined zone is shown in Section 10 of the revised plan. It shows that the combined zone remains in surplus throughout the planning horizon.
Friends of the Lake District	2	The respondent asks: "if ways of using water and reducing demand have been identified but are not being used, why not? How can the plan be environmentally sustainable as set out in the guiding principles for Water Resource Plans if it is not pushing down demand as much as possible?" They say that all these ideas should be utilised to avoid having to take so much water from Thirlmere south – the less water abstracted, the less the harm to the designated landscape of the National Park.	We are doing everything possible to manage demand in West Cumbria and will continue to do so until the Ennerdale abstraction ceases. We are also planning to do more targeted promotion of the free meter option during the planning period. We have committed to continue with our baseline water efficiency activities across the region, including the promotion of free devices, advice and education. Outside West Cumbria it is not economic to do more demand management because there already exists a supply-demand surplus. We need to recognise that the costs of demand management are reflected in customers' bills.
Friends of the Lake District	3	The respondent is concerned that the level of service is too high and that this results in negative impacts on the environment and landscape as a result. "Given this low rate of survey and the fact that those questioned will not have been asked about what level of service they want in the context of the impacts of their water use on the Lake District National Park, the value put on what the levels of service is probably questionable."  They say "we would not consider it to be unreasonable to have hosepipe bans and drought permits once in 10 - 15 years"	We have considered the different views of respondents on levels of service and carried out further willingness-to-pay studies looking at levels of service in more detail. Our further research specifically looked at the value customers place on avoiding the environmental impact of taking more in times of drought. This shows a relatively high willingness to pay value to improve the drought permit level of service.  We discuss the new surveys in section 2.1 of the revised plan.  We added further discussion on levels of service, addressing views of respondents, in section 2.5 of the revised plan.  We set out our conclusions on levels of service in section 11.1 of the revised plan.  In summary, we have concluded that we will maintain the current levels of service for this period as this best reflects the overall balance of priorities for our customers and stakeholders.

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Friends of the Lake District	4	<p>The respondent says, “for the next 25 years, our preference is for the lowest cost plan using local supplies and solutions, followed by the Kielder option and lastly Thirlmere.” They do however recognise that the resilience and long term nature of the local option may be questionable and not possible.</p> <p>They say, “over the longer term, say the next 50 years, our favoured option is to use Kielder.” They note that the plan recognises that this option could provide potentially longer term benefits (both for West Cumbria, Carlisle and the Integrated Resource Zone) and that it may also support potential future deficits in the Carlisle Zone. They feel that the water resource at Kielder is already developed and that overall the impacts on the designated landscapes and potential Lake District World Heritage Site will be less in this option than the Thirlmere option. They note that both Kielder and Thirlmere options would have the benefits of ceasing to abstract from Crummock, Chapel House, Overwater, Scales as well as Ennerdale.</p>	<p>We share concerns about the resilience and long term suitability of the local sources.</p> <p>We have considered the selection of our preferred option carefully and discuss this in Section 3.3 of the Statement of Response and Section 10 of the revised plan.</p>
Friends of the Lake District	5	<p>The respondent’s main concern with the preferred option is the landscape impact and longer term water requirements, which may put more pressure on Thirlmere and other sources in the Integrated Resource Zone. They are concerned about the landscape impact of the proposals, both during and after construction. There is a need for significant above ground infrastructure within the Lake District National Park. They feel that no weight has been put on the landscape harm that this option could do or the fact that it is in a nationally designated landscape and potential World Heritage Site. In addition they say that there seems to be little recognition of the potential negative impacts on tourism and other businesses, especially local ones during construction. They say that far more information is needed to be able to do a detailed landscape assessment of the relative impacts of the Thirlmere and Kielder schemes. They say the SEA refers to the landscape impacts of the Thirlmere scheme but makes no comparisons with the two alternatives (pages xviii and xxix). They say that if this were done, the landscape impacts of the Thirlmere scheme would likely to be far higher, reflecting the location of this alternative in the National Park.</p>	<p>The approach undertaken to the assessment of landscape effects as part of the SEA is considered to be robust and proportionate to the strategic nature of the assessment and in accordance with Government guidance. The SEA framework used contains a specific objective related to landscape (SEA Objective 12: To protect and enhance landscape character). A detailed assessment of the Thirlmere transfer during construction and operation against this objective is provided at Appendix E to the Environmental Report and in section 3.2.1 of the Environmental Report Addendum. Reflecting the potential requirement for construction of a number of new assets in the Lake District National Park, the option was assessed as having a significant negative effect on landscape.</p> <p>With regard to the operational effects of the Thirlmere transfer on landscape, the assessment concluded that negative effects are likely to be minor. This reflects the expectation that new/upgraded service reservoirs and pipeline would be buried and that planting and re-seeding would minimise any landscape effects associated with these assets in the longer term. Detailed design will aim to minimise the visual impact. Furthermore, at sites where existing water treatment works are decommissioned,</p>

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			<p>there would be landscape benefits.</p> <p>We have prepared an Addendum to the Environmental Report, taking into account further work following consultation. We have submitted this to the Secretary of State alongside the revised draft Water Resources Management Plan.</p> <p>We have included a statement in Sections 10.4 and 10.5 of the revised plan explaining how landscape issues are addressed in the SEA Environmental Report.</p> <p>We discuss landscape issues further in Section 3.5 of the Statement of Response.</p>
Friends of the Lake District	6	The respondent recognises the benefits that would occur under all three options with the Ennerdale abstraction licence being revoked. They ask “what is the timescale for this and the guarantee it would happen?” – and “will the man-made structures be removed?” The respondent seeks guarantees that the licence will be revoked and insist that all redundant man-made features are removed.	<p>We have estimated that the most likely date by which this can be achieved is 2025.</p> <p>Compliance with the Habitats Regulations is a legal requirement which provides a guarantee that the licence will be revoked as soon as possible.</p> <p>We recognise the aspiration to remove structures such as the weir and fish pass at Ennerdale to return the lake and river to a more natural condition. Removal of these features will change the ecology and the landscape and we will work with relevant stakeholders to identify the appropriate way of doing this.</p>
Friends of the Lake District	7	The respondent thinks that the section of the draft plan on leakage control is over-dominated by economic reasoning. They expect the level of leakage to be below the SELL level, particularly given the environmental sensitivity of the region as shown in the high number of environmental and landscape designations. They consider that the impacts on the environment must increasingly be taken into account so that SELL becomes irrelevant. They say that the 2012 EA/SMC review into the calculation of SELL and integration with Water Resources Management Planning noted that the SELL mechanism does not promote efficiency and innovation and that least cost planning optimisation needs to be used to set future leakage levels. They note that the report concluded there is scope to reduce leakage over the long term through efficiency and innovation.	<p>Our current level of leakage is already significantly below the SELL (Section 5.2.2 of the revised plan) and our customer surveys show that 80% of customers find our proposed leakage level and size of customer bill acceptable. The results of customer research, received in August 2013 and discussed in the revised plan in section 2.1.3, show that our customers do not want bills to increase for further leakage reductions.</p> <p>We included options to reduce leakage further in our least cost planning optimisation and some of these were selected in scenarios where the Integrated Zone is in deficit (see section 11.4 of the draft plan).</p> <p>We constantly review ways of reducing leakage further, to see if they are cost-effective. For example, we are currently using aerial surveys to identify trunk main leaks in West Cumbria. We</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>agree that over time innovation will lead to lower cost ways of reducing leakage and then this will result in lower leakage levels through use of the SELL.</p> <p>We discuss leakage further in Section 3.9 of the Statement of Response.</p>
Friends of the Lake District	8	The respondent says that that SELL does not consider landscape impacts. Given that a large amount of water comes from the Lake District National Park, they think it remiss that landscape harm is not factored into the equation.	Landscape impacts are not a component of the SELL review and have not been monetised in our assessment of environmental and social costs. We believe that the impact of leakage management does not significantly affect the landscape. The social and environmental impacts of temporary excavations to locate and repair leaks are considered in the assessment of the SELL. The landscape impact of reduced abstraction due to lower leakage levels would be unnoticeable because the abstraction reductions would be spread across many different sources.
Friends of the Lake District	9	The respondent notes that the consumer surveys show a high level of consumers want leaks to be fixed. The respondent says that customers will think this in absolute terms, not SELL terms, and 41% feel we do not do enough to control leakage – at a time when leakage is the lowest it has ever been and we plan to maintain levels at the current rate. The respondent suggests that customers will not be happy for leakage levels to remain the same, whether economically viable to fix or not, and that they would be unhappy to know little progress has been made in the last 10 years (levels have largely stabilised during this period).	<p>As part of our customer and stakeholder engagement we carried out Acceptability Testing to see which mix of improvements and bill levels were most acceptable to customers. This showed that 78.9% of customers agreed with our plans to maintain current leakage levels and agreed that the impact on bills is acceptable. A higher cost alternative plan with more leakage reduction was less acceptable to our customers. This is consistent with other customer research into our customer preference research in which 'fixing leaks' and reducing price were the top two priorities.</p> <p>We discuss leakage further in Section 3.9 of the Statement of Response.</p> <p>Because we have a supply-demand surplus, the true sustainable economic level of leakage would be higher than our current target. However, we recognise that allowing leakage to increase would not be acceptable to our customers. In our business plan we will propose an incentive mechanism that will ensure targets are met.</p>
Friends of the Lake	10	The respondent does not consider it acceptable for baseline leakage levels to increase in the Integrated Resource Zone and region as a whole (page 63 of the draft plan) even if only	Our demand forecast is based on meeting a leakage target. Leak breakout rates vary considerably with the weather, and leakage levels are therefore higher in years with very cold

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
District		marginally.	winters than those with mild winters. The year 2011/12 was relatively mild and therefore leakage was lower than our target. In our water resources management plan we need to ensure an adequate supply-demand balance even in those years with cold winters, i.e. we plan to meet our target. In mild years during the planning period we would expect leakage to be lower than the target.
Friends of the Lake District	11	<p>Page 45 of the draft plan sets out the strategy for managing demand which is only to pursue leakage, water efficiency and metering if it is sustainable and economic. The respondent says that there is an over-dominance of economic factors here. They say that reducing water use through demand management must be more sustainable than seeking new water sources and should always be pursued. They are shocked that it is stated that we have more ideas for reducing customer demand but will not be using them (p10). It is their view that all ideas for demand reduction need to be utilised to ensure more sustainable use of water. They say that it is not acceptable to continually look for more supplies and create more infrastructure when more can be done to reduce demand. They note that customer survey results also show that consumers wish to see increased water efficiency measures.</p> <p>They also say that actions pursued in the West Cumbria Green Zone should be mainstreamed to all zones.</p>	<p>We are doing everything possible to manage demand in West Cumbria, in particular increasing the targeted promotion of free meter installation, promoting water efficiency at events and giving away free water saving products. Meters help reduce demand because customers become more aware of water efficiency,</p> <p>However, in other areas it is not economic to do more demand management. Leakage and demand management are discussed further in Section 3.7 and 3.8 of the Statement of Response.</p> <p>A guiding principle of developing water resources management plans is that of "Reducing the demand for water by managing leakage and providing services to help customers use water efficiently where there is a reasonable prospect that the benefits of doing so will outweigh the costs." (<i>Water White Paper quoted in Environment Agency, Ofwat, Defra and the Welsh Government, Water Resources Planning Guideline June 2012</i>). Because our other resource zones show a surplus the benefits of actions pursued in the West Cumbria Green Zone do not justify the costs in our other zones. The option to transfer water from Thirlmere does not involve the development of a new supply. This option is using the benefit of a realised demand reduction on Thirlmere in the Integrated resource zone to provide a sustainable supply to West Cumbria.</p>
Friends of the Lake District	12	The respondent says that whilst our education work is laudable, they feel that not enough consumer education is done, particularly in getting consumers to make the connection between their water use and the resulting impacts on the landscape and environment of the source location. They suggest that this message could be trialled via the weather sponsorship	We are undertaking a research project to evaluate the effectiveness of alternative methods of influencing customer behaviour to save water in West Cumbria. This also helps us better understand how to engage with our customers. We will use the research findings to influence our water efficiency

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		mechanism.	communications going forwards.
Friends of the Lake District	13	The respondent says that all water savings devices should be free, not just cistern displacement devices and new water meters. The options tables in the draft plan show many options which are subsidised rather than free.	Evidence <sup>7</sup> suggests that the products are more likely to be installed and used if they are purchased, rather than available for free. Moreover, "free" water saving devices have to be purchased by United Utilities which means they are funded by customer bills. Bills would have to increase if more devices were available for free; the reduction in water production is not significant enough for this to be self-financing. In our options appraisal it was therefore appropriate to consider both free and subsidised products to determine the most effective strategy.
Friends of the Lake District	14	The respondent is disappointed that there are no plans for any compulsory metering in any zones, especially West Cumbria where there is a supply deficit. They say that promotion of water meters could be targeted at areas where their use is currently low, where there are water deficits and where the environmental and landscape benefits are high, e.g. designated landscapes.	We have considered the views of respondents on metering and have included further customer metering in our plan. This is discussed in Section 3.7 of the Statement of Response.  We have no powers to compulsorily meter all households unless the Environment Agency and Defra designate our area as under serious water stress. We have considered compulsory metering on change of occupier. This has a very small benefit and high costs, reflected in the AISC reported in the plan. A compulsory approach carries the risk of being perceived as heavy-handed by our customers and could alienate them from more effective voluntary water saving measures. Once this risk is balanced against the small savings from metering on change of occupier, we don't consider it appropriate for West Cumbria. We are undertaking research on how best to increase promotion of the free meter option and have committed to install more free meters in the revised plan.
Friends of the Lake District	15	The respondent says that it is a shame that the results of the 'visit and fit' home audits are not given on page 51.	The visit and fit scheme mentioned was a trial involving 870 properties. Representatives from partner organisations who were already visiting a customer's home for an annual maintenance or emergency repair appointment, offered water savings tips, devices, and provided the customer with a "Water

<sup>7</sup> Ofwat June return reporting requirements and definitions manual 2011

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			Savers" pack. The type and number of devices installed was recorded. The engineers fitted 765 shower devices, 734 cistern displacement devices and all homes visited were issued with a water saving guide. Along with a smaller number of other products, these give a total water saving of 0.048 MI/d.
Friends of the Lake District	16	The respondent asks: "what are the impacts of the self audit packs for commercial customers? The number given out over a three year period seems low compared to the total number of commercial customers."	Given the more targeted approach to water efficiency advice for commercial customers and the lower number of non-household customers overall, the volumes of self-audit packs distributed may appear low compared to the number of water savers packs distributed to domestic customers. We have a dedicated team in our retail business that offers water efficiency advice and services.
Friends of the Lake District	17	The respondent says they have offered many times to help promote key messages and potential demand management options especially during times of drought, but we have never taken them up on their offer.	We welcome the offer of assistance from Friends of the Lake District with promoting key messages. We would like them to be involved in future communication activity and have been in touch directly. We are working on proposals for how we will engage more widely with stakeholders in Cumbria to develop effective partnership working and will involve Friends of the Lake District in this as it progresses.
Friends of the Lake District	18	The respondent is disappointed that the re-use of redundant reservoirs is not included as an option on page 80.	<p>In our draft plan, we have followed the Water Resources Planning Guidelines issued by the Environment Agency to identify and appraise potential supply-demand options. This guidance includes a number of different generic option types that each water company should consider when deriving its lists of potential feasible options. As part of the option appraisal process, 22 potential schemes for reservoir storage (new sites and reinstatement of existing sites) and eight potential schemes for reservoir raising were discounted. We discounted these sites for a number of reasons.</p> <p>Historical information shows that the yield of some of these sites was small.</p> <p>Using the Environment Agency's screening criteria, selection of the site as a feasible option would not be promotable with our stakeholders and therefore has a high risk of failure (e.g. environmental concerns).</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Friends of the Lake District	19	<p>The respondent is concerned about the options of raising the level of Haweswater, and a reservoir at Borrowbeck. Their view is that neither scheme would be promotable and the last Water Resources Management Plan admitted they were unpromotable and unacceptable in landscape terms and need to be omitted from all future assessments.</p> <p>The respondent is landowner for part of the Borrowbeck valley and considers that the impact on land use when operational would not be neutral, and the impact on economic and social wellbeing would not be significant positive as the assessment states.</p>	<p>For the revised plan, we have considered this representation carefully. Our Willingness-to-Pay research indicates that our customers prefer water from reservoirs. The Water Resources Planning Guidelines issued by the Environment Agency also requires that water companies consider the construction of new reservoirs as part of their options appraisal process. We have decided to retain both options in the revised draft of the plan because we feel their inclusion in a strategic plan is justifiable. However, we do understand and acknowledge the concerns raised by the stakeholder and confirm that we have no plans to construct new reservoirs or raise the structure of an existing reservoir.</p> <p>The Haweswater option was assessed as having a minor positive effect on land use as it utilises existing infrastructure. This follows the definitions of significance agreed with the statutory consultees.</p> <p>The Borrowbeck option was identified as having numerous significant negative effects on the SEA objectives during construction in particular (including in respect of land use and landscape). Effects on land use and soils were assessed as neutral during operation on the basis that the initial loss of land and associated effects on land use were considered during the construction stage (as detailed in the detailed assessment matrices provided at Appendix B to the SEA).</p> <p>As these options do not form part of the preferred plan, no change is proposed. However, should the options form part of any future plans then they would be subject to more detailed assessment and comments received during this and previous consultation rounds would be taken into account.</p>
Friends of the Lake District	20	<p>The respondent questions how raising the level of the Haweswater reservoir will have no impact on land use and points out that the current land use would have to cease for the majority of the time.</p>	<p>Option IRZ08: Raise Haweswater Reservoir was assessed as part of an environmental assessment of feasible export and Integrated Water Resource Zone options. As the Integrated Zone has not been identified as being in deficit over the lifetime of the plan, none of the feasible options assessed in the report featured in the draft plan or the SEA Environmental Report.</p> <p>The high level assessment presented in the report concluded</p>

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			<p>that Option IRZ08 would have a minor positive effect on land use and soils during construction. As set out in the assessment matrices contained at Appendix B to the report, this reflected the expectation that construction would take place on existing dam infrastructure thereby making best use of existing assets. Notwithstanding, the assessment highlighted that it is likely that existing footpaths would have to be relocated to facilitate the rise in water level, although alternative routes would be provided such that the effects on recreational users of the reservoir would be expected to be negligible. Once development is complete, no effects on soil or land use would be anticipated.</p> <p>As this option does not form part of the preferred plan, no change is proposed. However, should the option form part of any future plans then it would be subject to more detailed assessment and comments received during this and previous consultation rounds would be taken into account.</p>
Friends of the Lake District	21	The respondent feels that the draft plan does not give adequate consideration to landscape issues and to the importance of the Lake District National Park as a National Park. In their view, water abstraction is not sustainable if it is causing on-going landscape harm. They consider that the Lowest Cost and Kielder alternatives will cause less landscape harm than the Thirlmere option.	As previously identified our approach to the assessment of landscape effects, which has been completed as part of the SEA, is robust and proportionate for a strategic plan. The SEA framework used to undertake the assessment of the draft plan contains a specific objective related to landscape (SEA objective 12: To protect and enhance landscape character). Detailed assessments of the Lowest Cost, Preferred and Alternative plans are provided in Appendix E of the Environmental Report and in section 3.2.1 of the Environmental Report Addendum. It is not within the scope of the SEA to undertake very detailed landscape impact assessments. Such assessments would be conducted as part of an Environmental Impact Assessment (EIA) at the project stage when further details of the proposals are known. We will work closely with relevant organisations and stakeholders regarding design and mitigation options for the scheme and will also ensure that any changes in landscape (e.g. reservoir levels) are duly considered as part of this assessment. We will provide computer-generated visualisations of the construction and post-construction impacts, and the Thirlmere levels. We will also ensure the positive impacts of the increased abstraction from Thirlmere reservoir on other parts of the Lake District, such as the higher lake levels in Crummock Water, are

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>considered.</p> <p>We have included further analysis of landscape effects for our West Cumbria options in the addendum to the SEA.</p> <p>We have included statements in Sections 10.4 and 10.5 of the revised plan explaining how landscape issues are addressed in the SEA Environmental Report.</p>
Friends of the Lake District	22	Page 143 of the SEA Environmental Report lists potential indicators for monitoring. For landscape it is proposed that UU could record the number and floorspace of new buildings within the designated landscapes sites. The respondent says that this ignores the concept of landscape character being made up of a number of different factors and facets, and ignores the existing landscape character assessments and methodologies which already exist for monitoring landscape. The respondent says that it also implies that only designated landscapes matter not the wider countryside in general and this needs rectification.	<p>Table 6.1 of the Environmental Report identified potential indicators for monitoring the significant effects of the implementation of the plan. Under landscape, the following indicator was identified: "Loss of or damage to landscape character and features of designated sites". The table also provided additional commentary on the data that could be used to inform the monitoring process. Against the landscape indicator, this sets out that "United Utilities could record the number and floorspace of new buildings that are built within designated landscape sites".</p> <p>The commentary provided in Table 6.1 is only intended to provide an indication of the type of data that could be used to monitor the effects of the plan's implementation and should not be viewed as definitive.</p> <p>As noted in Section 6.3.1 of the Environmental Report, further information and specific details about the monitoring proposals for the effects of the plan identified in the Environmental Report will be presented in the Post Adoption Statement (to be issued after the final plan).</p>
Garstang Against Fracking	1	The respondent raises questions about the safety and water supply needs of fracking.	We address the issues raised about hydraulic fracturing for shale gas in Section 3.6 of the plan.
Group Against Reservoir Development	1	GARD strongly supports continuing discussions between United Utilities and Thames Water.	We will continue discussions with Thames Water and any other companies who may be considering an import from United Utilities.
Group Against Reservoir	2	The respondent would like to see more detail of the option for redeployment of Vyrnwy reservoir to supply London and the south -east of England in the final plan. In GARD's response to	In our discussions with Thames Water to date we have indicated that we could make releases from our Vyrnwy reservoir into the River Severn to be re-abstracted further downstream. This

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Development		Thames Water's plan, they urged them to consider the redeployment of Vyrnwy reservoir as a feasible option for the final plan and to appraise the option to a similar level of detail as other feasible options. They would like to see an equivalent level of detail in United Utilities' plan. This should include recognition of the potential of the scheme to form part of a strategic transfer of water from the North of England to the South.	option is detailed in Appendix 8 of our draft plan and is also referenced in the Thames Water draft plan. For the purposes of our strategic plan, we consider that the level of detail provided at this stage is sufficient because no companies have indicated that there is a requirement for water trading in the 2015-2020 period.
Group Against Reservoir Development	3	The respondent thinks our plan should make reference to studies needed in AMP6 to develop the option to the point that a decision can be made by 2019 on whether a Severn to Thames transfer, with or without support from Vyrnwy reservoir, should be Thames Water's preferred option for a major new source, if needed.	We will work with Thames Water and other water companies to assess in more detail the viability of inter-company water transfers for the next water resources management plan. We acknowledge that there are a lot of detailed studies and close working relationships that will need to be developed across the water companies, regulators and stakeholders. It is not clear at this stage what specific studies and levels of detail are required to support development of the water trading options and so inclusion of a list of detailed studies in our revised draft plan at this stage is not viable.  We have provided some updated text in Appendix 8 of the revised plan.
Holker Estate	1	The respondent refers to Section 18 (2) of the Windermere Water Order, which states that United Utilities should take water from Windermere having due regard to Navigation and Fisheries. This is something they feel has not been the case in our planning to date and needs further emphasis at this review. They think that abstraction from Windermere is heavily influenced by financial considerations with a policy of using this lake as a reservoir of last resort when other sources are exhausted. They wish to see a more considered and conservative approach to the management of lake levels.	A number of different factors are used to help decide when to start pumping from Ullswater and Windermere. The main consideration is whether levels at Haweswater are below the levels expected for the time of year, but we also consider weather forecasts and anticipated customer demand.  More detail about the operation of abstractions from Windermere is given in Section 3.4 of the Statement of Response.
Holker Estate	2	The respondent suggests that our assumptions should be scrutinised as to whether they are valid in the light of current variability of our climate. They are extremely concerned by the proposed transfer from Thirlmere to West Cumbria as they consider that the removal of any of Thirlmere's capacity for supplying the Integrated Zone will almost certainly lead to greater frequency of Drought Order applications and more reliance will be placed upon Windermere as a reservoir of last	We have carried out further water resources modelling. This includes the impact of climate change which is based on the very thorough climate impact assessment carried out for the draft plan (using latest climate change projections and industry standard approach).  There is no evidence to suggest that the frequency of drought order or permit applications will increase. The additional demand

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		resort.	<p>placed on Thirlmere must be placed in context of the overall trend of falling demand in the Integrated Resource Zone.</p> <p>More detail about the potential impact of the Thirlmere option on the Integrated Resource Zone is given in Section 3.4 of the Statement of Response.</p>
Holker Estate	3	The respondent says that at a consultation meeting in Kendal they were given the clear impression that the Thirlmere option was the one most favoured by United Utilities and that the decision to adopt it may have already been made. They also point out that the option was not considered in UU's recently finalised Drought Plan.	<p>At our consultation events we made it very clear that this was a genuine consultation and that we wanted responses to inform the final plan. The purpose of the events was to help to inform the attendees' response to the consultation. We were careful to explain the pros and cons of all the options being considered. The Thirlmere option was presented as United Utilities' preferred option for the reasons set out in the draft plan but there was no suggestion of a final decision having already been taken.</p> <p>West Cumbria's long-term supply options were not considered as drought management options in the Drought Plan as they cannot be delivered within the duration of a drought event. This means that they are not within the scope of a drought plan.</p>
Holker Estate	4	The respondent says that we should endeavour to have reservoirs full at the end of the winter and to keep levels as high as possible for as long as possible throughout the year. They say that this will reduce the need to use Windermere as a reservoir of last resort as has been the case to date with the consequential impact on environmental and commercial interests.	<p>We use an operational control rule to help decide at what point we should consider pumping from Ullswater or Windermere. Pumping from Windermere and Ullswater at times when Haweswater is likely to refill naturally would have a significant impact on operational costs (plus associated carbon implications) but provide very little benefit to supplies. In the worst case it would mean pumping water from Ullswater and Windermere that will later result in water spilling from Haweswater and therefore being lost from the supply system altogether.</p> <p>More detail about the abstraction from Windermere is given in Section 3.4 of the Statement of Response.</p>
Holker Estate	5	The respondent proposes a change to the Windermere abstraction licence: the hands off flows should be increased substantially to 400 – 500 MI/d all year around to provide a reasonable buffer against risks of periods of low rainfall and certainly to a minimum of 273 MI/d. They say that there is normally plenty of water available outside the dry summer months, so they would have no objection to the 12 month limit of	<p>At Windermere, environmental control exists in the form of the River Leven hands off flow conditions which limit the amount of pumping we can undertake, especially during summer months. The Environment Agency recently reviewed the hands off flow requirements at Windermere and determined the existing hands off flow conditions to be appropriate. We have agreed a new water bank agreement to provide for more flow to the River</p>

<b>Respondent</b>	<b>Issue</b>	<b>Point of detail made in the representation</b>	<b>United Utilities' Response</b>
		abstraction being raised provided higher hands off flows levels can be agreed.	Leven. More detail about environmental controls at Windermere is given in Section 3.4 of the Statement of Response.
Keswick Flood Action Group	1	The respondent discusses our preferred plan of supplying water to West Cumbria from Thirlmere. They say, "planning for future climate change with the possibilities of droughts and using more water from Thirlmere is clearly the sensible thing to do."	We agree with this view and the transfer of water from Thirlmere to West Cumbria remains our preferred plan.
Keswick Flood Action Group	2	The respondent strongly believes that planning for floods should be of as much relevance as planning for drought conditions. They say that if the government truly accepts that climate change is a reality a one-sided approach cannot be satisfactory.	Planning for floods and flood risk management are the responsibility of the Environment Agency and Lead Local Flood Authorities (local authorities) and is set out in the Flood and Water Management Act 2010. However, flooding is one of the criteria considered in the Strategic Environmental Assessment of our water resources management plan.
Keswick Flood Action Group	3	The respondent is concerned that, long term, with United Utilities making use of more water for customers in West Cumbria, the Thirlmere trigger levels may be abandoned. They also propose that additional engineering is needed to ensure improved releases which have a greater chance of keeping pace with the rainfall in the catchment to give communities some protection from flooding.	We remain committed to the existing Thirlmere flood management trigger levels and discuss these issues in Section 3.6 of the Statement of Response.
Keswick Flood Action Group	4	The respondent is pleased to note that we have said that we are considering hydro power as part of the new supply scheme. They would like to see both flows be linked to the production of hydro power.	One of our key design principles for our West Cumbria will be to minimise energy requirements. During the design of the selected option, we will review green energy sources including hydro, wind and solar power as options to serve the development. The location of the treatment works, storage reservoirs and the use of the existing head of pressure from the abstraction point will all be key aspects, balanced with the impact on the landscape. The pipeline will be routed to avoid the need for pumping where possible. These elements will form part of the EIA to support the planning application.
Keswick Flood Action Group	5	The respondent is concerned that any agreements or pledges United Utilities can make are just that – in the future the company could be bought out by others, ownership of our water systems could be transferred to a foreign company. They say that legislation is needed to ensure that Thirlmere Reservoir and others which have similar potential, should be operated with a	Planning for floods and flood risk management are the responsibility of the Environment Agency and Lead Local Flood Authorities (local authorities). However, flooding is one of the criteria considered in the Strategic Environmental Assessment of our water resources management plan

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		dual purpose: ensuring water supplies and managing flood risk.	
Lancs & Cheshire Wildlife Trusts	1	The respondent questions the size and periodicity of localised increase in demand on the public water supply as the result of expansion of shale gas "fracking" in Cheshire/Greater Manchester/Lancashire/Merseyside. They say that information on the projected scale of that demand, should it arise, is as yet difficult for us to assess. They ask that if and when we are in a position to advise them on this, they would be pleased to hear from us.	We anticipate the annual average volumes required for hydraulic fracturing for shale gas will be small and therefore have no impact on the water resources management plan. We discuss these issues in Section 3.6 of the Statement of Response.
Lancs & Cheshire Wildlife Trusts	2	The respondent asks us to liaise with the Cumbria Wildlife Trust (and the Northumberland Wildlife Trust, which would also be impacted by one of the options) on the appropriateness of these three alternatives.	Cumbria Wildlife Trust have been consulted as part of this process and we are keen to work closely with all stakeholders in developing the selected option in terms of site/route selection; biodiversity; landscape; and recreation mitigation.
Lancs & Cheshire Wildlife Trusts	3	The respondent would welcome engagement at the level of individual schemes as and when these may be brought forward.	No schemes in Cheshire and Lancashire are required in this plan. We will consult with Lancashire and Cheshire Wildlife Trusts on future plans and we are keen to work closely with all stakeholders should schemes be required in these areas in the future.
Lake District National Park Authority	1	The respondent says water resource schemes operating in the National Park must consider opportunities to expound sustainable returns, addressed through landscape management and funding initiatives. They consider a programme of sustainable returns to include: <ul style="list-style-type: none"> <li>a. United Utilities' contribution to a significant expansion of the SCaMP approach to non United Utilities catchment land across the National Park.</li> <li>b. An improved "Eco-system Services" approach factored into water resourcing schemes and in particular to improve carbon sequestration and biodiversity.</li> <li>c. A high standard of mitigation and enhancement opportunities aimed at enhancing and conserving landscape, heritage, biodiversity and recreation (for example enhanced access opportunities around Thirlmere Reservoir).</li> <li>d. Planned management of decommissioned water resource infrastructure to create positive enhancements to the landscape character of the National Park.</li> </ul>	We are committed to the Lake District National Park Partnership Plan and its vision. Throughout the design process we will work with the respondent and other stakeholders to ensure that any development in the National Park is in accordance with the aspirations of the Plan and the principles of sustainable development. Although at this stage of the project it is too early to commit to specific actions, we welcome the Authority's initial views and look forward to discussing these in further detail as the project progresses.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Lake District National Park Authority	2	<p>The respondent acknowledges and welcomes investigations into the development of key design principles to minimise energy requirements and reduce the significant negative effect on climate change, due to energy use and high associated emissions accumulated through both construction and operations. They suggest this can be undertaken through investigations into the following:</p> <ul style="list-style-type: none"> <li>a. The review of green energy sources: hydro, wind and solar power.</li> <li>b. The careful routing of the pipeline to avoid the need for additional pumping</li> <li>c. The location of treatment works, storage reservoirs and the use of existing head of pressure from abstraction points.</li> </ul>	<p>One of our key design principles will be to minimise energy requirements. During the design of the selected option, we will review green energy sources including hydro, wind and solar power as options to serve the development. The location of the treatment works, storage reservoirs and the use of the existing head of pressure from the abstraction point will all be key aspects. The pipeline will be routed to avoid the need for pumping where possible. These elements will form part of the EIA to support the planning application.</p>
Lake District National Park Authority	3	<p>The respondent would like our assurance of continued investment into understanding future influences affecting water supply and demand management in the North West, in particularly the Integrated Resource Zone. The outcome of this will be to achieve the greatest proportion of Cumbrian water remaining in Cumbria as potable supply.</p> <p>To this aim the respondent promotes further investigation and the development of robust modelling to support technologies to improve our understanding of demand requirements, environmental restrictions, frequency at which Drought Permits are required and the necessity of putting into action sustained water efficiency measures.</p>	<p>We agree that we need to understand these influences in order to prepare our long-term Water Resources Management Plan. The supply to West Cumbria is possible because of demand reductions across our Integrated Resource Zone and this will result in more water remaining in Cumbria as a potable supply.</p> <p>We regularly review our models and assumptions to ensure forecasts are as reliable as we can make them. We also work with academia and others in the industry to develop improved approaches for future planning cycles. For example we are currently researching ways to effectively promote water efficiency in West Cumbria, we are working with Cranfield University on risk based water resources planning, we are actively involved in a number of UKWIR projects and we are working on a bid with Professor Julien Harou of Manchester University to develop an integrated water resources socio-economic drought modelling approach.</p>
Lake District National Park Authority	4	<p>The respondent requests reassurance that as part of the Thirlmere option various lakes providing a potable water supply are not compromised by the implementation of the plan. They do not want to see adverse effects on other lakes and would welcome the opportunity to be involved in the review of current abstraction licences and the frequency of water use restrictions and drought permits/orders, as part of establishing the preferred option and at least during the five yearly review periods.</p>	<p>There are no plans to increase the total abstraction limit at Thirlmere or change abstraction licences at other lakes if the Thirlmere option is selected and our modelling confirms that planned levels of service can be maintained. This is discussed further in Section 3.4 of the Statement of Response.</p> <p>Our water resources plan will be reviewed annually, and fully revised and updated at least every five years. We welcome the</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			National Park Authority's continued involvement in this process.
Lake District National Park Authority	5	The respondent is the local planning authority and their representation identifies key policies relevant to any planning application that United Utilities may need to make. They recommend initiating a Planning Performance Agreement through their development management.	The EIA for the preferred option will take into account all relevant planning policies as defined in key framework documents.  We will undertake the necessary investigations to consider the appropriate route for approval and will be keen to develop a robust Planning Performance Agreement with the relevant local planning authority.
Lake District National Park Authority	6	The respondent invited us to engagement with their Members with a presentation of the draft Water Resources Management Plan on Wednesday 18 September 2013 and The Lake District National Park Partnership on Monday 23 September 2013.	We wish to thank the authority for these invitations and the continued engagement. We attended the meetings, gave presentations and answered questions on the water resources management plan.
Manchester City Council	1	The respondent said that it was not clear from the plan what consideration of future shale gas extraction had been made and that it should be considered in more detail in the period prior to 2040.	We address the issues raised about hydraulic fracturing for shale gas in Section 3.6 of the Statement of Response.
Manchester City Council	2	The respondent points out that fixing leaks was the biggest issue raised by customers. They said that if minimising leaks is justified during droughts to maintain water supplies, it is difficult to see why it is not justified at other times.	We address the issues raised about leakage in Section 3.8 of the Statement of Response.
Manchester City Council	3	The respondent identifies a virtuous cycle where water trading can be used to fund leakage reduction, which creates a surplus to enable water trading.	We agree with this and using leakage to enable water trading was identified in Table 36 of the draft plan. We have retained this scenario in the revised plan.  We discuss water trading further in Section 3.9 of the Statement of Response.
Natural England	1	The respondent says that meter penetration should arguably be more ambitious, there being no options in the draft plan to increase the level of metering above the baseline forecast.	Options to increase the level of metering above the baseline forecast were considered in the draft plan, but none were selected through the options appraisal process.  We have considered representations on demand management and metering and included more metering in the revised plan. This is discussed further in Section 3.7 of the statement of response.
Natural	2	The respondent wonders if, given the acute pressures on the West Cumbria Resource Zone while we wait for a new water	We agree that leakage measures should be maximised in West Cumbria, going beyond the economic level, until the long-term

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
England		source, should there not be some intensification of effort on leakage control at least in this Zone?	solution is delivered. We are making every effort to do so, including pressure management and aerial surveys for trunk main leakage. We discuss this further in Section 3.8 of the Statement of Response..
Natural England	3	The respondent says that it is not clear to what extent the SEA has influenced United Utilities' choice of its preferred option, the Thirlmere transfer. They would like to see further evidence to substantiate the assessment. Long-term impacts may be from operation though construction of new and enlarged above ground structures will be minor.	<p>Section 5.5 of the Environmental Report sets out the reasons for the selection of the Preferred Option. We chose the preferred option using a standard industry method that includes consideration of technical feasibility, financial costs and benefits, and quantified impacts on the environment and community, taking into account the findings of the SEA and HRA as well as input from key stakeholders. We have added a diagram in Section 10 of the revised plan to illustrate the selection process.</p> <p>We discuss the treatment of landscape effects in Section 3.5 of the Statement of Response.</p> <p>We appreciate that Natural England wish to understand further the effects associated with the operation of the proposed new water treatment works near Thirlmere. However, it is not within the scope of the SEA to undertake detailed impact assessments. Such assessments would be conducted as part of an Environmental Impact Assessment (EIA) at the project stage when further details of the proposals are available.</p> <p>We will work closely with relevant organisations and stakeholders regarding design and mitigation options of the scheme and we will also ensure that any changes in landscape and other effects due to construction of new infrastructure (e.g. a new water treatment works) are duly considered as part of this assessment.</p> <p>Notwithstanding, as part of the SEA process, further assessment of the three options for West Cumbria has been completed in order to take into account further work on the options following representations. This assessment is reported in an Addendum to the Environmental Report and has been submitted to the Secretary of State alongside the revised plan. It re-affirms the conclusions of the original assessment – i.e. that effects during operation are likely to be minor.</p> <p>As set out in Section 3.5 of the Environmental Report, it should</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			be noted that the exact location of the new above ground infrastructure that comprises the preferred plan, including the proposed new water treatment works, has yet to be determined. This will be established as part of detailed design and site selection, informed by EIA and would take into account a more detailed, project level consideration of potential landscape impacts.
Natural England	4	The respondent notes that the published version of the Habitats Regulation Assessment (HRA) would have benefitted by being subject to thorough proof reading.	An updated version of the HRA was placed on our website during the consultation period. We will fully proof read the final version before it is published alongside the final plan.
Natural England	5	The respondent discussed the approach taken in the HRA of iteratively assessing the feasible and preferred options. Only the Thirlmere scheme was taken through to the most detailed level of assessment. The respondent considers that the HRA should consider in the same level of detail all three options to provide an assessment of whether any of them could have an adverse effect on European Sites, and if so, to set out mitigation measures.	The HRA does not focus on the assessment of alternative options unless avoidable adverse effects are identified. It also does not look to balance the relative merits of options since options are either acceptable (no significant adverse effects) or unacceptable. However, as the HRA process contributes to the selection of the preferred option, we have considered the potential impacts of the other possible options within the HRA (Section 5.5). This has not been completed to the same level of detail as the preferred option because the preferred option will not, based on the available data, have a significant adverse effects on any European site.  Therefore, we do not consider the need for carrying out any more detailed assessments of alternative options at this stage in the process because Thirlmere remains the preferred option.
Natural England	6	The respondent notes that in Section 4.4 of the HRA, the Summary of the Feasible Options does note that use of the groundwater options (which form part of the Lowest Cost Option) "would have a residual uncertainty that would be difficult to resolve at a strategic level". They say that arguably this uncertainty would be sufficient to reject groundwater options in the choice of options to include in the plan, but the Lowest Cost Alternative is included, and it is likely to gather support from consultees who will not be aware of the potential impact this option might have.	We recognise this view from Natural England and taking this alongside other consultation responses we no longer consider the lowest cost alternative to be a viable plan at this time.  We discuss this further in Section 3.3 of the Statement of Response and Section 10 of the revised plan.
Natural England	7	The respondent advises that the final plan should include a thorough and consistent consideration of the advantages and	We have updated Section 10 of the revised plan to set out clearly our consideration of the options for West Cumbria.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		disadvantages of each option.	
Natural England	8	The respondent discusses the risks associated with the lowest cost plan. In spite of its significantly lower cost, it does not provide the certainty that sufficient additional water can be secured to ensure continuity of supply when the Ennerdale licence is revoked. This could mean that after starting work on this option, it might be necessary to implement the Thirlmere option anyway; this would not only add considerable financial costs but could delay the Ennerdale revocation. They understand that recent discussions with the Nuclear Decommissioning Authority over the provision of 10 MI/d of their licence to abstract from Wastwater have not provided certainty that this water would be available over the longer term, which may have implications for the deliverability of this option. They advise that consideration of the lowest cost option for the final plan should reflect risks to the likely adequacy of this supply.	<p>We recognise these risks and have updated Section 10 of the revised plan to set out clearly our consideration of the options for West Cumbria. We discuss this further in Section 3.3 of the Statement of Response.</p> <p>These risks are some of the reasons why we no longer consider the lowest cost alternative to be a viable plan at this time.</p>
Natural England	9	The draft plan states that the options within the Lowest Cost Alternative are within existing licences and would not need new ones. The respondent questions this statement as their understanding is that new boreholes in the West Cumbria and North Cumbria aquifers would require new licences.	This was an error in the draft plan. It should have read that surface water abstractions would be within existing licences. We acknowledge that the new boreholes would require new licences. We have updated the revised plan to make this clear.
Natural England	10	The draft plan states that the Habitats Regulation Assessment identified that the Wastwater option could have a significant effect on biodiversity. The respondent cannot find any evidence in the HRA that supports that statement. They note that the Wastwater abstraction licence was subject to Review of Consents under the Habitats Regulations at a time when the actual abstraction from the Wastwater SAC was close to the licensed volume. The Review of Consents concluded that there was no adverse effect on integrity. As they understand it, the 10 MI/d that we are seeking from Wastwater is within the licensed abstraction. They would be concerned if there was any proposal to increase the abstraction from the lake above the licensed amount, and that would need to be subject to HRA.	<p>The HRA states that although additional abstraction from Wastwater would be within existing licenced volumes it would be higher than recent actual rates, so Wastwater levels would be lower on average, and although it is uncertain whether these changes would have significant effects it is clear that this is a potentially significant risk. The statement in the draft plan that the option “could have a significant effect on biodiversity” is broadly correct, but this doesn’t necessarily have to mean that the option is excluded from consideration.</p> <p>Our discussions in relation to abstraction from Wastwater have proceeded on the basis that the transfer of water would be from within the existing licenced abstraction volumes, but may require a new point of abstraction.</p>
Natural England	11	The respondent notes that section 10.2.1 of the draft plan doesn't mention that new boreholes into the West and North	We recognise that these options would require a HRA appropriate assessment. Section 4.4 of the HRA published with

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		Cumbria aquifers would need to be subject to HRA to ensure that there was no adverse effect on the River Ehen or other water or water-based SACs. If nothing else, this could lead to a delay in implementation of the option, and does not give the certainty of supply that United Utilities needs for business planning purposes in PR14. Section 4.4 of the HRA, as noted above, does recognise this as a potential problem, but this has not been acknowledged in the main body of the draft plan.	the draft plan does recognise this as a potential issue.  We have made it clear in Section 10 of the revised plan that HRA appropriate assessments would be required and that this creates uncertainty and potential delay. This is one of the reasons why we no longer consider the lowest cost alternative to be a viable plan at this time.
Natural England	12	The respondent says that their preferred plan is for connecting West Cumbria to the Integrated Zone at Thirlmere. The draft plan notes that amongst the benefits of this option it allows abstraction from existing sources in West Cumbria to cease and return the habitats to more natural conditions, and that it protects SACs. Natural England agrees with these statements. Specifically it would allow for Crummock Water (part of the River Derwent & Bassenthwaite Lake SAC) to be returned to natural functioning and so address Natural England's remaining concerns post the EA's Review of Consents for the Crummock licence.	We agree with this comment and this is one of the reasons for selecting Thirlmere as our preferred option.  There are also benefits at Overwater SSSI and the River Ellen.
Natural England	13	The respondent says there are mixed messages from United Utilities on what might happen to the licences if they no longer required them. In a presentation to the Customer Challenge Group for PR14 in July 2013 by Jo Harrison and Dave Champness of United Utilities, there is mention that these licences will be freed up for third parties to use.	The Environment Agency is responsible for issuing and managing licences. Any decision to re-issue licences to other users would be made by them.
Natural England	14	The respondent notes that although the increased abstraction (within licence) from Thirlmere will not affect low flows in St John's Beck (part of the River Derwent & Bassenthwaite Lake SAC), there will be an effect on high flows of above Q5. The HRA concludes that this would not be likely to have an adverse effect on interest features of the SAC. The EA's Review of the Thirlmere abstraction concluded in the Stage 3 appropriate assessment that the licences do have an adverse effect because of inter alia reduction in flow variability in St John's Beck which is a very regulated watercourse. However, the concern was related to the sort of flows needed for fish migration, and it was concluded that providing spates and reconnecting Helvellyn Gill	We have updated the HRA report to ensure that these points are explained.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		to the river would provide the migratory flows needed. There was no argument that exercise of the licence might have an adverse effect through effect on the high flows. The respondent says it would help to see an articulation of these arguments in the HRA.	
Natural England	15	As well as ecological considerations, Natural England recommends that the SEA substantiates the conclusion that there will be only minor operational landscape effects from this option. Firstly, the SEA recognises the potential for significant construction impacts on the National Park, but only minor operational impact from new and enlarged above ground infrastructure such as the much larger treatment works needed near Thirlmere. Secondly, there is no mention of the more conspicuous drawdown zones that might be expected with greater volumes being abstracted from Thirlmere.	<p>Please see the response to issue number 3 above in respect of the new water treatment works.</p> <p>The detailed assessment contained at Appendix E to the Environmental Report highlights that the operation of the Thirlmere Transfer into West Cumbria would result in additional drawdown of Thirlmere which may be perceptible. Whilst the additional drawdown will be within the range of normal operation, we have provided further analysis on the effects on additional drawdown in section 3.2.1 of the Environmental Report Addendum.</p>
Natural England	16	The respondent notes that the Kielder option clearly provides the security of supply that we are looking for, but at significantly greater expense than the Thirlmere option, and hence notes our preference for the latter. The respondent's only comment on the assessments for this scheme concerns the Habitats Regulations Assessment and whether it adequately assesses the potential effect of running a pipeline through the group of mires that constitute the Border Mires, Kielder-Butterburn SAC. The HRA records that we have indicated that the pipeline route would be sited within existing roads except where there were alternative routes that would have no impact on European sites. The respondent agrees that if that is possible, there should be no adverse effect on the mire SAC, but wishes to see an indicative route that demonstrates that this is possible and so avoids risk of damage.	Between the draft and revised draft plans, we have revised the pipeline route for the Kielder option. These changes in scope have been reassessed and the results are reported in the addendum to the Strategic Environmental Assessment Environmental Report. The proposed pipeline route, which follows existing road systems as much as possible, is described and the potential effects on any European sites are documented.
Natural England	17	The respondent is unclear about the relative timeframes that the three schemes would take to deliver, and says it would be helpful if the Plan presented this information to help inform a decision of which option to pursue.	<p>We have looked in more detail at the likely timescales for delivery of each of the three options for West Cumbria.</p> <p>For the lowest cost plan and preferred plan, a project timeframe of 11-12 years is considered the most likely scenario.</p> <p>For the Kielder alternative plan, a project timeframe of 16 years is considered the most likely scenario. Figure 34 of our revised water resources management plan shows how the delivery</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			timescales for each of the three options has been included in the overall decision making process in determining our preferred option.
Natural England	18	The respondent asks for assurance that there would not be major operational impacts on the Lake District National Park landscape. They say the SEA appears to play down the potential for this.	<p>Please see comments relating to issue 3 above. The SEA Addendum re-affirms the findings of the Environmental Report i.e. that there is the potential for significant negative effects on landscape during construction of the Thirlmere transfer into West Cumbria but that effects during operation are likely to be minor.</p> <p>As set out in Section 3.5 of the Environmental Report, it should be noted that the exact location of the new above ground infrastructure that comprises the preferred plan has yet to be determined. This would be established as part of detailed design and site selection, informed by the EIA process and would take into account a more detailed, project level consideration of potential landscape impacts. Whilst the additional drawdown will be within the range of normal operation, we have discussed this in more detail in the updates to the Environmental Report.</p>
Natural England	19	On balance, the Thirlmere Transfer scheme looks preferable to Natural England because it offers opportunities for restoration to natural functioning of Crummock Water and Over Water.	We agree with this comment and this is one of the reasons for selecting Thirlmere as our preferred option.
Nuclear Decommissioning Authority	1	This respondent is the third-party abstraction licence holder for Wastwater, which is part of our lowest cost alternative plan They say that it would not be sensible for United Utilities to assume that NDA licence use could be a preferred option.	We have considered this response and it creates significant uncertainty about the viability of our lowest cost alternative. This is one of the reasons why we consider that this is no longer a viable alternative plan at this time. We discuss the selection of West Cumbria options further in Section 3.3 of the Statement of Response and Section 10 of the revised plan.
Natural Resources Wales	1	The respondent notes that we should change references from Environment Agency Wales, Countryside Council for Wales and Forestry Commission Wales to Natural Resources Wales.	References have been updated throughout the revised plan, SEA and HRA.
Natural Resources Wales	2	The respondent requests a meeting to understand River Dee modelling.	We met with Natural Resources Wales on 16 September to share our approach to modelling the River Dee.
Ofwat	1	The respondent notes that we provide details of considerable	We have added a section into the revised draft plan explaining

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		stakeholder consultation both before and during the production of our draft plan. However, they have not been able to determine from the draft plan the role that the Customer Challenge Group (CCG) played in this consultation. They ask us to clarify the CCG's role in our final plan.	the role that the Customer Challenge Group and subgroups have played in developing our plan.
Ofwat	2	The respondent notes that we present the relative financial implications of our preferred plan, the alternative plan and lowest cost plan in terms of the NPV of the total financial, social and environmental costs. However, they ask us to also indicate the potential impact on bills of the alternative plans because this will be easier for customers to understand.	We have added bill impacts into Section 10 of the revised plan and included a diagram to illustrate how customer bill impacts have been included in the selection of the preferred option.
Ofwat	3	The respondent was not able to find details in the draft plan of how we defined the dry year factor, normalised demand or calculated the weighted average demand forecast. The respondent asks us to present the analysis we conducted to define a dry/normal year and the frequency of these occurrences for the weighted average demand in the final plan.	<p>Following representation by the Environment Agency we commissioned a study by the Met Office of the weather effects on demand and reviewed our method for calculating the dry year and weighted average factors.</p> <p>The weighted average is calculated as an average of demand expected over 50 years of weather data and the dry year is defined in reference to weather conditions experienced in 1995/96.</p> <p>We have added an explanation of this in Section 6 of the revised plan and have added a new appendix to the plan with further details (Appendix 12).</p>
Ofwat	4	The respondent notes that they cannot find details on how the treatment works losses were calculated in the draft plan.	We have added a new appendix to the plan with further details (Appendix 11).
Ofwat	5	The draft plan includes a number of confirmed and likely sustainability reductions with a significant impact particularly on the West Cumbria water resource zone. The respondent notes that we agreed with the EA to include a number of the 'unknown' category where on-going investigations suggest an increased certainty of detrimental effects. The EA expects to confirm its sustainability changes this summer and the respondent states that final plan should reflect the confirmed position.	<p>The Environment Agency has confirmed sustainability changes in its "phase 3" National Environment Programme. Our revised plan reflects this confirmed position.</p> <p>No 'unknown' sustainability reductions are included in the revised plan.</p>
Ofwat	6	In the draft plan, we forecast a constant volume of leakage throughout the planning period. The respondent asks us to	We have considered the effect of meter penetration on leakage

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		consider whether increasing meter penetration or customer willingness to pay mean that a decline might be more economic and reflect customers' preferences in the final plan.	<p>levels. However, we found only a very weak correlation.</p> <p>Our customer willingness to accept research has shown that 80% of customers are willing to accept the bill impacts of maintaining the current level of leakage but they do not want bills to increase for further leakage reductions. Therefore we will not propose to reduce leakage further.</p> <p>This is discussed in Section 3.9 of the Statement of Response</p>
Ofwat	7	The respondent notes that it is not clear, in the options appraisal, whether we have taken account of the potential operating cost savings of new sources of water, when compared to existing sources. They ask us to clarify this in the final plan.	<p>We did include this in the economic appraisal and the NPVs quoted in the draft plan were net of any cost savings.</p> <p>We have updated the text in Section 8.4 of the revised plan to make this clear.</p>
Ofwat	8	Utilisation is an important concept in determining a best value solution for customers and the environment. The respondent notes that it is not clear whether we used 'utilisation' to appraise the costs of options during the optimisation process. They ask us to clarify this in the final plan.	<p>We agree that it is important to account for utilisation of options in the assessment of costs. We did include this in the draft plan.</p> <p>We have updated the text in Section 8.4 of the revised plan to make this clear.</p>
Parish Council of St John's Castlerigg & Wythburn	1	The council notes that they will always be pleased to help with clarifying local concerns and issues.	<p>UU are keen to work closely with all stakeholders in developing the selected option in terms of site/route selection; biodiversity; landscape; and recreation mitigation. Further consultation will be taking place, once the preferred option is selected.</p> <p>A Customer Impact Assessment and subsequent Stakeholder Management Plan will be developed and implemented to support the design; construction and implementation phases of the project. Input from the Parish of St John's Castlerigg &amp; Wythburn will be welcomed.</p>
Parish Council of St John's Castlerigg & Wythburn	2	The respondent says that the provision of extra water to the west seems a very sensible and worthwhile idea.	We agree with this and it remains our preferred plan to supply water from Thirlmere to the west.
Parish Council of St John's Castlerigg &	3	The respondent says that previous experience when working with underground engineering on farmland has given rise to problems and land has not seemed to be fully restored to its previous state.	We have a corporate Code of Practice for Pipelaying, which includes: "in doing our works we will try to do as little damage as possible. Temporary damage, such as topsoil stripping may take place in order to effect good working practice and reinstatement.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Wythburn			<p>At the completion of the works we will restore the area where we have worked to the same condition that it was in before we started. On the occasions that this is not reasonably possible we will pay compensation to reflect the depreciation in the value of the land." We will work with the NFU to engage with agricultural land owners as our preferred solution is developed. If you have particular concerns please get in touch. Our Access and Acquisitions Manager will be able to answer specific queries.</p>
Parish Council of St John's Castlerigg & Wythburn	4	<p>The respondent says that in respect of the Thirlmere option they would like consideration to be given to have the extra flows taken through the river system and drawn off for treatment downstream.</p>	<p>St Johns Beck, immediately downstream of Thirlmere Reservoir, is part of the River Derwent and Bassenthwaite Lake SAC. It is not feasible to release water from the reservoir into St Johns Beck and abstract this further downstream because of the potential impacts on the SAC. The precautionary principle embedded in the Habitats Regulations would not allow any scheme to progress that could have an adverse impact on an SAC. In particular, changes in surface water flows could have a detrimental effect on certain species. For example, river and brook lamprey are thought likely to spawn in the beck whilst Atlantic salmon also spawn and have their nursery grounds located there. Further details of the assessment of effects on European sites can be found in section 5.3.4 of the Habitats Regulations Assessment.</p>
Parish Council of St John's Castlerigg & Wythburn	5	<p>The respondent says that with the Thirlmere option they would like consideration to be given to flood alleviation flows</p>	<p>We have received a number of representations on flooding and Thirlmere. We discuss them in Section 3.6 of the Statement of Response.</p>
Parish Council of St John's Castlerigg & Wythburn	6	<p>The respondent says that with the Thirlmere option they would like consideration to be given to the possibilities of generating hydroelectricity.</p>	<p>One of our key design principles for our West Cumbria will be to minimise energy requirements. During the design of the selected option, we will review green energy sources including hydro, wind and solar power as options to serve the development. The location of the treatment works, storage reservoirs and the use of the existing head of pressure from the abstraction point will all be key aspects. The pipeline will be routed to avoid the need for pumping where possible. These elements will form part of the EIA to support the planning application.</p>

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Peak District National Park	1	The respondent thanks us for the opportunity to comment but has no substantive comments to make.	We thank the National Park for taking time to respond and are pleased that there are no issues of concern.
Peel Utilities Holdings Ltd	1	Peel Water Services Ltd have requested more information on the AISC calculation for the two Manchester Ship Canal abstraction options. Peel Water Services Ltd intend to work with United Utilities to understand this calculation and refine elements where practical	<p>Following receipt of the representation, we contacted Peel requesting the provision of further data in order that the scope of the Manchester Ship Canal options could be refined. Unfortunately, Peel were unable to commit resources to provide the data in the required timescales. Peel have requested that information on how the option scopes were derived, what assumptions were made and how the AISC values were calculated is presented. This information is provided below.</p> <p>As there is not a supply-demand deficit in the Integrated Resource Zone, no preferred options are presented. United Utilities is happy to work with Peel to refine the current scopes in the development of future water resources management plans.</p> <p><u>Further information on derivation of option scopes</u></p> <p>Options for new abstractions from the Manchester Ship Canal were included in the draft Water Resources Management Plan and consist of the provision of a new abstraction facility from the canal downstream of the outlet from Davyhulme Waste Water Treatment Works in Urmston and the transfer of this water to a new treatment works constructed in the same vicinity. Options have been assessed for potable water supply (IRZ20 / IRZ57b) and non-potable supply (IRZ57a). IRZ20 and IRZ57a were two separate options that were originally considered but which were brought together into a single option.</p> <p>The principal construction elements that are assumed to be required for these options are as follows:</p> <ul style="list-style-type: none"> <li>- New river intake and screening.</li> <li>- A 10 MI/d pumping station to transfer raw water to a new water treatment works</li> <li>- A 10 MI/d water treatment works (assumed same level of treatment required for both options)</li> <li>- A 10 MI/d treated water pumping station</li> </ul>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>- New treated 5km water trunk main (500mm diameter) from the new WTW to support the existing water distribution network in Trafford Park</p> <p><u>Further information on assumptions</u></p> <p>The following assumptions were made for these options:</p> <ul style="list-style-type: none"> <li>- All locations provided within the scope are indicative and for option scope development only.</li> <li>- A new abstraction licence will be required for this option.</li> <li>- The scheme capacity for this option is assumed to be 10 MI/d and this is assumed to be within the reliable yield of the canal.</li> <li>- The effect on the operation of the Manchester Ship canal will need to be understood in the investigation phase, over the long term considering impacts of increasing use for shipping.</li> <li>- The Manchester Ship canal water carries the run-off water from the River Irwell including large parts of the urbanised area of Manchester and could impact on water quality, especially hydrocarbons and pharmaceuticals.</li> <li>- Water quality from the abstraction has not been determined. An appropriate level of treatment has been assumed for all three sub-options.</li> <li>- The Drinking Water Inspectorate (DWI) would require a full project appraisal investigation to be carried out.</li> <li>- No modelling of the potable water supply system to existing customers has been carried out to determine how and where the 10 MI/d available water can be put into the distribution system.</li> </ul> <p><u>Further information on the calculation of AISC values</u></p> <p>The derivation of AISC data for all resource options in the draft Water Resources Management Plan has been carried out in a standard, consistent way. We have provided supplementary information on the way our capital, operating and environmental/social costs are derived in Appendix 9 of our revised draft plan. A summary of the main points are provided</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>below:</p> <ul style="list-style-type: none"> <li>- Capital and operating costs associated with each feasible option were derived, using current best available information on the likely scope of each scheme. These costs have been derived from our corporate Investment Programme Estimating System (IPES) which is used to capture the tender/estimate and project outturn cost data and unit rates for our capital programme. To ensure consistency, all of the engineering estimates have been provided to Level 1 status (see below).</li> <li>- The solution development is based on a desk top study of the available asset information. Tolerance for Level 1 is <math>\pm 30\%</math> which reflects the level of detail for site specific factors, asset condition and scope details. Operational costs for Level 1 are based on generic running times and assumed utilisation. These can be refined for specific solution asset running times for the next stage of assessment, Level 2, if the option is progressed.</li> <li>- Cost estimates have also been refined, where appropriate, with data from a commercially-available estimating software called CANDY. CANDY is part of an industry standard single-package, project control system incorporating estimating and other functions which allow United Utilities to produce resource based (plant labour and materials) estimates. Pricing libraries within CANDY have been populated using current schedules of rates submitted by our capital delivery partners. These partnership arrangements were competitively tendered against major UK contractors prior to award. The extent to which CANDY is reflected in cost estimates increases in proportion with the increasing definition of solutions. CANDY contains a library of around 10,000 rates gathered from our current partners.</li> <li>- The environmental and social costs and impacts have been assessed from a detailed study by specialist environmental consultants AMEC on behalf of United Utilities and have been incorporated in the calculation of AISC values. These have informed the strategic environmental assessment (SEA) methodology for the appraisal of the options.</li> <li>- To derive the E&amp;S costs for each feasible resource-side option, generic look-up tables and graphs were developed to provide</li> </ul>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>estimates of key environmental impact factors for each feasible solution. Derivation of key components for solutions were estimated and the key environmental and social impact factors for each feasible option were defined:</p> <ul style="list-style-type: none"> <li>•Construction Period (years)</li> <li>•Built Environmental Impact</li> <li>•HGV Movements (Number of)</li> <li>•Energy (Kwh/MI)</li> <li>•Noise Impact</li> <li>•Embodied Energy values (kg)</li> </ul> <p>- Finally, our economic model analyses the engineering cost data, and the outputs of the environmental and social cost analysis, in order to derive AISC values for each scheme.</p>
REDFA	1	The respondent notes that climatic events are becoming more extreme and frequent, as evidenced by the number of noted droughts in the past 25 years. The draft plan shows a reduction of 6% in surface water availability by 2040. The respondent says that this figure may hide the increased frequency of droughts or flooding caused by prolonged events. The respondent asks “should the modelling incorporate concurrent drought events?”	<p>We agree that climatic events are becoming more extreme and frequent. The fairly modest reduction of 6% in surface water availability by 2040 partly reflects the nature of our supply system which has a large storage capacity and a high degree of interconnectivity. This helps to smooth the strong seasonal variation which is the key feature of climate change projections for this region. It is worth noting here that whilst we view a 6% impact as the most likely outcome we also account for a worse potential impact within target headroom and scenario testing.</p> <p>Our assessment of climate change is based on the latest climate change projections and follows the industry standard approach. It involves applying climatic perturbations to our 1927-2010 historical model inflow sequences. Therefore, the assessment includes perturbed versions of multi-year events such as 1933-34 and 1995-96. At this stage we do not run the models with synthesised concurrent drought events but we anticipate that the industry could move towards this approach in the future.</p>
REDFA	2	The respondent questions whether emergency measures be planned and developed that could be deployed over a 12-18 month timescale to counter events and the uncertainties in	We undertook assessments in preparing our drought plan and have set out the timescales in which various measures can be implemented in the drought plan.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		forecasting.	
REDFA	3	The respondent notes that 90% of water is drawn from reservoirs and rivers in the North West and that evidence suggests rainfall patterns and events are becoming concentrated over shorter time periods. They suspect that run off/flooding events leave less available supplies and are concerned that existing reservoirs and rivers are unable to capture and provide the availability of supply that is required for severe drought conditions. They ask: are there other ways of increasing storage capability through creation of an additional strategic reservoir? Are underground or other alternate storage facilities feasible?	In our draft plan, we have followed the Water Resources Planning Guidelines issued by the Environment Agency to identify and appraise potential supply-demand options. This guidance includes a number of different generic option types that each water company should consider when deriving its lists of potential feasible options. As part of the option appraisal process, we have considered new river abstraction points, the construction of a new impounding reservoir, increasing the reservoir capacity at a number of strategic reservoir sites, utilisation of existing borehole sites and the construction of new boreholes. Two generic option types were not considered - infiltration galleries and artificial storage and recovery (ASR) boreholes. These types of scheme are considered to offer no significant advantage over direct river abstraction or groundwater abstraction and so were not considered.
REDFA	4	The respondent describes a scenario where the current 90% surface water abstraction changes significantly for reasons stated above (moving towards the 65% national norm) and the consequences of drawing more water from aquifers and ground water would have huge environmental consequences. Climatic changes and reversal of gulf stream effects on Cumbria's high rainfall might precipitate this. They ask if we have contingency planning developed for this scenario.	<p>Our assessment of available supplies, which incorporates the potential impacts of climate change, forecasts that we will have a supply surplus throughout the 2025-2040 planning period. One of the key reasons for this is that climate change impacts are counteracted by a forecast reduction in customer demand for water.</p> <p>Our climate change assessment starts off with all 10,000 projections of climate change provided by UKCP09 (Section 4.5 of the draft plan). It is inevitable that from this wide range of scenarios we must take a view on the most likely outcome for planning purposes. We also account for possible variability in this view within the calculation of target headroom. If the actual effects of climate change are even more severe than this then we agree that a potential consequence could be an increase in the abstraction of groundwater, especially as our studies have shown that it is less impacted by climate change than surface water.</p> <p>We have a number of licensed groundwater abstractions which are not fully utilised. In some cases, these have been included as feasible options for new supplies in the draft plan. We work with the Environment Agency and all of our licensed abstractions</p>

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			have been reviewed as part of the Habitats Directive Review of Consents process to assess the potential impact on the environment. Only two groundwater sources were assessed as having potential impacts on the environment: a borehole on the Wirral and a spring source in Cumbria. We are confident that the operation of our existing groundwater sources does not cause any environmental damage and we will continue to work with the Environment Agency to ensure this position is maintained.
REDFA	5	The respondent notes that part of the demand reduction seen since 1995 is through leakage reduction and suggests that the actual reduction in consumption by users may be very small if at all. They question whether the observed reduction may be due to consumers, particularly large farm enterprises and businesses who have provided their own off-mains supplies over this period.	Our demand forecasts look at changes in consumption from different types of user separately from leakage. Consumption reduced by over 300 MI/d from 1995 to 2013. Our water resources management plan is based on ensuring we meet the demands of our United Utilities customers. If some businesses have developed their own off-mains supplies, then we do not need to plan to have this capacity available from the public water supply system.
REDFA	6	The respondent suggests that we should extend metering to consumers through the install free scheme and says that consumers need to understand the real cost/benefit advantage to metering.	We have considered representations on demand management and metering and included more metering in the revised plan. This is discussed further in Section 3.7 of the statement of response.
REDFA	7	Demand forecasts are predicted against 3 scenarios, of which the dry year 1995/96 is the more extreme year and provides baseline and final planning forecasts. The respondent says that our planning should consider more extreme scenarios than this.	<p>We have followed Water Resources Planning guidance planned for a dry year being a period of low rainfall and unconstrained demand. We carried out further detailed work with the Met Office to give a more robust assessment of the relationship between weather and demand. This shows that 1995/96 had the combination of hot, dry sunny weather to give the highest weather-related demand in the available datasets (which started in 1961).</p> <p>In the Environment Agency response we have been asked to consider a less extreme demand scenario. We do not think that it is appropriate to do this.</p> <p>We also include more extreme demands in our assessment of headroom.</p>
REDFA	8	The respondent says that continued leakage reduction / management should remain a high priority and needs to be widely broadcast to the public to overcome resistance due to the	We are committed to reducing leakage wherever and whenever it is sustainable to do so, and we try to minimise inconvenience to the public when we carry out repairs. Our Granada weather

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		inconvenience of repair works.	sponsorship shows the process of a customer spotting a leak through to it being repaired. This is intended both to explain the process and increase the public's understanding of the work required so they are less resistant to necessary inconvenience when work is being carried out.
REDFA	9	The respondent said that providing a 1 in 20 year event service level regarding implementation of water use restrictions or drought orders is a an admirable target, but wondered if it is realistic. They asked two specific questions:  a. Is this level of service at Zone level or as total region ? b. What happens if this is broken i.e. do you deploy more resources to minimise a repeat event ?	We have decided to retain the 1 in 20 level of service for the revised plan and discuss this further in Section 11. We answer the two specific questions as follows:  a. The level of service is considered separately for each zone and the quoted company level of service is the lowest level of service from the zones. That means that some zones will experience in practice a higher level of service than 1 in 20 years.  b. If our annual review of the water resources management plan suggests that the level of service will not be achieved we will review the materiality against our current plans. If necessary we will prepare a new water resources management plan and invest in new supply-demand schemes to restore the level of service.
REDFA	10	The respondent says that from the information provided the Preferred Thirlmere Option would appear to be the best cost/environmental option available.	We agree with this view and the transfer of water from Thirlmere to West Cumbria remains our preferred plan.
REDFA	11	The respondent says that water draw off into the West Cumbria Zone should be restricted to connecting to existing supply network and not Ennerdale Water.	We agree with this. Our preferred plan is to take all of West Cumbria's water demand from Thirlmere, treat the water at a new water treatment works and pipe this into the existing supply system at various locations in West Cumbria. Once this scheme is delivered Ennerdale Water will not be used for public water supply.
REDFA	12	The respondent says that huge capital works and cost is being driven by protecting a single species which may well be declining for reasons other than water depletion. They ask if the scheme provides sufficient other benefits to outweigh its cost and associated impacts i.e. could this money be better spent elsewhere to protect valuable habitats and many other designated species under threat?	The preferred plan does give wider benefits to protecting other valuable habitats (e.g. Crummock Water, part of the River Derwent and Bassenthwaite SAC) and provides a secure and resilient water supply. It does remain the case that by law we must comply with environmental regulations to protect the freshwater mussels.
REDFA	13	The respondent says that current modelling of future supply	We do not consider that the predicted reduction in groundwater

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		<p>availability and demands provide groundwater assessments that estimate with projected climatic changes by 2030 the majority of supply areas will experience a lowering of groundwater levels by no more than one metre. They say that this may have a significant impact on river flows and ecology for certain catchments and more accurate water flow predictions should be calculated on worst case, drought scenarios.</p>	<p>levels as a result of climate change would affect our future water supply availability. The majority of our groundwater sources are located in lowland catchment systems in the south of our Integrated Resource Zone (e.g. the Lower Mersey Basin) where often there is limited surface/groundwater connectivity. In contrast, our surface water abstractions are located mainly in upland catchment areas where the main recharge mechanism is surface derived run-off with little or no groundwater base flow. In some catchments where we have conjunctive groundwater and surface water schemes, we have no direct evidence that groundwater abstractions impact on surface water flows.</p> <p>Uncertainty exists regarding groundwater-surface water interaction of the new groundwater options in the lowest cost alternative plan. Potential impacts on river flows and ecology cannot be ruled out at this stage. This is reflected in our assessments of these options and the selection of the preferred plan.</p>
REDFA	14	<p>The respondent says that compensation flows from Haweswater into the River Lowther during drought periods and minimum hands off flow to Eamont out of Ullswater as part of drought restriction measures need to be evaluated on the ground during these events to establish their effectiveness.</p>	<p>Drought monitoring is reviewed in detail in our Drought Plan 2013.</p> <p>There is no proposal in the Drought Plan to reduce the compensation flow from Haweswater to Haweswater Beck (and hence in to the River Lowther) during drought conditions. However, the Drought Plan does include a drought permit proposal for Ullswater which would allow us to continue to abstract at lower river flows as well as relaxing the annual licence limit and allow the construction of a temporary weir at the lake outlet to allow impoundment of additional water. We are currently reviewing the environmental assessment (last completed in 2005) for the Ullswater drought permit in partnership with the Environment Agency and Natural England</p>
REDFA	15	<p>The respondent says that abstraction licences need to be reviewed to contribute to Water Framework Directive river quality undertakings and asks:</p> <p>a. Which licences are not being used and can be revoked or withdrawn?</p> <p>b. If all the licences were exercised to their potential, what would</p>	<p>In conjunction with the Environment Agency, we undertook Stage 3 assessments for 193 Heavily Modified Water Bodies which we are responsible for. These assessments were completed by December 2012 and included workshops with the Environment Agency where issues were discussed. This has resulted in the inclusion of schemes to address WFD issues in our AMP6 business plan (2015-2020): in particular flow and</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		<p>be the impact on the river?</p> <p>c. Make a target reduction of licence/water availability year on year.</p>	<p>sediment issues.</p> <p>Separately, we have also recently undertaken a review of our unused abstraction licences and plan to revoke some licences in the near future. As part of their Catchment Abstraction Management Strategy (CAMS) process, the Environment Agency assesses the impact if abstraction licences were fully utilised, in addition to recent actual and naturalised scenarios. The outputs of their CAMS assessments are used within the River Basin Management Planning process.</p> <p>We also have a comprehensive water efficiency programme to educate and inform customers to help them save water. We do not propose targets for licence volumes vs. actual abstraction volumes as the latter is heavily dependent upon demand for water from our customers and during a dry year, demand can increase – such variations would mean that such a target would not be meaningful.</p>
REDFA	16	The respondent says that drought orders and measures that permit increased river off take on the middle/lower Eden at Cumwhinton is a complete anomaly i.e. drawing water from an already depleted main river with SAC migratory species needing to run the river. They say that plans should address this in future years.	Our abstraction licence allows us to abstract up to 32 MI/d from the River Eden at Cumwhinton and we can send up to 5 MI/d of this to help support the Castle Carrock area. Our Final Drought Plan 2013 does not include any drought permit/order options for the Carlisle zone, including our River Eden abstraction at Cumwhinton.
REDFA	17	Storm events can cause Combined Sewer Overflows (CSOs) to discharge solids and other unwanted personal effects into many of our river environments. The respondent says that this occurs with frequency at large population centres, notably Carlisle, and presents an ongoing health risk and loss of visual amenity to its inhabitants and fishermen. They say that expenditure must address the worst affected locations and a phased programme of improvements must be communicated to residents.	During 2015-20 we will undertake a prioritised programme of maintenance work on our CSOs across the region. We are also working with the Environment Agency to identify where CSOs are having a detrimental impact on the environment. These Unsatisfactory Intermittent Discharges will be addressed through a programme of improvement work to reduce the frequency of spills in sensitive environments.
South Lakeland District Council	1	The respondent confirms they have no specific comments to make on the draft plan. They will be interested in any further consultation and would like to be kept informed of future progress as the plan develops.	We appreciate the respondent's review of our draft plan and we will keep them informed of progress.
South Lakeland	1	The respondent asked us to include a specific individual in future	We will include this individual in future consultations.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
District Council (second response)		specific consultations.	
St Bees Parish Council	1	The respondent does not feel that the plan provides a convincing argument for why alternatives are required to the present system of water extraction from the lakes.	We discuss the reasons for changing our abstraction from Ennerdale in Section 3.2 of the statement of response and have added further detail in Section 2.6 of the revised plan.
St Helens Council	1	The respondent shared information on their local development plan.	We appreciate the respondent's review of the draft plan and thank them for sharing the information.
St Helens Council	2	The Council are aware that one feasible option to increase supply is located within St Helens. The Council would be supportive of the proposal to reinstate the Eccleston Hill borehole, should it be required to boost water supply at a point in the future and request a dialogue.	In our draft plan, there is no supply-demand deficit forecast in the Integrated Resource Zone. Therefore, none of the options we have identified in this zone form part of our preferred strategy. If in the future we consider the possibility of increasing groundwater abstractions from the Merseyside area, we may consider the use of Eccleston Hill borehole and would consult with St Helens Council at that time.
West Cumbria Rivers Trust	1	The respondent agrees that the Thirlmere transfer into West Cumbria is the most appropriate long-term solution for customers and for the environment. They have offered to provide comments on Environmental Impact Assessments as required and also as part of the public consultation period.	We have retained the Thirlmere transfer as our preferred option. We thank the Trust for their support and will work with them as the work on this option progresses, as well as short-medium term actions.
Windermere Lake Cruisers	1	The respondent says that they are adversely impacted by too frequent Drought Permit applications. They say that a problem with the consultation process is that the vast majority of consumers are many miles away from the sources of surface water. They say that as the imposition of Drought Permits/Orders has no direct impact on the environment of the majority of the consumers it is little surprise that we are able to quote research stating that consumers are unwilling to pay higher bills to enable us to manage their water resources in a more environmentally friendly manner.	We have listened to the concerns raised by our Windermere stakeholders and have conducted further research looking specifically at the value customers place on avoiding the adverse impacts of drought permits. This has revealed that customers place around seven times the value on avoiding drought permits than hosepipe bans. We discuss this research in Section 2 of the revised plan. We have used these higher values in our assessment of changes to levels of service in Section 11.1 of our revised plan.
Windermere Lake Cruisers	2	The respondent asks that, given the quantum of expenditure, would it warrant carrying out additional research on the freshwater mussel population to ensure that the stress identified does relate to low flows and is not attributable to any other	Extensive research was carried out by internationally renowned freshwater mussel specialists after the 2012 dry weather event. Their results confirmed that the conditions in the River Ehen had led to low velocities, poor habitat quality, mussel stress and some mortality. The stress response in the mussels was

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		cause.	indicative of response to low velocities. This is evidence for low flows, in combination with other factors such as nutrient and sediment issues, being the cause of juvenile mussel losses. The methods, results and conclusions of the surveys were peer-reviewed and supported by an independent expert.
Windermere Lake Cruisers	3	The respondent's preference would be to see a connection built to Kielder Water. While they recognise this is the more expensive solution, they consider it represents genuine long-term thinking in so far as it would be a key element in a national water grid. The water resource plan refers to the government asking United Utilities to look into the possibility of buying and selling water between water company regions. The respondent suggests a national water network will be required to move water from the wetter north to the drier south. They therefore suggest that as the Kielder option would represent a piece of national water supply infrastructure the additional cost (£508m less £256m) should be met by central government.	We have considered the range of responses in relation to the selection of the preferred plan for West Cumbria. We discuss this in Section 3.3 of the Statement of Response and Section 10 of the revised plan.  Water trading and affordability are discussed in the water white paper (Water for Life, Defra, December 2011).
Windermere Lake Cruisers	4	The respondent contends that for economic reasons we use Windermere as a resource of last resort and do not take water when there is plenty available. If the proposal to connect Thirlmere to West Cumbria goes ahead they propose changes to our Windermere abstraction licence. The "Hands Off Flow" in the River Leven should be made 273 Ml/d i.e. the same as in the Summer and United Utilities should be required to pump from Windermere in order to conserve water in Haweswater at 95% by the end of March each year. Furthermore, whenever flows in the River Leven are above the "Hands Off Flow" and United Utilities are therefore able to pump from Windermere they should be obligated to do so in order whenever the level in Haweswater is below 95%. Without additional protection for Windermere, they consider that the preferred plan will be detrimental to the ecology and economy of Windermere.	We use an operational control rule to help decide at what point we should consider pumping from Ullswater or Windermere. Pumping from Windermere and Ullswater at times when Haweswater is likely to refill naturally would have a significant impact on operational costs (plus associated carbon implications) but provide very little benefit to supplies. In the worst case it would mean pumping water from Ullswater and Windermere that will later result in water spilling from Haweswater and therefore being lost from the supply system altogether.  At Windermere, environmental control exists in the form of the River Leven hands off flow conditions which limit the amount of pumping we can undertake, especially during summer months. The Environment Agency recently reviewed the hands off flow requirements at Windermere and determined the existing hands off flow conditions to be appropriate.  More detail about the operation of abstraction from Windermere is given in Section 3.4 of the Statement of Response.
Windermere	1	The respondent is not convinced that the plan has sufficient	A feature of the 2015-2040 planning period is that demand is

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Lake User Forum		resilience to meet all customer demands. They say that the water demands of users in the West Coast and Carlisle will be met, but those of the Integrated zone will have too much reliance on the use of Windermere. They say that there is insufficient evidence that the plan protects the catchment area of Windermere from environmental and economic impacts and that there is no evidence of safeguards to protect these potential adverse impacts.	falling in the Integrated Resource Zone, by much more than the total West Cumbria demand.  With regard to environmental impacts on Windermere, we will still operate within our licences which have been shown by the Environment Agency's Review of Consents process not to be damaging the environment. More detail about the environmental controls at Windermere is given in Section 3.4 of the Statement of Response.
Windermere Lake User Forum	2	The respondent discusses the current 1 in 20 year level of service for statutory water use restrictions. They consider the principle and the intention to be acceptable. However they say that the evidence base does not support the assumptions that this is based on as a predictable reality. They also say that the plan doesn't have any contingencies to mitigate environmental and economic impacts of such restrictions that are pertinent to Windermere.	We have considered the range of views on levels of service and decided to retain the 1 in 20 year level of service for statutory water use restrictions.  We have carried out further water resources modelling and this has confirmed that the level of service is met throughout the full hydrological dataset.  Mitigation of the impact of drought options in discussed in the Drought Plan, available on our website.
Windermere Lake User Forum	3	The respondent discusses the current 1 in 20 year level of service for implementation of drought permits. They consider 1 in 20 years to be appropriate, but are not convinced that the data shown in the plan will result in this outcome for Windermere. They also say that there isn't any evidence that the statement that United Utilities will take all reasonable measures to avoid the need for drought permits is applicable to the current management arrangements for Windermere. They think that more could be done to avoid the need for drought permits within reasonable financial means, which has been proposed and ignored on many occasions.	We have considered the range of views on levels of service and carried out further customer research. We have decided to retain the 1 in 20 year level of service for drought permits for this plan and consult on proposals to improve the level of service in 2018.  We have carried out further water resources modelling and this has confirmed that the 1 in 20 level of service is met throughout the full hydrological dataset.  We discuss issues relevant to Windermere in Section 3.4 of the Statement of Response.
Windermere Lake User Forum	4	The respondent believes that the only long-term solution would be a plan to enable water from Kielder to be used through the use of sustainable energy sources and a national framework of sustainable water resource planning. They say that the use of Thirlmere is not a long-term solution, neither is it sustainable, innovative or forward thinking.	We have considered carefully the range of responses in relation to the selection of the preferred plan for West Cumbria. We discuss this in Section 3.3 of the Statement of Response and Section 10 of the revised plan.
Windermere Lake User	5	The respondent says that comments submitted on the drought plan consultation would suffice to inform the Strategic	Comments made in the drought plan consultation were used to inform the final drought plan and we also used these views to

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Forum		Environmental Assessment Environmental Report.	develop the draft water resources management plan as shown in Appendix 7 of the draft plan.
Windermere Lake User Forum	6	Windermere Lake User Forum is not listed as an official consultee in the list of consultees in the document; however the respondent thinks this may be an error as they have been invited to discussions and presentations and their previous responses to the drought consultation were included in the draft plan.	Official (statutory) consultees are set out in the Water Resources Management Plan Regulations 2007. Table 2 in the draft plan lists these statutory consultees. We did consider responses from Windermere Lake User Forum in our pre-consultation phase as listed in Appendix 7 of the draft plan. We invited them to take part in consultation events, which they did.
Windermere Lake User Forum	7	The respondent considers that there is a weakness in the consultation process as people in one area will not reflect the concerns of other areas. They say that most respondents are representative bodies of relatively small geographical areas and will have vested interests in small parts of the integrated zone and limited knowledge of other parts of the United Utilities licensed area. They say that a fully integrated response is unlikely to reflect the strength of concern from Windermere, despite the fact that Windermere affects so many people and has the potential to affect the environment and the economy so dramatically.	We follow the consultation process set out in legislation and Environment Agency Guidance, and also take steps to engage stakeholders as widely as possible. We have taken the full range of views into account when developing our revised plan.
Windermere Lake User Forum	8	The respondent asks if the number of consultees approached in the customer survey show an equal percentage of distribution across the United Utilities area and ask what criteria were used to ensure representation took into account the economic dependence on water resources in some areas more than others.	The survey was carried out by external consultants and was designed to ensure samples were representative of household and business customer bases. It covered the whole United Utilities geographical region and included consideration of water consumption. The process was validated by the Customer Challenge Group.
Windermere Lake User Forum	9	Without a consistent approach, keeping water prices low to meet the majority of customer's desire for no increases in costs actually puts some rural areas at economic risk to support areas of deprivation in urban areas. Cumbria has some of the most deprived areas in the country	The survey was carried out by external consultants to ensure as far as possible that results are valid, unbiased and representative. Water consumption and socio-economic levels were taken into account.  No de-averaging of costs is proposed, and therefore deprived areas of Cumbria benefit because the costs of providing secure supplies to West Cumbria will be shared across the whole North West.
Windermere Lake User	10	The forum is not convinced that the assumptions made in the projections for both water reduction and supply of water are	The plan and supporting technical documents were reviewed in detail by our regulators and no concerns were raised in these

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Forum		accurately forecast.	areas.
Windermere Lake User Forum	11	The respondent says that the role of Windermere, impact assessment and risk assessment are not evident in the document.	The main purpose of the plan is to demonstrate how we will continue to supply water in our region in response to changes in demand and supply availability. Specific sites are only mentioned if they affect our ability to do this, for example due to changed abstraction constraints. We have well over 200 different sources in our Integrated Zone and it would not be feasible to describe them all in the plan.
Windermere Lake User Forum	12	The respondent discusses our statutory duty to protect the water environment. They say that overall this appears to be evidenced by the figures shown, but as there is a lack of detail on the future use of alternative sources of power to providing sustainable pumping and risks of impact on Windermere and River Leven, they are unable to see clearly how this will be achieved.	One of our key design principles for our West Cumbria solution will be to minimise energy requirements. During the design of the selected option, we will review green energy sources including hydro, wind and solar power as options to serve the development. The location of the treatment works, storage reservoirs and the use of the existing head of pressure from the abstraction point will all be key aspects. The pipeline will be routed to avoid the need for pumping where possible. These elements will form part of the EIA to support the planning application.
Windermere Lake User Forum	13	The respondent notes that the use of Thirlmere for the supply of West Cumbria was not included in the scoping and drought consultation options.	The use of Thirlmere is part of our long-term considerations for ensuring adequate, resilient supplies to West Cumbria. The Drought Plan, in contrast, is a short-term planning document and the transfer of water from Thirlmere could not be made within the duration of droughts affecting West Cumbria.
Windermere Lake User Forum	14	The respondent says that if Windermere was to suffer a period of drought the visual amenity that is essential to the tourist economy would be severely impacted. They say local impact on reed beds, fish life and bird life is not clear. They note that was covered in the drought plan, but at that time the risk of using Thirlmere for the whole of the West Cumbria Supply was not included in the examples.	This is a Drought Plan issue. A new Drought Plan will be prepared taking account of the new supply system configuration, whichever West Cumbria option is implemented. However, assessments presented in Section 3.4 show that levels of service are maintained and there is no additional impact at Windermere in dry summers.
Windermere Lake User Forum	15	The respondent says that it is not mentioned in the draft plan that when Haweswater is low, water is pumped from Windermere to the direct pipeline to conserve water in Haweswater and Thirlmere.	We use a variety of sources and transfers to maintain supplies around the zone. However, this level of operational detail is not appropriate in the publicly available water resources management plan.
Windermere Lake User	16	The respondent believes that the reference in the draft plan to Thirlmere having spare capacity is unproven. They say that data	There is currently a surplus in the Integrated Resource Zone and this is expected to remain, because demand reductions are

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
Forum		on Thirlmere capacity may indicate spare capacity when the overall water requirement is taken into account and at some times during the year. But they ask if Thirlmere has so much spare capacity without serving West Cumbria, why then do United Utilities need to pump water from Windermere at times of low water in Haweswater and Thirlmere. They say the lack of clarity on this creates some doubt about the accuracy of predictions used to establish future potential need and the capacity that is "spare" to meet this need.	<p>forecast to outweigh the reductions in water we have available. This is based on continuing to operate Windermere and other pumped transfer schemes according to existing operational rules.</p> <p>We have reviewed our demand forecasts and water resources models in light of representations and we are confident in the capacity of the Integrated zone to meet the demand in West Cumbria (see Section 3.4 of the Statement of Response).</p> <p>We have included a graph in section 10 of the revised plan demonstrating the supply-demand balance in the combined Integrated and West Cumbria zone</p>
Windermere Lake User Forum	17	The respondent does not believe that the dependence on Windermere to act as a backup supply to any shortfall in Thirlmere and Haweswater has been made clear in the draft plan.	We use a variety of sources and transfers to maintain supplies around the zone. However, this level of operational detail is not appropriate in the publicly available water resources management plan.
Windermere Lake User Forum	18	The respondent says that the assumptions made in the Water Resource Plan and the Drought Plan are dependent on reductions in demand that have not yet been achieved or proven. They say they are also dependent on forecasts that are based on previous weather activity over the last 25 years, which are modified to reflect the impact of improvements made. They say that the actual performance over the last 5 years does not mirror the forecasted trends and would not support the assumptions made. They say that all of this was pointed out in the response to the drought plan consultation, but has not been recognised in the draft water resources management plan.	The draft plan, forecasts and supporting documents were reviewed in detail by our regulators and no concerns were raised in these areas. Specifically in relation to demand forecasts, demand has reduced in 18 of the last 20 years and it is reasonable to expect this to continue. Actual performance in recent years is consistent with the forecast.
Windermere Lake User Forum	19	It is the view of the forum that if West Cumbria was solely reliant on Thirlmere for its supply, the position in Windermere would be even more significantly affected than the position shown in the draft plan and could easily result in levels of water below those needed for the navigation of many vessels on the lake. They say that in turn this would have an impact on the local economy. In considering the options available to replace the West Cumbria requirements they do not think the risk assessment for impact on Windermere has been identified and made clear in the draft plan. They say the opportunity and ability to conserve water when it is	<p>We have carried out further water resources modelling to test the impact of the Thirlmere transfer on Windermere. We discuss this in Section 3.4 of the Statement of Response. It confirms the conclusions in the draft plan.</p> <p>The effects on the local economy are considered in the Strategic Environmental Assessment (SEA) report published alongside our draft Water Resources Management Plan which was prepared by independent external consultants. Table S3 of the SEA shows that the Thirlmere transfer is expected to have a combination of positive and negative effects on Economic and</p>

Respondent	Issue	Point of detail made in the representation			United Utilities' Response
		available to avoid these high risk times is still being underutilised.			Social Wellbeing (which specifically considers its contribution to sustaining and growing the local and regional economy) during construction and significant positive effects during operation.
Windermere Lake User Forum	20	<p>With reference to Willingness to Pay (section 2.1.1 of the draft plan), the respondent believes that it is difficult for users of Windermere to understand the rationale and conclusion that is being made in relation to the customer input in this section.</p> <p>The respondent says there is no information provided about the geographical selection of consultees. They note that the area is home to between 6.6 million and 6.9 million people which is anticipated to rise to 7.6 or 7.9 million. Some of this growth is predicated to be in West Cumbria including growth in industry.</p> <p>They say that the draft plan suggests that if people live in West Cumbria they may be particularly interested in responding to the consultation. But they say that it is the people in the rest of Cumbria and particularly in Windermere and South Cumbria who will actually feel any environmental or economic impact from the proposal to use Thirlmere to meet the needs of West Cumbria.</p> <p>They say that, regarding the question of which three alternatives for West Cumbria is most appropriate, responses from Windermere area may be the most informed and interested respondents who will make comment on this question.</p>			<p>The Willingness-to-Pay survey was carried out by external consultants and was designed to ensure samples were representative of household and business customer bases. It covered the whole United Utilities geographical region and included consideration of water consumption.</p> <p>In relation to the consultation process, we follow the requirements set out in legislation and Environment Agency Guidance, and also take steps to engage stakeholders as widely as possible. We held five consultation events across the North West, only one of which was in West Cumbria. One event was held in Kendal and was attended by a number of people with interests in Windermere.</p>
		<b>Input to the Drought plan from Windermere Lake User Forum</b>	<b>Drought Plan Response from United Utilities</b>	<b>Windermere Lake User Forum concern</b>	
Windermere Lake User Forum	21	Include information of how proposal to use Thirlmere to supply West Cumbria will affect water levels in Windermere and Hawswater.	As part of developing our Water Resources Management Plan we will be undertaking hydrological modelling which will consider the impact of a link between Thirlmere and West Cumbria on the Integrated Resource	WLUF do not see where the data referred to in this response is contained within the consultation document showing how the proposal to use Thirlmere will affect Windermere.	We address these issues in Section 3.4 of the Statement of Response.

Respondent	Issue	Point of detail made in the representation			United Utilities' Response
			Zone (including the impact on pumping from Windermere and Haweswater reservoir level).		
Windermere Lake User Forum	22	Consultation and recommendations contained in water resources management PR14 need to be taken into account with this drought consultation.	United Utilities is currently working on a review of its Water Resources Management Plan and will consult On this in 2013. The drought plan is consistent with our current Water Resources Management Plan 2009.	The reference to the drought plan being consistent with the Water Resources Management plan of 2009 appears immaterial if United Utilities knew they were intending to change the entire Management Plan and include Thirlmere as the resource for West Cumbria. This response appears to be irrelevant and potentially misleading.	The Drought Plan will be reviewed again and subject to public consultation before the preferred solution in this water resources management plan will be completed in 2024/25.
Windermere Lake User Forum	23	Today's society are benefiting from the investment made by the Victorians, solid build with minimum running costs. What work is underway to emulate this and protect future generations?	The issue of long-term water resource options to address a forecast supply-demand deficit is dealt with within the Water Resources Management Plan. In 2011/12 United Utilities constructed a West to East pipeline to allow more water to be transferred from the west (e.g. North Wales) to Manchester and hence reduce the need to abstract water from the Lake District. This major pipeline provides	WLUF do not consider Thirlmere to be a long term sustainable solution given all of the concerns we have raised. Therefore we do not agree that UU have proposed a long term solution as their preferred option to address the forecast supply deficit in West Cumbria. However we believe this is because of the Regional framework that the Environment Agency has created and that UU operate in. Only a National Framework	Selection of the preferred option for West Cumbria is discussed in Section 3.3 of the Statement of Response.

Respondent	Issue	Point of detail made in the representation		United Utilities' Response	
			increased drought resilience in United Utilities Integrated Resource Zone. As part of the Water Resources Management Plan, we will be looking at long-term solutions to address the forecast supply deficit in West Cumbria.	would enable UU to seek national financial support to create the long term Kielder solution as part of a national network of water pipeline.	
Windermere Lake User Forum	24	The medium and long term shortfall in water resources identified in the Water Resources Management Plan 2009 show a forecast deficit in supply - this is not specifically referred to in this drought plan.	The drought plan is a short-term plan to deal with a drought event within the next 3½years (currently drought plans have to be reviewed every 3½ years). The triggers within the drought plan are based on up to date flow and demand data, and as such reflect any changes in these which have occurred. In contrast, the Water Resources Management plan is a long-term plan covering a 25 year period and it is through this process that deficits in the supply-demand balance are identified and addressed.	By keeping the drought plan and the Water Resources Management Plan separate, the impact of Thirlmere being used for West Cumbria is not taken into account in this response.	The Drought Plan will be reviewed again and subject to public consultation before the preferred solution in this water resources management plan will be completed.
Windermere Lake User Forum	26	The respondent says that as the Environment Agency commission and contract with the water companies the agency are presumably accountable for the delivery of sustainable solutions. They suggest that some consideration is given to a		It is not appropriate to comment on national funding of sustainable power in our Water Resources Management Plan.	

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		national approach to this requirement with national funding and promotion of sustainable power resources.	
Windermere Lake User Forum	27	<p>The respondent says that the impact of the preferred option (Thirlmere) will be felt most by those who rely on Windermere as part of the existing Thirlmere supply chain. Therefore they suggest that a more resilient water bank agreement is established for Windermere and the River Leven with a higher Hands Off Flow level to protect Windermere, its environment and its economy.</p> <p>They propose that</p> <ol style="list-style-type: none"> <li>1. The "Hands Off Flow" in the River Leven should be made 273 Ml/day all year round i.e. the same as in the Summer under the current agreement.</li> <li>2. United Utilities should be required to pump from Windermere in order to conserve water in Haweswater at 95% by the end of March each year.</li> <li>3. Furthermore, whenever flows in the River Leven are above the "Hands Off Flow" and Hawes is below 95%, that United Utilities should be obligated to pump from Windermere in order to maintain the level in Haweswater at or above 95%.</li> </ol> <p>They believe that without this additional protection for Windermere there is sufficient evidence to show that the preferred plan leaves Windermere carrying all of the risk and being potentially detrimental to the ecology and economy of Windermere.</p>	<p>We use an operational control rule to help decide at what point we should consider pumping from Ullswater or Windermere. Pumping from Windermere and Ullswater at times when Haweswater is likely to refill naturally would have a significant impact on operational costs (plus associated carbon implications) but provide very little benefit to supplies. In the worst case it would mean pumping water from Ullswater and Windermere that will later result in water spilling from Haweswater and therefore being lost from the supply system altogether.</p> <p>More detail about the operation of abstractions from Windermere is given in Section 3.4 of the Statement of Response.</p>
Wrexham Council	1	The respondent makes no specific comment on the draft plan, but shares information on their local development plan.	We appreciate the respondent's review of the draft plan and thank them for sharing information on their local development plan.
Individual 1	1	The respondent makes a number of statements about shale gas fracking and asks us not to allow fracking companies to use our land, particularly in areas of outstanding natural beauty. They also mention risks of contamination of drinking water.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 2	1	The respondent makes a number of statements about shale gas fracking and asks us not to allow fracking companies to use our	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		land, particularly in areas of outstanding natural beauty. They ask us to not supply water to companies involved in fracking and also mention risks of pollution to groundwater and surface water.	of response.
Individual 3	1	The respondent questions the need to reduce the water abstraction from Ennerdale and say that it is not explained properly or justified at all. They suggest that Ennerdale is currently able to support rare species and that any driver for a change in abstraction derives from the West Coast Energy Plans.	The need to reduce abstractions is required by the Environment Agency following their review of sustainable sources under EU's Habitats Directive and in no way from any West Coast Energy Plans. We discuss the reasons for revoking the Ennerdale abstraction licence in Section 3.2 of the Statement of Response.
Individual 4	1	The respondent asks us not to allow fracking companies to use our land.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 5	1	The respondent makes a number of statements about shale gas fracking and asks us not to have anything to do with fracking companies.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 6	1	The respondent asks us not to allow fracking companies to use our land, which in many cases is in Areas of Outstanding Natural Beauty. They ask us not to supply water to companies involved in fracking and also mention risks of pollution to groundwater and surface water.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 7	1	The respondent makes a number of statements about fracking and asks us not to allow fracking companies to use our land. They ask us not to supply water to companies involved in fracking and also mention risks of pollution to groundwater and surface water.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 8	1	The respondent makes a number of statements about fracking and asks for help to stop this fracking.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 9	1	The respondent says that it is essential that every single user of water is metered. They say, if it is then necessary to adjust the tariff levels for socio-economic reasons so be it provided that usage through leakage is punished with a big bill!	We actively promote metering but have no legal power to make it compulsory. We have listened to representations and included more metering in the revised plan as discussed in Section 3.7 of the Statement of Response.
Individual 9	2	The respondent says there are still tributaries in the Eden catchment which suffer from over-abstraction – the Eden is an SAC and it is difficult to see how it can meet Water Framework	An abstraction licence change for the River Gelt was included in the draft plan.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		Directive Good Ecological status by 2027 with the heavy abstraction from these systems (particularly Lowther and Gelt).	
Individual 9	3	The respondent says that it seems strange to include as an option the raising of the Haweswater dam when the abstraction from Ullswater and the Eastern Lake District is already comprehensive and destructive to some of the smaller spawning becks.	Our willingness-to-pay research indicates that our customers prefer water from reservoirs. The Water Resources Planning Guidelines issued by the Environment Agency also requires that water companies consider the construction of new reservoirs as part of their options appraisal process. However, we do understand and acknowledge the concerns raised by the stakeholder and confirm that we have no plans to raise the structure of an existing reservoir.
Individual 9	4	The respondent says that further abstraction to feed into other regions should be resisted at all costs	Respondents have raised a range of views on water trading and these are discussed in Section 3.9 of the statement of response.
Individual 10	1	The respondent makes a number of statements about fracking and asks us not to allow fracking companies to use our land, They also ask us not to supply water to companies involved in fracking.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 11	1	The respondent says that it mentions in the report that more water will be needed in the South of the country and that water should be traded, yet their proposal is to take more water out of Thirlmere which already has a pipe to Manchester: where could this water be traded to after Manchester?	All United Utilities' trading options being considered are in the Environmental Assessment of Feasible Export Options and Integrated Water Resource Zone Options report on UU's website <a href="http://www.unitedutilities.com">www.unitedutilities.com</a> . We discuss water trading further in Section 3.10.of the Statement of Response.
Individual 11	2	The respondent says that having considered the report the logical situation would be to install a new pipeline from Kielder to West Cumbria which could link into Thirlmere. The respondent acknowledges that it will be costly to run and implement. They say that somehow, the pipeline should be routed via Cargo Carlisle, so that a spur pipe can be used to supply Scottish Water as set out in the draft report options. The respondent thinks the option needs changing so that a new pipeline is constructed between Kielder and West Cumbria, with a small scale reservoir around the Cargo, Carlisle area for use by Scottish Water and the pipeline also having the ability to feed Thirlmere so that Manchester and beyond can be traded water in the future.	In our draft plan, we considered the possibility of transferring water from Kielder to support our Carlisle Resource Zone (option CARL08). We also considered the possibility of providing an export to Scottish Water (option CARL02b). As we do not have a deficit forecast in the Carlisle Resource Zone and Scottish Water have confirmed that they do not require an import of water from United Utilities, neither of these two options will be progressed.
Individual 11	3	The respondent says that the Thirlmere to West Cumbria route seems to be the cheapest and that is why it has been chosen.	We discuss the selection of options for West Cumbria in Section

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		They say that in the next 10 years costs are going to double and at some point we will need to bring water from Kielder Water so why not do it now?	3.3 of the Statement of Response.  Any cost increases would affect both the Thirlmere and Kielder transfers. Indeed, because the Kielder option involves more pumping it would be more sensitive to increases in energy prices.
Individual 11	4	The respondent says that the Thirlmere to West Cumbria transfer will ruin much of the lovely Lake District, which is renowned for its tourism. They say there is also the issue of possible pollution. They understand that there may be an issue with running the pipe through the Pennines but say that this is a less of a tourism area.	The impact on tourism is considered in the Strategic Environmental Assessment (SEA) of our draft plan.  All the feasible and preferred options in the draft plan are assessed in the SEA against 12 objectives including “to maintain and enhance the economic and social well-being of the local community”. This specifically considers, among other things, whether the option will contribute to sustaining and growing the local and regional economy. In West Cumbria this includes tourism. Table S3 of the SEA shows that construction of the Thirlmere transfer would have a combination of positive and negative effects on the local economic and social well-being, and operation of the option would have a significantly positive effect.
Individual 12	1	The respondent says that this 25 year plan will only achieve a small part of an overall grid scheme and mainly for environmental considerations. They ask, “where is the national will to resolve the water supply issue?”	Appendix 8 of our draft plan documents the possible options for water trading that we have discussed with other water companies. Large volume inter-company transfers from the north to the south of England may be viable in the future but there is no immediate requirement for this magnitude of trading for the current plans. In the development of our options for West Cumbria, our Alternative Option to transfer water from Kielder Water into west Cumbria was considered viable but at considerable cost compared to the Lowest Cost and Preferred option with no immediate national requirement for water trading or development of a water grid. We will continue to work closely with other water companies, regulators and stakeholders for subsequent water resources management plans.  We discuss water trading in Section 3.10 of the Statement of Response.
Individual 12	2	The respondent raises the issue of flooding from Thirlmere reservoir and says the opportunity should now arise whereby an adequate, safely engineered scheme should be installed to	This is discussed in Section 3.6 of the statement of response.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		release realistic flows.	
Individual 12	3	The respondent says that if the Thirlmere scheme could be coupled with the generation of hydroelectricity, another worthwhile outcome would be achieved.	One of our key design principles for our West Cumbria will be to minimise energy requirements. During the design of the selected option, we will review green energy sources including hydro, wind and solar power as options to serve the development. The location of the treatment works, storage reservoirs and the use of the existing head of pressure from the abstraction point will all be key aspects. The pipeline will be routed to avoid the need for pumping where possible. These elements will form part of the EIA to support the planning application.
Individual 13	1	The respondent asks us not to allow fracking companies to use our land, which in many cases is in Areas of Outstanding Natural Beauty. They ask us not to supply water to companies involved in fracking.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 14	1	<p>The respondent does not agree with stopping our water coming from Ennerdale Water because:</p> <ol style="list-style-type: none"> <li>1) We have some of the highest rainfall in the country</li> <li>2) Wildlife can ,and has, thrived in conjunction with our water use</li> <li>3) We should be using our natural local resources</li> <li>4) If it's an EU directive, that will change when the people get the referendum</li> <li>5) Unnecessary expense</li> <li>6) More risk of flooding</li> </ol> <p>They say the list is really endless, as is the list of why it is bad to use the other options. They ask us to listen to local opinion.</p>	<p>Extensive research was carried out by internationally renowned freshwater mussel specialists after the 2012 dry weather event. Their results confirmed that the conditions in the River Ehen had led to low velocities, poor habitat quality, mussel stress and some mortality. The stress response in the mussels was indicative of response to low velocities. This is evidence for low flows, in combination with other factors such as nutrient and sediment issues, being the cause of juvenile mussel losses. The methods, results and conclusions of the surveys were peer-reviewed and supported by an independent expert.</p> <p>The reductions in abstractions are, as the respondent notes, required under the EU's Habitats Directive, and also the UK's Habitats Regulations. We cannot second guess the outcome of future changes to UK law. We therefore need to address the implications as cost-effectively as we can while taking account of environmental issues and local concerns. Environmental issues are discussed regularly with the Environment Agency and many of our abstractions are restricted to ensure sufficient water is available for the environment. Thus, although the region has some of the highest rainfall in the country, it is not all available for public supply; it benefits the local landscape and ecology, which is adapted to the local weather patterns. We also have regular discussions with local groups and are in the process of</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			setting up a partnership arrangement with Friends of the Lake District to improve liaison between local groups and United Utilities.
Individual 15	1	The respondent asks us not to allow fracking companies to use our land. They ask us not to supply water to companies involved in fracking.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 16	1	The respondent asks us not to allow fracking companies to use our land.	We received a number of representations on hydraulic fracturing for shale gas and discuss them in Section 3.6 of the statement of response.
Individual 17	1	The respondent asks if groundwater been considered as a source of water for West Cumbria? They ask, "if not, why not?"	Four groundwater options were considered for West Cumbria. This is shown in Table C: West Cumbria Resource Zone Feasible options in the draft plan. Groundwater was part of the scope of the lowest cost alternative in the draft plan. There are uncertainties about groundwater-surface water interaction and potential impacts on river flows associated with these options. These uncertainties have been reflected in our appraisal of the options and the selection of the preferred plan.
Individual 17	2	The respondent says that water from North West England and North Wales should not be traded with other water companies further south, nor any interconnecting pipelines built.	We received a number of responses about water trading and discuss them in Section 3.9 of the Statement of Response.
Individual 18	1	<p>The respondent asks why, in these days of economising, can some mussels take precedence over the needs of 1000's of people? They ask if other lakes in the area have been checked out to see if they have a stock of these 'very important mussels' or have a suitable environment in which they could be moved to, presumably considerably cheaper than building/burying miles of pipeline from a reservoir already used by millions. They say "how many types of flora &amp; fauna will you upset on the way!"</p> <p>The respondent says, if the rain is falling, which it does a lot round here, it should be caught in a local reservoir &amp; re-used.</p>	<p>The reductions in abstractions are required under the EU's Habitats Directive (as discussed in Section 3.2 of the Statement of Response) and we need to address the implications as cost-effectively as we can while taking account of environmental issues and local concerns.</p> <p>The mussels are highly protected under EU legislation (they are listed as 'endangered' on the IUCN Red List) and the Ennerdale population is the largest in England; no other comparable populations are known in the Lake District. It is not possible to relocate the Ennerdale population to any other site because the River Ehen represents the best freshwater mussel habitat in England.</p> <p>Any of the new options will have to undergo detailed environment assessment before work begins on site.</p> <p>With regard to reservoirs, several reservoir options were</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
			<p>considered in our plans; the planning guidance we follow specifically suggests companies consider options to build new reservoirs and to increase storage in existing reservoirs (see Table 26 in the draft plan). Many of our options were discounted by initial screening because they:</p> <ul style="list-style-type: none"> <li>- did not address the problem</li> <li>- breached unalterable planning constraints;</li> <li>- were not promotable (for example, did not meet stakeholder expectations), or</li> <li>- had a high risk of failure.</li> </ul> <p>The remaining options were reviewed in more detail. Most were discounted for reasons such as limited benefits, and reservoir safety concerns. This left the three reservoir-related options shown in the draft plan, in Appendix 10 Table B, for full assessment. These were options IRZ02, IRZ08 and IRZ65 and when they were ranked against other supply options they were found to be relatively unattractive at costs of 444.6 p/m<sup>3</sup>, 46.3 p/m<sup>3</sup> and 91.6 p/m<sup>3</sup> respectively (Figure 24 in the draft plan).</p>
Individual 19	1	<p>The respondent can't see any argument demonstrating that the problem is real and that a solution is needed.</p> <p>They are perplexed by the logic of the driver for reducing extraction from Ennerdale. They say, "if our environment is currently able to support these rare species while we're extracting water why change anything particularly given United Utilities' predictions of a 14% fall in demand even with the expected economic growth in the region."</p>	<p>We discuss the reasons for changing our abstraction from Ennerdale in Section 3.2 of the statement of response and we have added further detail in Section 2.6 of the revised plan.</p>
Individual 19	2	<p>The respondent says that we cite increase in tourism as a driver for reducing extraction from Ennerdale. They note that as tourism equates to only about 11% of the population of West Cumbria any increase would have to be of enormous proportions to reverse that downward trend.</p>	<p>We did not cite increase in tourism as a driver for the changes at Ennerdale. The driver for reducing abstractions from Ennerdale is the revocation of our licence there, which is required by the Environment Agency following their review of sustainable sources under EU's Habitats Directive. This is discussed further in Section 3.2 of the statement of response.</p>
Individual 19	3	<p>The respondent asks for confirmation that our forecasts take into account the expected cessation of reprocessing at Sellafield over the timescales considered and the consequential impact on</p>	<p>Water for reprocessing at Sellafield is not supplied by United Utilities and is therefore not included in our forecasts.</p>

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		water usage.	
Individual 19	4	The respondent says that it would seem that any need for change is not driven by existing or forecast industrial or domestic usage but solely due to increases anticipated from aspects of the West Coast Energy Plans. They say that if that is the case then the argument will need to be made to demonstrate the environmental benefit of whatever schemes are envisaged that require so much additional water. They add that those schemes should fund any changes.	The change is due to the revocation of our abstraction licence at Ennerdale due to legal requirements to protect habitats.
Individual 19	5	The respondent says that Thirlmere at times has a coastal scar due to the low water level that is a real blot on the landscape due to the existing high levels of extraction. They say that they would have expected environmental concerns to be directed to at least preventing any further despoiling of an otherwise beautiful tourist attraction.	The primary function of a reservoir is to capture high winter flows (termed the refill period) so that supply can be maintained through drier summer months (the drawdown period). It is therefore inevitable that levels at Thirlmere will rise and fall.  We recognise that Thirlmere reservoir is a beautiful tourist attraction. Whilst it is true that the preferred option will affect drawdown at Thirlmere, the impact will be mitigated by increasing the use of other sources in our Integrated resource zone.
Individual 19	6	The respondent suggests that, at a time when the UK is in such a precarious financial position, the case would have to be overwhelming to justify any expenditure and there is no such justification but only simple assertions in the draft paper.	The reductions in abstractions are required by the Environment Agency in response to the EU's Habitats Directive. As we have a duty to supply water to our customers we have had to explore alternative options for when current abstractions are reduced. We have narrowed these options down to the three presented in our draft plan. Our appraisal for the revised plan takes account of cost, local concerns, environmental issues and resilience. We want to ensure that the new supply will be sufficient for forecast changes in factors such as population, industry and climate change.
Individual 20	1	The respondent says that the draft plan makes no mention of the contribution that United Utilities can make towards flood prevention and this is a matter of particular concern to the residents of Keswick and the surrounding area. They say that there should be a responsibility to use water company assets, where it is practical, for reducing the risk of flooding.  They say, whichever option we eventually select for the provision of water to West Cumbria, can we please ensure that systems	We remain committed to the existing Thirlmere flood management trigger levels.  We have selected the Thirlmere option as our preferred plan and will consider solutions to increase flood mitigation releases as part of the detailed design of this scheme.  We discuss these issues further in Section 3.6 of the Statement of Response.

Respondent	Issue	Point of detail made in the representation	United Utilities' Response
		are put in place that will enable material quantities of water to be released from Thirlmere into St John's Beck to make the targeted water levels achievable?.	