

# Appendix 1

## Draft Plan - comments and responses

Comment	Welsh Water response
<p><b>Albion Water</b></p>	
<p>The first of these is North Eryri/ Ynys Mon and I draw your attention to the comments of Dŵr Cymru Managing Director at the last Consumer Council for Water meeting in Llandudno. In response to an observation of a member, questioning the predicted resource deficit in this zone, Mr Annett admitted that there appeared to be error and that he would ask for the projections to be checked.</p>	<p>You have referenced a meeting held in Llandudno in April 2009. North Eryri/ Ynys Mon in the Draft Plan was forecast to return to deficit in 2017/ 18. This was a correct projection – this deficit is driven wholly by the uncertainty in relation to climate change. The capital scheme in discussion at this event was delivered to resolve AMP4 deficits in this zone.</p>
<p>Inaccuracy and lack of analytical rigour may also account for Dŵr Cymru projected resource deficit in the Alwen/ Dee zone. Significant discrepancies exist between Dŵr Cymru previous resource submissions and the latest outputs that suggest the zone will have insufficient headroom within the planning horizon.</p>	<p>All of our calculations undertaken for the Draft Plan to calculate the supply demand position of our WRZ's are rigorously checked by the Environment Agency Wales (EAW) and have been fully audited by Ofwat. The EAW and Ofwat have received full technical supporting documentation of all components that make up our supply and demand calculations. We have received no specific feedback or issues on the Alwen Dee or North Eryri Ynys Mon zones.</p> <p>We dispute your comment regarding significant discrepancies with previous submissions. Water resource planning requires annual updates and changes as revised methodologies emerge. In 2004 Welsh Water received significant criticism on our Draft Plan and since that date there has been a complete reassessment of supply demand balances in line with industry best-practice. Naturally this, and annual updates, has resulted in changes in the position of every zone.</p> <p>Furthermore, the Statement of Response confirms, as did our Draft Plan, that we have continued to work on the Draft Plan since submission resulting in further changes to supply demand balances.</p>

Comment	Welsh Water response
<p><b>Carmarthenshire County Council</b></p>	
<p>We had initial concerns that Dwr Cymru Welsh Water had not been able to factor in an allowance for reductions in deployable output for sustainability. The River Tywi is the primary groundwater source in the Tywi Conjunctive Use System, and although we note the recent EAW investigations, we feel that any changes to meet environmental considerations will need to be very carefully monitored and managed in this area.</p>	<p>The Review of Consents (RoC) process and outcomes were not included in the Draft Plan (or the SEA and HRA). We intend to revise the Draft Plan to include the RoC results. We fully agree the changes will need to be carefully monitored. On the River Tywi, EAW have affirmed Welsh Water’s abstractions under the RoC process. However, there are proposed changes to the reservoir releases from Llyn Brienne (which would require an expensive capital scheme) to increase the water temperature. This scheme would however have no impact on the security of supply for this zone.</p>
<p>We recommend that Dwr Cymru Welsh Water does not allow leakage to rise at any point in the planning period and the company should set out how it plans to reduce leakage further across all zones. Achieving leakage targets that deliver the best value for customers and the environment is critical.</p>	<p>We identified in our Draft Plan a ‘further work’ section. Further updates to our Leakage Strategy formed part of this work. Our Leakage Strategy is fully in line with the revised Ofwat (2008) methodology for calculating the ‘Sustainable Economic Level of Leakage’ that includes the full range of environmental, social and carbon-related costs and benefits associated with leakage and leakage control in the leakage calculations. We will maintain or reduce leakage further at zonal level where it is economic to do so. At company level, we will continue to reduce leakage from 195 Ml/d to 184 Ml/d by 2014/ 15.</p>
<p>The process outlined in determining future water demand as far as population projections are concerned is rather confusing. WAG have recently produced 2006 based population projections for UA's in Wales, using principal as well as high and low changes in the assumptions. Whilst we recognise that there will always be uncertainty with population projections, particularly over a longer timescale, we would advise that Dŵr Cymru Welsh Water discusses the 2006 based population projections with WAG.</p>	<p>We have revised our demand forecasts to utilise the Welsh Assembly Government (WAG) Local Authority Based Population Projections. This was built by WAG with input from all the Local Authority areas. There is an anomaly between the sum of the Local Authority population projections and the national population projections published by WAG and therefore we have included the uncertainty on this and on the upper and lower changes in forecast as part of our uncertainty in headroom.</p>
<p>Metering is the fairest way to pay for water, providing a mechanism for reducing per capita consumption and with lower demand will help reduce future greenhouse gas emissions by both company and the consumer. We are very conscious of the current economic climate but would draw Dŵr Cymru Welsh Water's attention to the Assembly Government's Strategic Position Statement on Water. Whilst we note that metering increases are referred to in Table 6 of the Draft Plan we would welcome some direction being set by Dŵr Cymru Welsh Water on metering tariffs as</p>	<p>Our policy is fully consistent with the WAG Strategic Position Statement and we are working with them to develop tariff options. This includes a unique Welsh Water Assist scheme offering lower income households a lower rate water bill and other schemes for those on benefits. This supports the whole customer base by reducing debt. We do not agree that metering is the ‘fairest way’ to pay for water and would</p>

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<p>an option. We recognise that it doesn't make sense to force metering onto an unwilling public where the benefits are not justified; therefore, it is important that we have a sustainable and fair system of charging in place. Metering has costs that must be assessed against benefits if the policy is to be sustainable. By comparing the wider costs with the wider benefits, the best solution can be determined for customers and the environment.</p>	<p>significantly impact lower income households.</p> <p>WAG does not support company-wide metering and our metering policy is fully in line with their expectations. We have included metering in line with current trends which increases company-wide metering to a level of 70%, under current forecasts, by 2035. We also included within the Draft Plan options to target metering on change of occupancy.</p> <p>Welsh Water already operates a policy to target meter high demand users and luxury items such as pools. These assumptions are built into our existing baseline forecasts.</p> <p>We disagree that metering provides ‘a mechanism for reducing per capita consumption’. There is no evidence to support this in Wales and any reductions in consumption are usually in the short-term and are directly linked to lower charges rather than a desire to save water. We intend to concentrate on supporting affordability issues and working with developers to adopt the Code for Sustainable Homes (or WAG's ‘Sustainable Homes: A National Housing Strategy for Wales’ currently out for consultation) which will reflect an overall decline in consumption in the long-term.</p>
<p>We note the comments of Dŵr Cymru Welsh Water that they are not confident that they should be including the impact of these climate change scenarios on deployable output figures, given the potential delays that this could cause to investment because of the uncertainty. We recognise that climate change is a long term challenge but there is a need to balance the risks of a lower service being experienced over a short period of time against the risk of unnecessarily permanently higher bills.</p>	<p>Our water resource planning utilises up to date climate change data which we are committed to review and update as the scientific community furthers its understanding. Welsh Water form part of the water industry climate change research group and we are active in the WAG Climate Change adaption group. We are committed to including the impacts of climate change into our investment programmes, across all areas of the business. Within the Draft Plan, we have however raised concerns that whilst we plan to incorporate climate change the EAW have not. We will continue to work with them and WAG to understand the impact of climate change on our operations.</p>
<p>We did have initial concerns that the impact of licences for both surface and groundwater sources were excluded, as this would add significant uncertainty in some Zones. Whilst this concern may have been reduced of late it is important to recognise that the Assembly Government's Strategic Position Statement on Water states that: ‘We expect competent authorities to complete their review of consents in respect of the Habitats Regulations, and for any resulting consent adjustment</p>	<p>We fully agree with Carmarthenshire County Council’s view that any changes (due to the RoC process) should be based on clear and robust evidence; at the moment we do not feel they are. We are concerned that we may be implementing changes that will not provide benefit to the ecology of the river systems due to a complete lack of</p>

<b>Comment</b>	<b>Welsh Water response</b>
to be firmly based on clear and robust evidence’.	understanding (used in the RoC process) of how the river systems function. We continue to work with the EAW on this.
Dŵr Cymru Welsh Water have estimated average per capita consumption in 2006/7 of 126 litres/person/day for metered households and 157 litres/person/day for non metered households. Notwithstanding the surpluses in zones serving the County, reducing per capita consumption towards the UK Government's aim of 130 litres per person per day across its area must be a responsible goal. Given the stance taken by WAG on metering in their Strategic Position Statement on Water, we would like to see how Dŵr Cymru Welsh Water intends to achieve this target.	Within our Draft Plan our forecasts for measured household’s per capita consumption (pcc) by 2030 was 120.89 l/h/d and for unmeasured households the figure was 158.45 l/h/d giving an average figure of 139.67 l/h/d. This forecast already includes a number of the policies detailed within the Defra strategy, however to achieve such reductions in pcc will require changes to legislation to enforce changes in new property development (in line with the Code for Sustainable Homes) and improvement in the water efficiency of appliances. This shows that we are close to achieving the Defra target for pcc of 130 l/h/d based on our current policies. It is worth noting that the Defra target is specific to England rather than Wales, WAG in their Strategic Position Statement on Water have not set a pcc target.
<b>Ceredigion County Council</b>	
Under the section on Water Efficiency there appears to be no mention of encouraging the use of Sustainable Drainage Systems. It is considered that this is a very important part of water conservation and that Dŵr Cymru should be promoting these systems as well as tap fittings etc.	Welsh Water is currently leading the water industry in its approach towards the management of surface water flows in the sewerage network and is seeking legislative changes to support revised approaches to the disposal of surface water flows. We are currently piloting 4 schemes across our operating area and, between 2010 and 2015, will be developing model schemes within 4 catchments (covering approximately 20% of the customer base). Amongst the measures adopted will be rainwater harvesting, bio-vegetative treatment, flow monitoring and use of permeable paving. The total cost of the proposed investment between 2010 and 2015 on the Surface Water Management Strategy and the pilot schemes is £15m. Welsh Water has also applied for European funding and Welsh Assembly Convergence Funding to support the further development of this work. In the meantime, Welsh Water continues to work closely with developers to ensure that sustainable drainage solutions remain the first consideration for the disposal of surface water.
In Table 3 of the document (pg 23) it is noted that that both North Ceredigion and Mid and South Ceredigion zones have been modified due to a revised demand profile. Further explanation would	Both of our Mid & South Ceredigion and North Ceredigion Water Resource Zones (WRZ’s) are modelled by our WRAPSim software. Base

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<p>be useful as to how the demand profile affects the deployable output</p>	<p>demands in the models use the most recent distribution input (DI) data available and a review takes place of the allocation of the demands to the individual demand nodes in the models. This may, in a number of cases, be the key driver for a change in deployable output of a WRZ, due to, for example, the effect of system constraints.</p> <p>In this process, the Demand Profiles for each WRZ are reviewed i.e. how the demand is distributed through each year and between normal and dry years. It is necessary to define normal and dry year demands to understand how the demand in a specific WRZ is affected by prevailing weather conditions.</p> <p>The first stage in deriving Demand Profiles is to define the normal year (i.e. those years not considered dry). Through extensive work we have decided to base the normal year on an average of normal years and not just on one single year, which may weight the results with any 'one-off' demands. The dry year is then taken as the year in which the highest peak demand was witnessed. For example, for North Ceredigion that year is currently 2003 and for Mid &amp; South Ceredigion that year is currently 2004. Having defined both normal and dry years, a composite profile is then derived for the dry year demand, which also accounts for peak demands in the dry year.</p> <p>In the case of Mid &amp; South Ceredigion the base demand values have been changed from those based on the 2001/ 2002 weekly DI to values based on the 2006/ 2007 weekly DI. This resulted in a considerable change in the allocation of demands between the 'central' node and the 'Strata' model node. Also, accordingly, the demand profile was updated. The small decrease in Deployable Output since the 2006 June Return submission is due to the change in the shape of the demand profile –the latest demand profile does not show such a prolonged peak demand, therefore when the annual average Deployable Output is calculated (an average of all the values throughout the year) the resulting value is lower than the previous (2006 June Return) value. The Deployable Output is constrained jointly by WTW maximum capacity (in the peak week), full utilisation of abstraction licences and by the Company Level of Service.</p>

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	It is a similar case for North Ceredigion. The base demand values have been changed from those based on the 2001/ 2002 weekly DI to values based on the 2006/ 2007 weekly DI. Also, accordingly, the demand profile was updated. The Deployable Output is constrained jointly, again, by WTW maximum capacity (in the peak week), full utilisation of abstraction licences and by the Company Level of Service.
In Table 3 M&S Ceredigion has a revised AADO. It is therefore questioned why there is no change in outage even though change in deployable output – is this due to the numbers being so small?	There is indeed no change in the Outage values shown for both Mid & South Ceredigion and North Ceredigion between the 2006 June Return and the Draft Plan due to the small numbers involved and the result of rounding (up or down) to 2 decimal places.
Additionally there is concern that according to the Mid and South Ceredigion Annual Average and Critical Period tables, around 20% of the deployable output is lost to leakage, mainly from distribution losses, this is a very large percentage and needs to be dealt with, especially in light of the changes to deployable output.	Our leakage strategy is fully in line with the revised Ofwat (2008) methodology for calculating the ‘Sustainable Economic Level of Leakage’ that includes the full range of environmental, social and carbon-related costs and benefits associated with leakage and leakage control in the leakage calculations. We will maintain or reduce leakage further at zonal level where it is economic to do so. At company level, we will continue to reduce leakage to 184 MI/d by 2014/ 15; for Mid & South Ceredigion this results in a reduction in leakage of 20% between 2008 and 2014/ 15.
The document states that there has been a lack of information from Local Authorities about population statistics. Ceredigion LA has consulted widely on its population and household projections, which have been available since March 2008. A full draft of the projections accompanied the Pre-Deposit Documents as at March 2009 and is attached for information. It is suggested that contact be made with Jamie Thorburn, Research and Information Section to discuss revision of the figures used in the consultation report.	We thank you for your input and we have made contact with Mr Thorburn regarding population information for Ceredigion Local Authority. We are currently updating forecasts.
We note concern with regard to the fact that “no information has been received in reference to any sustainability reductions for the Teifi SAC” and would request that information is passed to the Council as soon as such information is received with an indication of the impact that this will have on the results set out on page 97 & 98 of the current consultation report.	We have received confirmation from EAW that our abstraction licences in the Teifi SAC will be affirmed. However, the EAW have requested we improve the level of screening on our intake at Llechryd to reduce the risk of fish entrainment and we have included this investment within our Final Business Plan. We do not therefore envisage a change in supply demand balances due to Habitats in this zone.
It is considered that whilst looking at this plan the Environment Agency’s West Wales River Basin Management Plan also needs to be taken into account. Within this document the Tywyn – Aberdyfi	There are no GWDTE features present in the vicinity of our proposed groundwater abstraction in the Tywyn-Aberdyfi zone. However, this

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<p>water resources zone falls into a groundwater dependent terrestrial system. This needs to be investigated further as to whether the new groundwater abstraction proposed will affect this area.</p>	<p>option has since been disregarded due to lack of data on the availability of a groundwater resource in the area and a recalculation of the supply demand balance. This will be a revised position presented in our next plan.</p>
<p>It would be beneficial for investigation to occur on zones which will be, or will nearly be in deficit by 2034/ 2035, and explore what opportunities there are for water storage and any potential issues with storing it. The issue of climate change is of great concern and with climate change likely to cause wetter winters and drier summers it will be harder and harder to provide a good service during the summer and keep to the Dŵr Cymru target of no more than 1 in 20 years for a hose pipe ban and 1 in 40 years for drought/ permit orders. If the issues associated with climate change and the future possibilities should be considered now, the level of service Dwr Cymru have stated as a minimum level of service is more likely to be obtained.</p>	<p>Welsh Water has fully complied with the EAW guidelines on incorporation of climate change in water resource planning. The supply demand balances presented in the Draft Plan (and as will be in the Revised Draft Plan) incorporate the future impact of climate change to ensure we can continue to maintain our current Levels of Service. In relation to investigating the potential for water storage in deficit zones, as part of the water resource planning process for deficit zones we consider a full range of potential options (from customer, distribution, production and resource side options). The 'resource options' naturally include, where possible, storage solutions. All the options are assessed environmentally, socially and economically and a Preferred option(s) is chosen. We strongly agree that future water resource planning will be more reliant upon storage development to manage the impacts posed by climate change.</p>
<p>How will Environment Agency consideration of climate change in their review of consents process affect abstractions during low flows? Will this change the results provided in this consultation report significantly?</p>	<p>There has been unconditionally no consideration of climate change by the EAW within the RoC process. Welsh Water have challenged the EAW on this as we feel that climate change will pose a significant change in resource availability and sustainability reductions should be 'future-proofed' to account for this. We have modelled the potential impacts to our abstractions following the sustainability reductions and the impacts of climate change and the results are a significant shortage of supplies, based on our current system as it stands. We have urged the EAW to consider climate change within their RoC process and recommend that Ceredigion County Council contacts the EAW separately to express their concerns at this omission.</p>
<p>The rivers are an asset to the County of Ceredigion, not only because of biodiversity but also by making Ceredigion as beautiful as it is and therefore they should not be abused. It is questioned therefore if some sort of collection of flood water could reduce the pressure on rivers in low flows and also could benefit people living near by.</p>	<p>The Draft Plan considers reservoir development under the driver of maintaining security of supply only. Developments of storage under this Plan could benefit the capturing of flood waters. However, development of reservoirs/ storage for the sole purpose of flood</p>

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	alleviation or attenuation does not sit within Welsh Water's remit and is part of the role of the EAW. We would happily support any discussions in this respect.
Also what research/ new technologies are DCWW involved in developing that could address the issues climate change has on water resources?	Our water resources planning utilises up to date climate change data which we are committed to review and update as the scientific community furthers its understanding. Welsh Water form part of the water industry climate change research group and we are active in the WAG Climate Change adaption group. We are committed to including the impacts of climate change into our investment programmes across all areas of the business. The UKCP09 scenarios were published in June 2009 and we will be actively researching the impacts that the revisions in Government scenarios may have on Wales and Welsh Water's operations.
<b>Consumer Council for Water Wales Committee</b>	
The plan has been prepared in line with Welsh Assembly Government (WAG) Directions on the preparation of WRMPs. In the preparation of the draft plan the Company has taken into account information housing development statistics provided by Powys and Cardiff Council's on housing; considered the Welsh Midland Regional Spatial Strategy as well as (statistical) data, from the WAG on population growth. However, we note that the majority of local Authorities were unable to provide population projections for the specific WRZs specific with the consequence that the central projections used for draft WRMP a considerable margin of uncertainty. We would suggest that this is rectified for the sake of accuracy in the supply and demand analysis.	Since the publication of the Draft Plan, we have continued to update and refine our forecasts. It is our intention to publish a Revised Draft Plan, subject to receiving Direction from WAG; this Revised Draft Plan would contain improved demand forecasts derived from the WAG Local Authority Based Population Projections which were published after our Draft Plan submission. These projections were developed by WAG with input from all the Local Authority areas.  There is an anomaly between the sum of the Local Authority population projections and the national population projections (also published by WAG). We have used the local authority projections factored down to meet the national projections. There remains therefore some uncertainty and we actively work with councils and the WAG to understand this. Since the publication of the Draft Plan, we have also further developed our headroom calculations and uncertainty around demand population and property projections will be reported within this.
We suggest that the final WRMP makes reference to the WAGs' Strategic Position Statement on Water, which recognises the need to use water more efficiently. We also think that the WRMP should make reference to WAG's Social and Environmental Guidance to OFWAT, which suggests	As these strategies were not available at the time of publication of the Draft Plan reference was not made explicitly to them, though many of our policies in our Plan are already in line with their expectations. hen

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<p>that companies will need to make robust cases for new resources. Further, we suggest that the WRMP is revised to manifest it has taken account of the Environment Agency's Water Resources Strategy launched in March 2009, as well as the Wales specific version to be launched in Summer 2009.</p>	<p>we are revising our Draft Plan we will ensure it fully reflects these strategies where government and legislation allows us to.</p>
<p>We note that there is a likely impact of the economic downturn on possible demand scenarios in the short and medium term. We would like this to be reflected in the final version of the WRMP and DCWW closely monitor the situation.</p>	<p>We are re-calculating the demand forecasts based upon revised demands for water as a result of closures and slow down in predicted developments.</p>
<p>We did not feel that the WRMP in its present form provides for public consultation and engagement. There needs to be a much clearer explanation of the issues; potential problems; solutions and impacts on consumers. We are pleased that at least a summary of the draft WRMP's main proposals is available at:</p> <p><a href="http://www.dwrcymru.co.uk/English/library/Reports/companyreports/businessoperations/wrmp/Water%20Resources%20Overview_ENG.pdf">http://www.dwrcymru.co.uk/English/library/Reports/companyreports/businessoperations/wrmp/Water%20Resources%20Overview_ENG.pdf</a>.</p> <p>However, the actual draft WRMP should be clearer and better structured. We are not confident that this plan communicates its key contents, issues and proposals clearly to the lay-person and non-expert. It does not present a clear justification for the potential deficits identified and some of the measures proposed.</p>	<p>We are disappointed that CC Water does not consider our Draft Plan clearly presents the issues and proposals to our customers. We welcome the feedback and will take onboard the comments regarding the structure, format and content of the Draft Plan. Any revised plan will be developed to try and rebalance our requirements to provide a technical report for our regulators against a public domain document for the layman.</p>
<p>In particular, we would like to see further details of the investigations and technical studies included in the draft WRMP. These issues should be clearly communicated and their consequences should be properly considered in a public forum to better inform stakeholders' views and responses. We do not think that in its present form the WRMP presents stakeholders or the public with adequate and comprehensible information to make a fully considered response to the draft WRMP.</p>	<p>Due to the Security and Emergency Measures Directive on publishing information on our assets and operations, we did not publish in the public domain a number of key supporting documents to the Draft Plan. These reports were available on request. This requirement was given to us very close to submission to WAG and therefore there was not sufficient time to reflect the considerable volume of supporting information within the main plan. We are currently in discussion with WAG regarding this. We propose to either expand details within the main report or provide full access to the technical reports.</p>
<p>We do not think that in its present form the WRMP presents stakeholders or the public with adequate and comprehensible information to make a fully considered response to the draft WRMP.</p>	<p>We do not intend to publish, subject to receiving Direction from WAG, a Final Plan without first consulting on the effects of incorporating the EAW's proposed sustainability reductions. The proposals will drive major changes in our reported supply-demand balances as well</p>

<b>Comment</b>	<b>Welsh Water response</b>
	significant investment to resolve the supply deficits. As already stated, we will endeavour to publish for public consultation as much relevant supporting information as possible, though we are mindful that security and confidentiality issues have to be properly accounted for.
We are concerned that as the draft WRMP is still under consultation, the Company's final Business Plan (fBP) cannot make accurate reference to any finalised WRMP. As a result the fBP contents on supply and demand should currently be regarded as provisional. It is important that the relevant sections and financial projections of the Company's fBP correspond to content of the WRMP once this is finalised.	An unfortunate consequence of the delay in publishing the Draft Plan, which was outside the control of Welsh Water, is that we were unable to publish a Final Plan in line with our Final Business Plan. We expect there to be considerable delay in publication of a Final Plan and this will need to be reflected within our Determination. We agree therefore that for water resources we have only presented a provisional status.
Assurance that the climate change forecasts used in the calculations are appropriate and that climate change scenarios are not used to justify large uncertainty and risk in the supply.	Our water resource planning utilises up to date climate change data which we are committed to review and update as the scientific community furthers its understanding. Welsh Water form part of the water industry climate change research group and we are active in the WAG Climate Change adaption group. We are committed to including the impacts of climate change into our investment programmes, across all areas of the business. Our inclusion of climate change within the Draft Plan is fully in line with the Environment Agency's requirements and we have undertaken further investigations since the Draft Plan to ensure that the uncertainty around climate change presented is robust. We are required to follow a process for climate change and we have not wavered from this approach.
Better explanation as to why the WRAPSim (modelled zone) methodology for the reassessment for deployable output has been used for only fifteen of the twenty four WRZs.	The nine zones not modelled by WRAPSim are simple single-source and/or licence-constrained for which the deployable output has been determined based upon the conditions outlined within the abstraction licences at each source. We have produced a technical supporting document detailing how the deployable output of these nine zones was calculated. This was provided to the Environment Agency but unfortunately was not made available to the wider public due to the Security and Emergency Measures Directive.
Reconsideration of large headroom uncertainties in supply and demand forecasts for all WRZs. We would like some particular attention drawn to this and recalculations made, especially in relation to the Tywyn/Aberdyfi, South Meirionydd and North Eryri/Ynys Mon WRZs.	Our headroom methodology is in line with EA guidelines and as part of our 'further work to do' section in the Draft Plan we have undertaken a full revision of our headroom calculations. We have done this because

Comment	Welsh Water response
	<p>we recognise that in some zones our headroom estimates, even though we follow the guidelines we are required to follow, results in higher headroom values. The three zones that you reference are all in North Wales and are on the North-West coastline. The main driver for headroom in this area is the geographically higher forecasts for climate change from the UKCIP scenarios. This is in line with the EAW's forecasts for climate change presented in their Water Resource Strategy for Wales. Despite this we have undertaken further analysis and this supports our original calculations. With respect to Tywyn Aberdyfi, we have concluded that we were reporting higher uncertainty in relation to a specific zonal inflow uncertainty in this zone and we have modified this one area since the Draft Plan. Finally, since the Draft Plan (and also as identified in our 'Further Work to Do' section), and since the development of a pcc model for the Draft Plan, we have improved our estimate of headroom uncertainty on demand forecasts in line with the pcc model. These revisions to headroom will be reported in a revised Draft Plan and have been reported to the EAW in November 2008.</p>
<p>Based on annual calculations peak demand increase rises to 30% across Wales. We have also observed that a significant proportion of metered households in coastal areas in Wales (not occupied all year round and identified as second homes) are excluded from calculation of metered household population in the draft WRMP. We would again look for assurance that the potential increase in water consumption in the summer months, when there is higher likelihood of drought, and particularly, for areas where tourism is promoted and may be increasing has been properly factored into the demand forecasts. It is currently not clear how these two pressures are taken into account in supply and demand calculations.</p>	<p>When calculating the metered household resident population we exclude properties identified as holiday homes as the owners/ tenants of such homes are by definition not resident. However, when calculating the demand that results from these properties we include all metered volumes that have been recorded. We believe that this is the most accurate way to assign resident population to property types while still accounting for demand from properties with no resident population (such as holiday homes). This ensures that our supply demand balances correctly identify total demand, including peak demands driven by tourism.</p>
<p>We are concerned about the increasing deficit trend in both the Annual average and Critical scenarios from 2017/ 18 onwards for North Eryri/Ynys Mon (NEYM) WRZ. This is despite the investment of £8m in the current review period, which includes the ongoing capital expenditure of £1.3m on the development of a leakage reduction and water efficiency scheme for non-household customers. We would ask that the Company further considers the evidence base, and reviews what options best resolve this situation.</p>	<p>The driver for the deficit in North Eryri Ynys Mon, as identified within the Draft Plan, is as a result of the uncertainty due to climate change. The combination of options referenced in your letter was identified as the best combination (economic and environmental) to resolve deficits during AMP4, with the purpose of our current Draft plan to identify solutions for AMP5 and beyond. The delivery of the resource scheme provides during AMP5 a 'headroom' or planning margin within the zone</p>

Comment	Welsh Water response
	of around 5 Ml/d. However increasing uncertainty with respect to climate change then annuls this benefit. We are continuing to work on all supply demand balances and will report any revisions to zonal balances in a revised Draft Plan.
<p>The supply and demand analysis does not take into account the likely significant reductions in abstractions following the Environment Agency’s review of consents, as part of the Habitats Directive. We are therefore concerned about the robustness of the supply and demand balance presented in the draft Plan.</p>	<p>The impacts of the EAW sustainability reductions will be included in a Revised Draft Plan, subject to receiving Direction from WAG. Definitive sustainability reductions were not provided by the EAW in sufficient time to be robustly included in our Draft Plan. It has been extremely frustrating for Welsh Water that we have been unable to evaluate fully the impact of sustainability reductions within this Draft Plan due to continued delay from the EAW. Furthermore, in June 2009 the EAW indicated to Welsh Water that following an internal review they would be re-assessing the proposed sustainability reductions, particularly on the River Wye. Additionally, they have now identified a further three licences in North Wales which may require reductions. They are unable to provide Welsh Water with any indication of the impacts of this. All of this further frustrates our ability to develop supply demand balances across Wales and present a robust revised plan for consultation. It will also add further considerable delay to the process. We continue to work closely with the EAW to resolve this but we will also continue to challenge, where appropriate, in the interests of our customers.</p>
<p>On the basis of the indicative abstraction limitations, Section 5 of the draft Plan attempts further analysis on the impact of such sustainability reductions. This indicates potential deficits in other Water Resources Zones (WRZ) (in addition to the seven WRZs already identified), with the likelihood of substantial capital investment required in certain areas. Potential sustainability reductions are not final and ongoing studies by the water company and the Environment Agency are inconclusive. Consequently we are given the impression that the final reductions could have a more significant impact within identified deficit WRZs, something that the draft Plan does not account for. We are also uncomfortable with the likely scenario that additional deficit zones may be identified for which a full supply/ demand balance analysis and planning has not yet taken place.</p>	
<p>We do not have the technical expertise to judge the accuracy of the possible deficit scenarios. We would ask that the Environment Agency and the Water Company work closely to identify such potential problems and their solutions. The priority must be to find sustainable solutions that provide security of supply for household and business consumers in existing and potential deficit zones at an affordable price, while minimising impact on the natural environment and its protected features.</p>	
<p>DCWW’s water efficiency Strategy (2007) summarises the company’s approach in promoting water efficiency measures. The CCWater Wales Committee is of the opinion that there is much emphasis on young persons’ education and would like to see more emphasis on raising awareness and facilitating behavioural change on improved water efficiency measures and resource management issues within the wider population.</p>	<p>Our water efficiency strategy is large and varied and our education centres form one component of this, albeit an important one that we feel will lead to real benefits in the future. Our 'Be Waterwise' campaign launched on the 5th March 2007 is aimed at all customers and encourages them to use water wisely. We offer subsidised water butts, provide information leaflets on water efficiency within customer bills and we regularly engage with our customers during specific roadshow events. We are working closely with the Carbon and Energy trusts, councils, developers and the WAG to further develop and</p>

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	<p>promote water efficiency. In addition to all of this, during AMP4 we have also targeted water efficiency activity in deficit zones. This has included targeted audits of all non-household customers (food industry, hospitals and schools). We believe we have a wide-ranging water efficiency strategy which covers our entire customer base. We will ensure that a revised Draft Plan reflects this strategy further.</p>
<p>We note that DCWW leakage detection targets are set above existing OFWAT targets. We would like assurance that these targets and proposed measures are rigorous enough to ensure that leakage does not precipitate or cause the presented deficit scenarios. Active leakage control should be used as a preventive measure from the outset of the planning period to minimise the chance of growing deficit scenarios, rather than being relied on as a reactive measure in the event of deficit (in the form of ensured leakage control, see Section 5.5).</p>	<p>We agree and therefore since the Draft Plan we have developed our leakage strategy and this includes not allowing leakage to rise in zones where there is a supply demand deficit or where it would result in a deficit. This was presented in the FBP and will form the basis for leakage strategy in a revised Draft Plan.</p>
<p>Free metering remains an option but DCWW takes a cautious approach to the promotion of metering as the company does not see universal metering as the most cost effective method to respond to water shortages. We are happy with this approach and the gradual uptake of metering in Wales but recognise that this will have a limited impact as a water efficiency measure.</p>	<p>We are pleased that CC Water supports our approach to metering, which will result in a meter uptake of 70% by 2035 under current trends. We have included viable metering options within the plan, for example metering on change of occupancy, but many metering options remain uneconomic in Wales.</p>
<p>We previously mentioned our concern on the supply and demand balance presented in the draft Plan in the light of likely sustainability reductions (Section 4.6). We are further concerned that the likelihood of additional deficit WRZs could jeopardise planning solutions for existing deficit zones, e.g. upsizing a trunk main from Hereford WRZ in the likelihood of deficit in the Vowchurch WRZ may not be possible if the former WRZ is in deficit itself. This could have further implications on potential capital investment required to meet the supply needs under revised supply and demand scenarios. We consider that the omission of such (possibly critical) capital investment in the draft WRMP is not acceptable and presents a risk that demand may not be met at critical times. We are further concerned that such unplanned capital investment could increase customers' bills by £15 to £20 per year. This has not been accurately calculated in investment proposals presented in DCWW's FBP. We are not happy with this likely increase to customers' bills.</p>	<p>At the time of submission of the Draft Plan definitive sustainability reductions were not available for inclusion within the Plan. As we were still consulting on the Draft Plan at the time of submission of the FBP we could not include in the FBP anything that had not been published and consulted upon in the Plan. The EAW's further review and delay to timescales will further frustrate our ability to understand the impact to our supply demand balances and develop the most optimum solution. The likely impact to customer's bills as a result of the implementation of the EAW's sustainability reductions is dependant upon the final outcome of the sustainability reductions. Welsh Water are committed to challenging the EA where we feel it is appropriate and in the interests of our customers.</p>
<p>At this stage, on the basis of the information provided, we are not able to say whether this plan will deliver security of supply at an affordable and acceptable price for current and future consumers. A key concern is the lack of information and areas of uncertainty that could overturn supply and demand balances and require reconsideration of planning schemes in deficit WRZs. We are</p>	<p>As stated above we do not intend to publish, subject to receiving Direction from WAG, a Final Plan without first consulting on the effects of incorporating the Environment Agency Wales's (EAW) proposed sustainability reductions. The proposals will drive major changes in our</p>

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<p>disappointed that this consultation has not facilitated a wider public debate about various options that might be available to address these concerns and to identify which might be the best option to adopt. It would not be acceptable to finalise the WRMP without further public consultation if, due to new information, the current deficit and planning scenarios were substantially amended.</p>	<p>reported supply-demand balances as well significant investment to resolve the supply deficits. As already stated, we will endeavour to publish for public consultation as much relevant supporting information as possible, though we are mindful that security and confidentiality issues have to be properly accounted for.</p>
<p><b>Countryside Council for Wales</b></p>	
<p>The most relevant of these data, which is acknowledged within the WRMP itself and in a separate document accompanying the plan, is the exclusion of the sustainability reductions required as a result of the Environment Agency's Review of Consents. The EA have identified significant changes to abstraction licences on the Rivers Wye, Usk and Cleddau, which are not included within the calculations to determine the supply/demand balance. Until these licences changes are included, the conclusions for the relevant water resource zones must be regarded as preliminary and highly likely to change. We recommend that the final plan should contain these licence changes and that the effect of these must be included within subsequent conclusions regarding about whether WRZs are in surplus or deficit. This may also have an impact on the final options chosen for those zones in deficit.</p>	<p>It is our intention to include the impacts of the EAW sustainability reductions in a Revised Draft Plan (SEA and HRA), subject to receiving Direction from Welsh Assembly Government (WAG). Definitive sustainability reductions were not provided by the EAW in sufficient time to be robustly included in our Draft Plan. It has been extremely frustrating for Welsh Water that we have been unable to evaluate fully the impact of sustainability reductions within this Draft Plan due to continued delay from the EAW. Furthermore, in June 2009 the EAW indicated to Welsh Water that following an internal review they would be re-assessing the proposed sustainability reductions, particularly on the River Wye. We must therefore wait for the outcome of this review before we can understand the impact, if any, to our current licence proposals.</p>
<p>CCW has commented separately on the draft Strategic Environmental Assessment and the draft Habitats Regulations Assessment. Until the sustainability reductions are included within the plan, these assessments are viewed by us as currently incomplete.</p>	<p>Please see the answer provided above.</p>
<p>DCWW's water efficiency strategy is extremely welcome and our view is that the company appears to be making good progress with improving water efficiency among a variety of water consumers. There are a wide variety of approaches being adopted and it is clear that DCWW will be pursuing these over the period of this WRMP. We particularly welcome the forecast that household consumption rates will fall over the plan period. Our main recommendation is that the company may want to explore more promotion of water butts and rainwater harvesting methods, perhaps by supplying subsidised equipment or more detailed advice on these methods.</p>	<p>As part of our Water Efficiency Strategy, we currently promote water butts to our customers via our website and via specific events through the year. The selection of water butts as an intervention option in the Plan (for zones in a supply demand deficit) is based on environmental, social, technical and financial grounds, compared against all other intervention options, as determined by our optimisation model.</p>
<p>In contrast to the clarity of strategy regarding efficiency, we found this aspect of the plan (Leakage) extremely difficult to understand. Whilst the general information in the introduction is clear, the</p>	<p>We note your comment on the lack of clarity for the leakage section of the Draft Plan. We will resolve the issue in preparing a Revised Draft</p>

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<p>reader is referred to Section 6 for further information. Section 6.7 is not a transparent description of what DCWW expect to do with respect to leakage over the plan period and we recommend that this section be re-worded to reduce jargon and explain in a clear way (i) How much leakage is expected to increase or decrease over the plan period in each WRZ, and (ii) What DCWW intends to do to reduce leakage and by how much will they aim to reduce it for each year of the plan.</p>	<p>Plan. Details of our Leakage Strategy were available in a technical supporting document to the Draft Plan. We have updated and refined our Leakage Strategy and further details on leakage options will be provided in the Revised Draft Plan.</p>
<p>Table 7 describes the “Total level of leakage” but also includes distributional losses. It is not clear to CCW whether these are additive or if the distributional losses are a subset of the total leakage? We recommend that this is clarified in the final plan. We understand the principles behind the Economic Level of Leakage (ELL), but we are concerned that this dis-regards the environmental costs and potential loss of natural capital if leakage levels are high. It appears from Table 7 that the total leakage is approximately 24% of water put into the supply system. Our view is that this is far too high, irrespective of the ELL, and there appears to be a significant opportunity to reduce costs to the environment both in terms of impact of water lost to the environment and CO2 emissions from additional pumping required. We recommend that as part of the final WRMP, the company seeks to go beyond the ELL where there are environmental benefits of doing so.</p>	<p>The distributional losses are included within the total level of leakage values. Our Leakage Strategy is wholly in line with the revised Ofwat (2008) methodology for calculating the ‘Sustainable Economic Level of Leakage’ which includes the full range of environmental, social and carbon-related costs and benefits associated with leakage and leakage control within the leakage calculations. We will maintain or reduce leakage further at zonal level where it is economic to do so and where it will maintain supply demand balances for zones that would otherwise go into deficit. As part of our optimisation process to resolve supply deficits in specific zones we have considered a range of leakage options to take us below the economic Level of Leakage (ELL). At company level, we will continue to reduce leakage from 195 MI/d to 184 MI/d by 2014/ 15, in accordance with Ofwat targets.</p>
<p>We understand the principle behind offering water consumers a minimum level of service, and believe that in some aspects of water supply and waste water removal, customers have a right to expect a minimum level of service. However, we question the usefulness or deliverability of levels of service on hosepipe bans or drought permit/ order applications. In a changing and more unpredictable climate, we are not clear how DCWW intend to deliver these levels of service or whether delivering them will lead to unsustainable options or activities being under-taken in the event of extended dry or drought periods.</p>	<p>We are required to report our Levels of Service (LoS), in line with the Environment Agency’s (EA) Water Resource Planning Guidelines 2008. The company LoS is defined by undertaking behavioural analysis and the current supply demand balances are defined at this LoS, including climate change. We are committed to understanding climate change and the impact on our operations. We will be adding additional information on our current zonal LoS and the impact to LoS, from the implementation of options, to a Revised Draft Plan.</p>
<p>We recommend that the final WRMP describes (i) How these levels of service will be guaranteed and (ii) The potential impact this could have on the environment. We also think that the plan should give customers a realistic impression of the number of times that hosepipe bans and drought permits/ orders may be needed over the plan period. If the predicted reductions in summer river flows as described in the EA’s new Water Resources Strategy are accurate for Wales, it would appear that water availability during the summer period will be much reduced. The sensitivity analysis undertaken on page 72 suggests that a 10% reduction in deployable output would bring a</p>	<p>We model our water resources in great detail using complex behavioural models. The existing LoS have been derived taking into account the potential impact and uncertainties of climate change (in accordance with the EA Water Resources Planning Guidelines, 2008). Therefore, we are confident that even under the existing climate change predictions we will deliver the LoS as outlined in the Drought Plan and the Draft Plan.</p>

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<p>further 12 WRZs into deficit. We recommend that the final plan demonstrates how these predicted flows will relate to deployable output and therefore potentially affect levels of service.</p>	<p>LoS is defined as an ‘average’ measure based upon the record length from which it was derived. Therefore, customers may receive more than, or less than, one hosepipe restriction, for example, over a specific 20 year period. It is therefore not strictly correct to state the number of times customers may receive restrictions over the planning period (2007-2035).</p>
<p>We note from the draft plan that algal blooms are cited as the main reason for disruption to supplies (outage) from Llyn Alaw on Ynys Mon. Although the issue is clearly described here, we found it difficult in the plan to understand (i) Where there might be other potential water quality risks to supplies, and (ii) The on-going and potential new costs to consumers of treating and mitigating those problems.</p>	<p>Welsh Water has undertaken a great deal of work over the past in collating information on ‘outages’ at our water treatment works to help identify any potential trends in disruptions at works and to direct expenditure where a persistent problem seems to be occurring. Full details of this were included in our technical supporting document on ‘Outage’ which we were unable to publish but was available on request. These have been included within the outage element of the Draft Plan. Llyn Alaw was cited specifically due to the change in reporting numbers due to recent algal events. Within Welsh Water we have an extensive programme of planned upgrades to many of our water treatment works as part of our AMP 5 water quality programme. The expenditure as a result of this is outside the Draft Plan, but was fully costed and included within the Final Business Plan.</p>
<p>CCW, supported by DCWW, has recently put in place an EU LIFE funded project to address problems of nutrient enrichment of water within the vicinity of The Anglesey Fens SAC, which is in the same WRZ as Llyn Alaw. We are attempting to reduce nutrient levels and prevent the loss of Dissolved Organic Carbon into the water supply system. We would be pleased to see this project and the joint working with you described in the Final plan as an example of the type of work DCWW are undertaking to improve raw water quality and improve security of supply. It would be helpful to know if there is potential for other joint projects to address raw water quality issues at source with benefits for natural habitats.</p>	<p>Welsh Water is committed to research and studies into catchment quality. This is outside of the scope of the Draft Plan; however, we have included £2 million in our Final Business Plan to further our understanding.</p>
<p>The list of options appears comprehensive, however, we are concerned that DCWW have identified that the environmental and social costing methods do not take account of requirements of the Habitats Directive. From the methods and criteria described, the environmental costing also does not appear to take into account impacts on groundwater bodies and groundwater dependent wetlands. We recommend, in the light of our comments below, that this is clarified in the final WRMP.</p>	<p>The EA’s Water Resources Planning guidelines require us to use their Benefits Assessment Guidance methodology. Welsh Water has raised concerns with the EA regarding the scope and relevance of this guidance. In the Draft Plan we therefore modified its application to allow for some of these. One key area was the lack of assessment for groundwater bodies or relevant features. As such, Welsh Water treated</p>

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	groundwater sources as surface water sources for the purposes of environmental and social costing and hence present a worst-case costing from our operations.
<p>Tywyn to Aberdyfi WRZ: The option selected for this WRZ is a new groundwater abstraction. We are confident that DCWW will undertake any relevant assessments under the Habitats Regulations and CRoW Act that may be required before pursuing this option. In addition, we would bring to the attention of DCWW the requirement under the Water Framework Directive, to ensure that no groundwater dependent terrestrial ecosystem (GWDTE) is suffering significant damage due to groundwater quantity or quality impacts. We are concerned to note that the methods for assessing environmental costs do not appear to take groundwater dependent wetlands into account. We would be happy to provide further advice on this to help DCWW assess this aspect of their chosen option on any GWDTE in this WRZ.</p>	<p>There are no GWDTE features present in the vicinity of our proposed groundwater abstraction in the Tywyn-Aberdyfi Water Resource Zone (WRZ). However, we have assessed the worst case scenario for the option: assuming 100% impact upon river flows. Following the submission of the Draft Plan in March 2008, this option has since been disregarded due to lack of data on the availability of a groundwater resource in the area and a recalculation of the supply demand balance.</p>
<p>Vowchurch WRZ: We note that the preferred option is for an amendment to the existing abstraction already assessed as part of the EA's Review of Consents process. CCW will be consulted when this option is developed further and we will provide detailed comment as part of the statutory consultation process when the application for a licence amendment is made.</p>	<p>The Preferred option for Vowchurch (Option 8107.7, Upsize trunk main from Hereford) does not involve a licence amendment. The option utilises the surplus supply within our Herefordshire WRZ and transfers some of this water to meet peak demands in our Vowchurch WRZ. The EAW RoC process, and proposed licence amendments, does not impact this option which is to transfer for summer demand peaks only.</p>
<p>Clwyd Coastal, Bala and South Meirionnydd WRZs: We welcome the selection of further leakage control in the remaining WRZs predicted to be in deficit.</p>	<p>We have developed our Leakage Strategy since the Draft Plan and this includes not allowing leakage to rise in zones where there is a supply demand deficit or where it would result in a deficit. As such, we will continue to maintain leakage in Bala and Clwyd at the current AMP4 levels (despite this being uneconomic). We continue to require enhanced leakage in South Meirionnydd, as an intervention option to meet the supply demand deficit, in the Revised Draft WRMP.</p>
<p>We understand that the impact of including sustainability reductions for the relevant licences will probably change the number of WRZs in deficit and alter this part of the final WRMP. From the figures provided, it appears that this will be the case particularly for the South East Wales Conjunctive Use (SEWCUS) WRZ, which is currently approx 70 Ml/d in surplus. It is not clear to CCW the extent to which this is currently taken into account in the costing for new options required to accommodate the sustainability reductions, and what the other options for reducing any deficit will be. We recommend that these are explained and described in full within the Final WRMP.</p>	<p>The Feasible set of options identified in the Draft Plan for the SEWCUS WRZ are the same as the Feasible set of options that will be presented in a Revised Draft Plan. We identified a full range of potential options for SEWCUS – resource, water efficiency and leakage options, to resolve the supply demand deficit. Since submission of the Draft Plan (March 2008) we have undertaken further work to refine and more accurately cost these schemes to ensure the optimum set of options is selected. It is acknowledged that a shortfall of the Draft Plan was the lack of</p>

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	<p>clarity and information on the options considered and selected and the optimisation process. A Revised Draft Plan will resolve these issues. We are also awaiting Direction from WAG on the information we are allowed to put in the public domain when we publish the Revised Draft Plan.</p>
<p><b>Environment Agency Wales</b></p>	
<p>We recommend Dŵr Cymru shows how its drought plan abstraction triggers are taken into account when modelling deployable output in its final plan.</p>	<p>Within our Drought Plan, we do not have triggers for drought measures based upon abstraction. We have abstraction monitoring levels which enables us to monitor our abstractions against our licence limits and therefore re-allocate resources where available and possible to ensure sustainable abstraction. Deployable output triggers are therefore modelled wholly consistently with the Drought Plan.</p>
<p>The company should present the actual level of service customers will receive in the future for each of its zones in the main report. This can then be readily compared with the company-wide planned level of service.</p>	<p>We will include the recommendations in a Revised Draft Plan, when we receive Direction to publish from the Welsh Assembly Government (WAG).</p>
<p>Dŵr Cymru's draft plan does not include the sustainability reductions required on the rivers Wye, Usk and Cleddau to ensure compliance with the Habitats Directive. We provided details of the licence changes to the company in August and September 2008 and confirmed the National Environment Programme in November 2008. It is essential that the company includes the definitive sustainability reductions in its final plan to protect the environment. It is also vital that it can demonstrate the resulting impact on its deployable output, and justify any new supply-demand options that are required. It is important that the company assesses the impact of the sustainability reductions within the context of the whole plan to ensure an appropriate and cost effective solution. We anticipate that the inclusion of the Habitats Directive sustainability reductions and resulting supply-demand options may be significant enough to cause a material change to the draft plan and may be sufficient to warrant further consultation on the plan.</p>	<p>The EAW have indicated to Welsh Water, in June 2009, that an internal review of the Sustainability Reductions will be undertaken. We are therefore wholly dependent upon this review in order to consider any changes to your proposals and the impact it may have upon our Draft Plan. We have always been very clear that the scale of proposals indicated by the EAW warrant a full republication of the Plan in order that we may allow our stakeholders and customers the opportunity for re-consultation. We ask the EAW to work with us closely on this review and we have provided detailed comments on the Site Action Plans for all rivers, which were published in June 2009. We will continue to challenge the EAW on the outcome and proposals for these rivers where we believe that it is in the best interests of the environment and our customers.</p> <p>Furthermore in June 2009, the EAW indicated a further three Welsh Water abstractions in North Wales which have gone through to Stage 4 of the Review of Consents process. We are aware that these sites are defined as 'low priority' with a delivery date of March 2010 however these abstractions represent significant abstractions to maintaining the</p>

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	<p>supply demand balances. Welsh Water would wish to include the impact of these proposals within any revised Draft Plan and would urge the EAW to consider the timescales for these sites.</p> <p>There has already been a significant time delay to the water resource planning process in Wales and this has resulted in frustration for our stakeholders and customers. It also now poses significant outstanding issues in relation to future funding routes. All sustainability reductions need to be included within any Revised Plan, to allow full re-consultation.</p>
<p>The company need to include the bulk supply from United Utilities which is used to supply non-potable water to Albion Water in its final plan. This was omitted from the draft plan.</p>	<p>The bulk supply from United Utilities to Albion Water was not omitted and forms part of Options 8012.6 and 8014.7 in the Draft Plan. The bulk supply is for non-potable supply only and has no network connections to any water resource zone (WRZ) in the Plan. Under the definition of deployable output, it would be incorrect to include it as the supply cannot contribute to the overall zonal supply demand balance. It is not the only non-potable supply within Wales which has been dealt with this way. However, for clarity, we will add text to this effect within a Revised Draft Plan.</p>
<p>The draft plan shows climate change as one of the drivers for the new leakage option in the Clwyd Coastal resource zone from 2013/ 14. We recommend the company carries out further investigations into the effects of climate change using the most sophisticated approaches in the Environment Agency's water resources planning guidelines to support the need for the new option in this zone. The company should review its assessment using outputs from UKCP09 once available.</p>	<p>We have undertaken a full review of our climate change uncertainty in headroom, which we presented to the EAW in November 2008. The climate change impact was fully justified and is as a result of the geographical variations in the UKCIP scenarios. However, we have subsequently updated other areas of our supply-demand balance in Clwyd Coastal and are no longer forecasting a deficit for this zone.</p>
<p>We recommend the company shows in its final plan how it will assess and monitor the impacts of climate change while keeping its models up to date. We also expect the company to provide regular updates of climate change impacts in the annual reviews of its plan.</p>	<p>Welsh Water is committed to ensuring that our supply-demand balances reflect recent and updated knowledge. We will review all components annually. We are an active member of the WAG Climate Change Adaption Group and are on the steering groups for the WaterUK/UKWIR Climate Change groups. In line with WAG's expectations we are currently reviewing the UKCP09 scenarios for inclusion within a revised Draft Plan. We would welcome EAW support in this respect and will be contacting you shortly to discuss. This will require an updated methodology for inclusion within water resource</p>

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	planning tables and we recognise that this is significantly in advance of current proposed water industry timescales. We will add text in a Revised Draft Plan, if we receive Direction to publish from WAG, and the Final Plan to this effect.
We expect the company to include estimates of the impact of climate change on its Alwen Dee resource zone in its final plan. It is the company's responsibility to estimate the effects of climate change on its abstractions. The company should not wait for work to be undertaken by the Environment Agency to assess the effects of climate change on the Dee Regulation System.	Welsh Water undertook full climate change modelling for Alwen-Dee WRZ in line with EAW methodology. However, we raised concerns with the EAW regarding the impact this was forecast to have in this zone and the potential future implications this may have for the Dee Regulation scheme. The General Directions for the Dee are managed by the Environment Agency and we feel that they are better placed than Welsh Water (who are a minor abstractor on the Dee compared to others) to model the future impact of climate change on this system. We are pleased that the EAW has subsequently confirmed to Welsh Water that it will be undertaking a study this year on this and we have offered our support.
Improving the reliability of using small area monitors to derive per capita consumption estimates. The use of a domestic consumption monitor may be more appropriate in the company's supply area as the number of households with a meter in Wales increases.	We are confident that our current outlined method of using small area monitors for the estimation of pcc provides the most cost effective approach for both the short and intermediate term. Whilst we are aware of the longer term projections of meter penetration, we are of the opinion that until the higher level of meter penetration becomes more significant to the extent that the current approach is unrepresentative then the current approach will be maintained.
Exploring the impact of its proposal to form super District Metering Areas (DMAs) on its small area monitors. If the number of households within the small area monitors increases as a result of forming super DMAs this will affect the ratio of metered to non-metered households. This may affect the monitors' accuracy if the proportion of metered households becomes too large.	The initiative to rationalize reporting areas (DMA's - previously SDMA's) is in an attempt to ensure that the average size of a reporting area complies with the industry accepted best practice, this in many circumstances results in either a reduction or increase in property counts to a company average level to improve efficiency of the management of DMA's and enable improved benchmarking of performance. The impact upon pcc monitors has been assessed and we are confident that there are within the existing and forecasted DMA's suitable, reliable monitors remaining.
Developing new micro-component forecasts at the sub-company level. The method should be able to forecast micro-component consumption for unmeasured households and for each of the	We feel this is an unrealistic expectation from the EAW and are not planning to produce pcc micro component forecasts at a sub-Company

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<p>measured household categories, such as new builds and optants. We believe the current forecast methodology is not as robust as it could be, but acknowledge this cannot be changed in time for the final plan. We expect this to be in place before the next round of plans.</p>	<p>level due to the inherent difficulties in doing so. We are not aware that any other water company produces pcc micro-component forecasts other than at Company level. We currently produce pcc forecasts at a regional level based on 8 micro-components for unmeasured and measured households. pcc forecasts for each of our 24 WRZs are produced by applying factors, based on the zonal pccs returned in Table 10bi of the June Return, to the regional forecasts.</p> <p>For each micro-component, estimates of the Ownership Level (O), Frequency of Use (F) and Volume per Use (V) are required for each year of the forecast period. It is extremely difficult to accurately assess current values of O, F &amp; V which makes forecasting them even more so. Since the Draft Plan, and in line with our 'further Work to Do' section, we have undertaken a customer survey which has allowed us to update our current O, F &amp; V values. Others are based on National data such as that produced by the Market Transformation Programme (MTP). The amount of National data available is very limited and very variable.</p> <p>However obtained, the O, F &amp; V values are at best 'sensible estimates' based on available information. There is no guarantee that the adopted figures accurately represent the true position. If obtained from a Customer Survey, there are problems with sample size and ensuring the sample is truly representative of Welsh Water's region; such surveys are also very expensive to carry out and, as such, cannot be repeated often. If obtained from National data, it is often difficult to decide which of several figures suggested by different research to adopt. It is also questionable whether National data is truly representative of the Welsh Water region.</p> <p>Predicting future values of O, F &amp; V is even more difficult and, inevitably, highly subjective, especially when looking more than 5 years ahead. Some National research provides predicted growth/ decline in the O, F &amp; V values of appliances but typically only for the next 10 years or so. The adoption and use of these appliances is also wholly outside of Welsh Water's control and requires a significant and dedicated promotion by both WAG, EAW and many organisations. The adoption of some of these trends will also we believe require a change in</p>

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	<p>legislation to be completely effective.</p> <p>The above comments relate to the production of micro-component forecasts at a Company level and show that, even at this level, there are major difficulties in producing a robust forecast of Total pcc. To produce micro-component forecasts at a WRZ level would require representative and statistically robust Customer Surveys to be set up and implemented in each of Welsh Water's 24 WRZs. Either way, such an exercise would be prohibitively expensive and could not be justified. Furthermore, such surveys would only provide estimates of the current values of O, F &amp; V and would be of no help in projecting these into the future.</p>
<p>The company should also set out what measures or activity is required from its regulators and the Welsh Assembly Government to help reduce consumption further.</p>	<p>We intend to include additional commentary in a Revised Draft Plan, when we receive Direction to publish from WAG.</p>
<p>Assess the concept of water neutrality for the Hereford growth point. This assessment needs to draw upon the Thames Gateway Water Neutrality work.</p>	<p>We are very surprised that the EAW has proposed that a water neutrality study is required for Herefordshire, based upon the Thames Gateway work. It is very unclear to Welsh Water as to how this study is applicable to Herefordshire. We have further discussed the Thames Gateway study with all parties involved to confirm our understanding and would conclude the following:</p> <ul style="list-style-type: none"> <li>• There is no driver for a Water Neutrality study in Herefordshire. None of the Herefordshire WRZs are in a supply demand deficit under baseline conditions within the Draft Plan.</li> <li>• Although Herefordshire is in England, as it is supplied from Welsh Water, it remains under the legal jurisdiction of WAG. The Thames Gateway study posed scenarios to allow further development by off-setting the increased demand by water efficiency and demand management measures. A number of the measures considered cannot be implemented legally by Welsh Water (for example, Herefordshire is not in a high Water Stress Area) and WAG do not support compulsory metering. As these are the main areas for demand reduction within the Thames Gateway study we do not believe that it can be implemented effectively within Welsh Water's supply area or under the WAG</li> </ul>

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	<p>Strategic Position Statement. It would also not recognise the distinct difference between the recently launched EA Water Resources Strategy between England and Wales.</p> <ul style="list-style-type: none"> <li>• Welsh Water does not believe that the existing customer base should be penalised to allow for further development within an area. We do not believe that this would be supported by CC Water.</li> <li>• Finally, as we understand it, a key conclusion of the Thames Gateway study was that it should be undertaken with a wide-range of participating stakeholders and led by the EA. We remain mystified therefore as to why the EAW believe we can or should undertake this study and do not envisage that we will be able to do so for the Final Plan. We would welcome further discussion with the EAW on this.</li> </ul>
<p>Show how Ofwat’s water efficiency targets have been incorporated in its demand forecasts. These reductions should be included within forecast per capita consumption values and the impact of base level water efficiency activity should be quantified within the plan.</p>	<p>Welsh Water has not included Ofwat's water efficiency targets within our baseline demand forecast. In line with WAG's Strategic Position Statement we await further Direction following consultation. However, we have demonstrated that these targets are neither economic nor achievable across Wales. We are committed to the promotion of water efficiency in Wales via our Water Efficiency Strategy which we believe will yield more benefits in the future and present specific water efficiency studies in deficit zones.</p>
<p>Dŵr Cymru is using a new model to forecast leakage in its draft plan. This has resulted in a step-rise in leakage in a number of zones. The forecast rise in leakage is causing or significantly contributing to deficits in several resource zones. We recommend Dŵr Cymru should not plan to allow leakage to rise in any resource zone to the point at which it drives new supply or demand options. The company should complete the planned updates of its new leakage model and confirm that any increase in leakage is the result of new assumptions or the re-balancing of the components of distribution input.</p>	<p>We identified in our Draft Plan a further work section. Further updates to our Leakage Strategy formed part of this work and this work was completed for inclusion within our Final Business Plan. We presented this to the EAW in November 2008, before the Draft Plan was published. Therefore, we intend to present this in a Revised Draft Plan, when we receive Direction to publish from WAG.</p> <p>As part of this strategy, we have maintained leakage in zones even if uneconomic, where allowing it to rise would cause a future supply demand deficit. This has resulted in a material change in our supply-demand balance position since the Draft Plan. This change, and accompanying modifications to the demand forecast as a result of the</p>

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	current economic downturn, means that only two deficit zones remain: Tywyn Aberdyfi and South Meirionnydd.
The company has used an economic level of leakage assessment that ends in 2014-15, with the application of incremental increases thereafter. We recommend that Dŵr Cymru should consistently evaluate sustainable leakage levels across the whole planning period and not rely on an assessment that ends in 2014-15.	Following the determination of the AMP5 ELL profile, analysis into the associated impacts of the suggested rise in leakage in certain supply zones with the potential contribution to deficit was undertaken, the root cause was identified as a planning horizon issue i.e. the method used for calculating targets in the transitional period between planning periods, where longer term forecasting of water resource status indicated higher levels of leakage could be accommodated due to the realities of the positive and negative influences of the ELL model. This has been resolved in the Final Business Plan to accommodate such variances and has been discussed with Ofwat, our current policy entails maintaining current leakage levels where it is deemed to be economically justifiable in contrast to previous indications where it was suggested that levels may rise.
We expect the company to keep its population and property forecasts up to date and to review them regularly through the annual review process. In particular the company should ensure it takes account of the effects of the recent economic downturn on population and property forecasts. This will reduce the uncertainty in these components of the demand forecast. It is also important that the forecasts used for water resources and wastewater planning are consistent.	Our population and property forecasts are developed in line with WAG and RSS strategies and are regularly reviewed to take account of any changes in projections. The demand forecasts were updated between the Draft Plan and the Final Business Plan. Revised Draft Plan forecasts will make allowances for the effects of the economic downturn. Our forecasts for wastewater and water resources are entirely consistent with each other.
We are pleased to see Dŵr Cymru is forecasting an increase in its meter penetration from 25 to 70 per cent by 2035. This metering forecast is higher than forecasts included in previous plans. We recommend the company provides evidence to show it can achieve these forecasts and provides full cost information.	Our metering forecasts are based upon the current trends of meter uptake at 2.5% per annum. We agree that this is a significant meter penetration and we will monitor this closely through annual reviews and our water resource planning process. However, actual meter optant levels have fluctuated up to 3.2% therefore we consider the 2.5% to be a reasonable and prudent forecast. We currently have no basis to modify this and could provide no justification for doing so. Welsh Water's tariff basket is calculated using current metered customers therefore we will continue to adjust measured and unmeasured tariffs as metering continues through the planning period. We feel that this will be the necessary impetus for our customers to

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<p>Clearly state the greatest sources of uncertainty in the headroom calculation for all resource zones in its final plan.</p>	<p>continue on the current trend.</p> <p>Since the Draft Plan, and in line with our ‘Further Work to Do’ section, Welsh Water has undertaken a full and detailed review of our headroom assessments. The full conclusions of this were presented to the EAW in November 2008. The main areas of this review were:</p> <ul style="list-style-type: none"> <li>• A complete review of climate change uncertainty, including full audit, comparison of different methodologies and an assessment of all of the Environment Agency’s approaches. The conclusions of this study demonstrated that our assessment was robust and fully in line with EAW guidance. Large headroom uncertainty for climate change is as a result of geographical variations in the UKCIP scenarios.</li> <li>• A review of inflow uncertainty. This has resulted in a change in Tywyn Aberdyfi only as we had included uncertainty on both Afon Fathew and Braich y Rhiw, although they operate under an aggregate licence. This reduced uncertainty is this zone and is zone-specific.</li> <li>• We have completely re-assessed headroom uncertainty on demand. For the Draft Plan, we developed a PCC model. It was not possible to do this and develop headroom uncertainty on the same basis in parallel. Since the Draft Plan, we have reassessed headroom to account for uncertainty specifically upon population, property and PCC.</li> </ul> <p>We provided this information in our technical supporting report to the Draft Plan, which the EAW received. We intend to include text within a Revised Draft Plan.</p>
<p>Re-evaluate or provide additional justification for the large uncertainty in the supply and climate change components of headroom for the deficit Tywyn Aberdyfi zone. If headroom uncertainty is reduced, the remaining deficit may be better resolved by the earlier introduction of flexible demand management measures prior to consideration of a new groundwater scheme.</p>	<p>Tywyn Aberdyfi was fully reviewed as part of the Headroom Review described above. The large uncertainty driven in Tywyn Aberdyfi for climate change is driven by the UKCIP scenarios and not Welsh Water's application of the factors which is consistent with the EAW required approach. We have undertaken further work to justify. Our review of this and subsequent presentation to the EAW in November 2008 confirmed the revised optimum solution of demand management.</p>

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<p>Consider options to reduce uncertainty in headroom for its final plan. We believe uncertainty could be lowered in several zones, especially those in deficit.</p>	<p>As described above we have fully reviewed headroom components and we strongly believe that the uncertainties are justified. In a number of zones, higher uncertainty is as a direct result of climate change. We believe that we are planning appropriately for climate change and fully in line with the Environment Agency's approach. We have raised the issue of geographical extremes in the UKCIP scenarios with the EAW previously. We are currently reviewing the UKCP09 scenarios to understand whether they offer any differences in extremes.</p>
<p>Update its demand forecasting component of headroom to take account of uncertainties in population, property and per capita consumption forecasts instead of using the 2001 foresight scenarios. This is particularly important for the South Meirionydd and North Eryri-Ynys Mon deficit zones.</p>	<p>We identified in our Draft Plan a further work section. We have developed our pcc model and have now developed a headroom model in parallel. Additionally, we now incorporate uncertainty on population and property. This work was again presented in November 2008.</p>
<p>Provide the evidence to justify its chosen risk profile for target headroom in its final plan. This should include the level of service that this target headroom allows for and how this is different to planned levels of service.</p>	<p>The risk profile for headroom varies through the planning period, with Welsh Water accepting higher risk in the latter period. This is wholly consistent with the Environment Agency's recommendations within the Water Resource Management Plan guidelines. There is no variation to the Level of Service.</p>
<p>In its final plan we expect the company to: Include additional commentary for each of the deficit zones to explain how the preferred supply-demand options have been chosen. This should include consideration of any risks and uncertainties.</p>	<p>The text referred to in the Draft Plan main report only included details on the Tywyn-Aberdyfi and Vowchurch WRZ's as these were the only zones where resource schemes were chosen to resolve the deficit and where there was some variation in schemes as part of the optimisation process. In the main report we have presented how the SEA was used to develop the set of options chosen. Further detail on how options were chosen for all deficit zones is provided in the technical supporting Engineering Report which accompanied the Draft Plan. This document was not put into the public domain due to the security requirements dictated by our Direction from WAG but was provided to EAW. We would welcome further input from the EAW if they consider that further detail should be provided.</p>
<p>Present more information on the proposed leakage options for its final plan. This should describe how these options differ from current leakage activities. Increased rates of mains renewal and pressure management should also be considered in addition to increased active leakage control.</p>	<p>We have updated and refined our Leakage Strategy and we intend to provide further detail on leakage options in a Revised Draft Plan.</p>

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<p>Include evidence of how the company has assessed lowering the level of service in deficit zones where the modelled level of service is higher than the company target level of service. This may increase average deployable output and reduce or remove resource zone deficits.</p>	<p>We provided options within the Draft Plan which had the potential to lower LoS. We will define current LoS and revised LoS clearly within a revised Draft Plan. As detailed in the Deployable Output technical supporting report, lowering of LoS to increase deployable output is dependent upon increasing annual abstraction licences.</p>
<p>Use alternative methods or data to evaluate environmental and social costs where it has found the Benefits Assessment Guidance (Environment Agency and UKWIR, 2002) approach inappropriate or inadequate.</p>	<p>We have used the Benefits Assessment Guidance (BAG) as this is the recommended methodology in the WRP guidelines. Furthermore our Leakage Strategy was updated for Ofwat's methodology which also requires the use of BAG. Welsh Water cannot choose to use an alternative methodology as this would result in inconsistencies between regulatory requirements and approaches. We have in some instances had to modify the application of BAG to ensure it best reflects the assessment of some options.</p>
<p>Undertake sensitivity analysis of the proposed supply-demand options in its plan to assumptions or changes in the supply-demand balance (for example due to different population growth patterns) at the resource zone level.</p>	<p>Sensitivity analysis was undertaken on deployable output, demand, headroom, CAPEX, OPEX and environmental and social costs within the Draft Plan (Section 11.3). We believe that uncertainties to supply demand balances driven by population and growth should be incorporated within headroom uncertainty. However, we accept that it is wise to consider uncertainties and risks in association with options. We did not do this at the Draft Plan stage as the majority of selected options were within Welsh Water's own operation and control (for example, leakage). At a revised Draft Plan, when we incorporate sustainability reductions, we intend to provide the optimum set of options. We will however also identify within this set of options those which may carry a greater risk (due to for example licensing, planning, commercial issues). Where this is likely to occur, we will also present a 'Plan B' set of options.</p>
<p>We recommend Dŵr Cymru provides further justification for selecting 2006/ 07 and 2003 demand data as representative of a dry year in its final plan. Inconsistent evidence that 2006/ 07 is a dry year is presented in the demand and deployable output technical reports that support the company's draft plan. If a longer data record is needed to obtain dry year demand data, the company should re-base earlier demand data by removing the effects of leakage reduction, metering issues and changes to its supply system.</p>	<p>We do not believe there has been any inconsistent evidence presented between the deployable output and demand forecast report. The deployable output analysis concentrated on a recent demand data set over the 2002 to 2007 period to ensure that 1) customer demand reflected current supply system configuration, 2) demand data was not skewed by significantly higher demand driven by leakage and 3) data</p>

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	<p>was available at zonal level. We believe that due to the significant geographical variation of demand across our supply area defining dry year and particularly critical period peaking factors it is imperative to use zonal level data. Analysis undertaken within the demand forecast report also confirmed that 2003/2006 events used at zonal level were dry year events. The longer company level data set used for the demand forecast was to define the regression parameters between rainfall and distribution input only. This confirmed that the 2003/ 2006 events used at zonal level were dry year events. However, once normalised demand data is peaked using consistent factors within the deployable output report.</p> <p>There are clearly other dry years within Welsh Water’s records (for example, 1976, 1984 and 1995). However, demand behaviour during these years was significantly skewed by the conditions described above and it would be impossible to accurately re-base earlier demand data. 2006 has been confirmed as a significantly high demand year, with peak week data rising up to 40% above average in some zones. Although for instance 1995 was hydrologically drier, this same customer behaviour was not experienced across Wales and dry year to peak week demands were not consistently as high as in 2006.</p>
<p>Dŵr Cymru has set out the adjustments it has made to components of demand to reconcile the water balance at the company level using the Maximum Likelihood Estimation. We recommend the company also presents this information at the resource zone level for each zone in its final plan. This will demonstrate a clear and transparent audit trail.</p>	<p>We assume that the EAW is referring to the Adjustment Factors set out in Table 3 of our <i>Technical Report – Demand Forecasts for DWRMP09</i>. If so, there has been a misunderstanding of how these factors are applied. The factors are applied to the post-MLE components of demand of the Water Resource Zones (not the Region) to ensure that, for each component, the sum of the 24 post-MLE zonal totals exactly equals the post-MLE regional total. The same factors are used for each of the 24 WRZs.</p>
<p>Dŵr Cymru has conformed to most of the Welsh Assembly Government Directions. Based on our understanding of the Directions, however, we recommend the company provides more information to show how it complies with Section 3(a)-(c) of the Water Resources Management Plan Direction 2007, Our analysis shows that the company should undertake further work to:</p> <p>a) Provide the required information on planned Level of Service (LoS) and information on actual LoS.</p>	<p>a) We will provide additional information on LoS  b) We remain unclear as to what is required from Welsh Water to conform to this Direction. We have discussed this with both the WAG and the EAW. Welsh Water will have no overlap of existing options between AMP4 and AMP5. We would welcome further assistance from</p>

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<p>b) Provide a description of how the company selected its existing options for water supply as well as future options. By doing this the company can confirm whether it is using the optimum solutions.</p> <p>c) include a carbon footprint of both current and future operations.</p>	<p>the EAW on where they feel additional information is required</p> <p>c) The carbon footprint of all of our options was provided in the technical supporting report on Engineering Options. We will include within a revised Draft Plan further analysis on carbon.</p>
<p><b>Milford Haven Port Authority</b></p>	
<p>Are you, or Dwr Cymru Welsh Water able to give an indication of when these, not insignificant adjustments, are likely to be incorporated within the 25-year water resources strategy?</p>	<p>We agree that inclusion of sustainability reductions within a published Plan for consultation is important within the statutory process. Welsh Water are disappointed that we were unable to do this for the Draft Plan, however we did not received a full indication of the sustainability reductions from the Environment Agency Wales (EAW) until November 2008, eight months after our submission date to WAG. Since November 2008 we have been working closely with the EAW to review the impact of the licence proposals and we finally received the Site Action Plan for the Cleddau in April 2009.</p>
<p>Will these considerations be included in the Dwr Cymru Welsh Water 16th July published response statement?</p>	<p>In May 2009, we wrote to WAG requesting an extension until August 2009 to enable us to publish both this Statement of Response and a Revised Draft Plan including sustainability reductions. We believe that this is in the best interests of our stakeholders and customers within Wales. However, in June 2009 the EAW has indicated to Welsh Water that following an internal quality audit of their assessments a further review of the sustainability reductions is required. This prevents us therefore from being unable to publish a Revised Draft Plan at this time. Welsh Water awaits Direction from WAG regarding re-publication of the Water Resources Management Plan. This adds a frustrating and further unknown time delay to this process. We continue to work with the EAW and challenge them regarding their conclusions. However, we are committed to ensuring that sustainability reductions are given full consideration.</p>
<p>On a more general note, we are somewhat surprised at Dŵr Cymru's stated cautious approach to the promotion of metering. The first step in any effective management of resource is to accurately quantify demand. Meterage not only benefits the individual consumer in awareness and managing their water requirements, but also the supplier with more accurate data for demand management and conservation of a valuable resource. As this plan covers the extensive period to 2034-35 we</p>	<p>Welsh Water have included metering in line with current trends which raises company-wide metering to a level of 70% under current forecasts by 2035. This has been praised by the EAW in their response to our plan. Our policy is fully consistent with the WAG Strategic Position Statement. WAG and Welsh Water do not support full compulsory</p>

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<p>would have expected a more specific detail and intention of a phased approach to meterage rather than the cautious approach to promotion of metering expressed in the Overview Document, or the loose statement of intent in Section 6.6 Metering within the draft Plan.</p>	<p>metering. Welsh Water’s existing metering policy targets large volume users and ‘luxury’ use as clearly identified by WAG, as well as optants. There is no cost-benefit case to support full metering.</p> <p>Furthermore, in line with the Strategic Position Statement we have developed innovative tariffs to support affordability and vulnerable groups in Wales. These are unique to the water industry and are currently on trial in Wales. Welsh Water Assist, Water Direct and Water Collect deliver a range of lower tariffs for those on very low income and benefits (up to a 40% decrease in charge) and payment facilities. If these trials are successful, then we plan to introduce these innovative tariffs as standard with the full support of WAG.</p> <p>With regard to metering providing data, Welsh Water has an extensive metering network to provide this data for leakage management and to enable us to measure all customer demand. We do not rely on individual customer metering to do this and have instead data loggers across all of our assets and at individually defined District Meter Areas (DMAs) and SuperDMAs. This enables us to fully measure customer water usage across Wales.</p> <p>However, we appreciate your comments and understand your concerns on the topic. We also accept that considerable supporting text on our metering case was provided in a supporting technical document, and not within the main plan, which was only issued to the EAW, WAG, and Ofwat, due to the inclusion of confidential information. Therefore, if we have the opportunity to publish a Revised Draft Plan, we intend to add additional commentary to the main plan to clarify the issues.</p>
<p><b>National Trust</b></p>	
<p>It is disappointing that the information necessary to plan sustainability reductions was not available to inform the draft plan. It is likely that significant revisions will be required once information is available from the Environment Agency, as indicated by initial analysis of the Wye and Usk SAC. In planning for sustainability reductions we urge Dŵr Cymru to prioritise demand reduction and efficiency options as these are cost effective and low in carbon intensity.</p>	<p>The RoC process and outcomes were not included in the Draft Plan (or the SEA and HRA). We intend to revise the Draft Plan to include the RoC results. We are preparing updates to our Draft SEA and Draft HRA documents in line with our Revised Draft Plan and have further developed our options as a result.</p> <p>We fully adopt and use the 'twin-track' approach in our planning process and our current Preferred set of options are combinations of</p>

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<p>We note that since publishing the draft plan, Dŵr Cymru has provided further information on plans to manage sustainability reductions. We would welcome further information on what is likely to be required for the “new resources” and “improved infrastructure” in the SEWCUS and Pembrokeshire zones. These proposals should also be subject to SEA.</p>	<p>water efficiency, leakage reduction and resource schemes.</p> <p>We published a statement on sustainability reductions at the same time we published the Draft Plan. We were unable to fully include sustainability reductions as we did not receive ‘definitive’ sustainability reductions from the Environment Agency Wales (EAW) until November 2008. We have been developing options to maintain the supply demand balance, and the statement provided an indicative set of options. Finalised options to resolve sustainability reductions can only be provided when Welsh Water understand the final sustainability reductions the EAW propose. In June 2009, EAW indicated to us that following an internal quality audit they intend to review their proposals on our abstractions. We are not clear at this stage therefore what sustainability reductions are proposed for our abstractions or the impact this will have to our supply demand balances.</p> <p>We had hoped to publish a revised Draft Plan with this Statement of Response. However, this is now dependent upon the EAW review. We will await Direction from WAG regarding republication of a revised Draft Plan. However, this will include a full analysis of the impact and the proposed options as a result. As detailed, this will include a full option appraisal within a HRA and SEA.</p>
<p>The treatment and supply of water and handling of wastewater in the UK was responsible for five million tonnes of greenhouse gases in 2006/07. Every effort should be made to minimise greenhouse gas emissions associated with the plan. In light of guidance from Ofwat and the Welsh Assembly Government, it would be beneficial for the plan to indicate how the selected options affect GHG emissions and energy use. The use of hot water in homes is responsible for 5% of UK emissions which makes residential water efficiency important in terms of emissions reduction.</p>	<p>Greenhouse gas emissions were assessed for the Draft Plan but were reported within a separate technical report. They will be intrinsically incorporated into our Revised Draft Plan and the estimation of the option impacts. Without sustainability reductions we would have minimal further impact to greenhouse emissions; however, the options required to replace our existing abstractions under the RoC result in significantly higher emissions. These findings will be detailed in the Revised Draft Plan. This is driven by the large loss of local resource and the need to transfer water greater distances, with significant pumping.</p>
<p>We note the projection that increased demand due to population growth will effectively be cancelled out by trends for reduced water usage. This does not reflect the Environment Agency’s forecast that demand for water is likely to rise steadily over the next 10 years, and by around 5% by 2020. We would urge Dŵr Cymru to be more ambitious and aim for an absolute reduction in per</p>	<p>We utilised a large amount of historical demand data in our non-household demand forecasts. The expected continued decline in high water usage sectors such as metal manufacture and oil and chemical processing is estimated to counteract the forecast increasing household</p>

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<p>capita consumption. The current level of use in unmetered households is well above the target recommended by Environment Agency: 130 l/h/d by 2030 which should be the ambition.</p>	<p>demand caused by increasing population. Water Efficiency is an important aspect in our approach to maintaining a favourable water balance. Within our draft WRMP our forecasts for measured households per capita consumption (pcc) by 2030 was 120.89 l/h/d and for unmeasured households the figure was 158.45 l/h/d giving an average figure of 139.67 l/h/d. This forecast already includes a number of the policies detailed within the Defra strategy, however to achieve such reductions in pcc will require changes to legislation to enforce changes in new property development (in line with the Code for Sustainable Homes) and improvement in the water efficiency of appliances. This shows that we are close to achieving the Defra target for pcc of 130 l/h/d based on our current policies. It is worth noting that the Defra target is specific to England rather than Wales, WAG in their Strategic Position Statement on Water have not set a pcc target.</p>
<p>We believe that the current level of metering (25%) should be dramatically increased to near-universal by 2030 and would ask Dŵr Cymru to work towards this. We recognise WAG's concern about the impact this will have on vulnerable users but believe this can be addressed through special tariffs.</p>	<p>Welsh Water have included metering in line with current trends which raises company-wide metering to a level of 70% under current forecasts by 2035. This has been praised by the EAW in their response to our Draft Plan. Our policy is consistent with the WAG Strategic Position Statement. There is no cost-benefit case to support full metering and there are significant affordability impacts for poorer households. In parallel, we are working with WAG to develop innovative tariffs for vulnerable groups, which will be unique in the water industry</p>
<p>The National Trust has installed rainwater harvesting systems in certain properties to provide water for toilets. The final plan should include work by Dŵr Cymru to support wider use of such technology in order to reduce use of treated water.</p>	<p>The Draft Plan, as indeed will the Revised Draft Plan, contains a wide range of potential water efficiency measures that can be used to help meet supply demand deficits, on top of the baseline water efficiency work that Welsh Water undertake as part of our Water Efficiency Strategy. Although, through our Water Efficiency Strategy, we actively promote a wide range of measures, our intervention options do not include rainwater harvesting. We consider that there are health and safety issues with certain types of rainwater harvesting and moreover, the retro-fitting of rainwater harvesting measures is generally not cost beneficial (as also detailed in the Environment Agency's Water Resources Strategy for England and Wales, 2009). However, in our Final Business Plan we included £15m for our Surface Water Management</p>

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	Strategy which will include further studies into the effectiveness and cost of rainwater harvesting.
The National Trust believes there is potential for greater use of a catchment management approach to improving water quality. This has demonstrated success in other parts of the UK and is supported by both Ofwat and WAG. We look forward to discussing opportunities for land managed by the National Trust to contribute to improved water quality.	Welsh Water is committed to research and studies into catchment quality. This is outside of the scope of the Draft Plan. However, we have included £2 million in our Final Business Plan to further our understanding in this area and would welcome further discussion with the National Trust.
We welcome the focus on options to reduce leakage and improve water efficiency. We believe that the priority should always be to improve water efficiency before increasing abstraction. This approach is not only cost-effective it is also comparatively low in energy use and carbon intensity. We recommend that the carbon life-cycle costs of the options are considered as part of the selection.	Carbon accounting of all the intervention options was included in the Draft Plan. It is an integral part of Welsh Water's strategy to ensure we minimise our carbon footprint as much as possible as set out in Welsh Water's Strategic Direction Statement – 'Our Sustainable Future'. Since the submission of the Draft Plan, we have reviewed and updated the carbon accounting so that the Revised Draft Plan is in line with the carbon accounting that was undertaken as part of the Final Business Plan submission.
We note that where efficiency options are selected they focus on non-household users. We assume that ongoing work to encourage household efficiency will continue, and that priority will go to zones predicted to experience supply-demand deficits. There is added impetus to focus on household demand reduction as this can deliver significant GHG emissions reduction. We recommend that Dŵr Cymru work with the Energy Saving Trust to provide a whole-household approach to tackling energy and water efficiency and waste water, and the links between them.	As part of the planning process, we optimise a large range of household and non-household water efficiency options. The options that have been selected (generally non-household options) to meet specific supply demand deficits have been selected on environmental, social, carbon, engineering and financial considerations. We will continue to promote water efficiency measures across our customer base as part of our baseline Water Efficiency Strategy.  Welsh Water is pleased to confirm that we are already working with the Carbon and Energy Saving trust as part of our Water Efficiency Strategy to promote a joined up approach to water efficiency in the home.
<b>Natural England</b>	
We are therefore very pleased that Welsh Water has undertaken a HRA of their draft WRMP, although this now needs revising in light of the sustainability reductions that have come out of the EAs Review of Consents process and any other changes to the dWRMP.	The impacts of the EAW sustainability reductions will be included in a Revised Draft Plan (SEA and HRA), subject to receiving Direction from WAG. Definitive sustainability reductions were not provided by the EAW in sufficient time to be robustly included in our Draft Plan. It has been extremely frustrating for Welsh Water that we have been unable to evaluate fully the impact of sustainability reductions within this Draft

Comment	Welsh Water response
	Plan due to continued delay from the EAW. Furthermore, in June 2009 the EAW indicated to Welsh Water that following an internal review they would be re-assessing the proposed sustainability reductions, particularly on the River Wye. We must therefore wait for the outcome of this review before we can understand the impact, if any, to our current licence proposals.
The SEA does now need revising to take account of the new information on the sustainability reductions that have come out of the EAs Review of Consents process and any other changes to the dWRMP.	As stated in the answer provided above, we intend to revise the Draft Plan to include the RoC results; this include a Revised Draft SEA.
We believe that the changes caused by the RoC process, will mean that there will be significant changes from the dWRMP. Therefore we believe that further consultation on the revised WRMP and its revised SEA and HRA, should be undertaken before the plan is finalised.	It is our aspiration to publish and have a full consultation period on a Revised Draft Plan (including the SEA and HRA). However, as stated, we are awaiting Direction from WAG on the statutory timescales and processes.
We therefore welcome Welsh Water's proposals for increasing their water efficiency activity and their aim to reduce leakage levels. We also consider that Welsh Water should be promoting the use of Sustainable Urban Drainage systems (SUDs) as alternatives to sewers for surface drainage and runoff. These should be promoted both in both existing urban area redevelopment opportunities and designed into new development. We would support a per capita consumption that is at an average of 130 litres/person/day by 2030, or below in line with Defra's strategy Future Water.	Our Preferred options to resolve the supply demand deficits fully utilise the 'twin-track' approach as the optimum solutions presented within the Draft Plan are a combination of water efficiency, enhanced leakage reduction and resource schemes. Welsh Water is currently leading the water industry in its approach towards the management of surface water flows in the sewerage network and is seeking legislative changes to support revised approaches to the disposal of surface water flows. We are currently piloting 4 schemes across our operating area and, between 2010 and 2015, will be developing model schemes within 4 catchments (covering approximately 20% of the customer base). Amongst the measures adopted will be rainwater harvesting, bio-vegetative treatment, flow monitoring and use of permeable paving. The total cost of the proposed investment between 2010 and 2015 on the Surface Water Management Strategy and the pilot schemes is £15m. Welsh Water has also applied for European funding and Welsh Assembly Convergence Funding to support the further development of this work. In the meantime, Welsh Water continues to work closely with developers to ensure that sustainable drainage solutions remain the first consideration for the disposal of surface water. Within our Draft Plan our forecasts for measured households per capita

Comment	Welsh Water response
	<p>consumption (pcc) by 2030 was 120.89 l/h/d and for unmeasured households the figure was 158.45 l/h/d giving an average figure of 139.67 l/h/d. This forecast already includes a number of the policy detailed within the Defra's strategy, however to achieve such reductions in pcc will require changes to legislation to enforce changes in new property development (in line with the Code for Sustainable Homes) and improvement in the water efficiency of appliances. This shows that we are close to achieving the Defra target for pcc of 130 l/h/d based on our current policies. It is worth noting that the Defra target is specific to England rather than Wales, WAG in their Strategic Position Statement on Water have not set a pcc target.</p>
<p>The WRMP should be very clear in specifying what level of housing has been used within the assessment. Currently in the West Midlands region, the Regional Spatial Strategy is undergoing its Phase 2 revision, which has put forward a preferred option level of housing. However, the government office is also looking at additional housing levels on top of the preferred option, and it has yet to be determined what the final numbers will be. Therefore it needs to be clear which set of housing numbers have been used and we would recommend that some assessment on the sensitivity of WRMP to these different housing levels should be undertaken, if it hasn't already and the outcome of this should be documented within the WRMP.</p>	<p>We agree that our Draft Plan was unclear on our demand forecasts and we have updated the commentary within our Revised Draft Plan accordingly.</p> <p>Our property forecasts for the Draft Plan for the Herefordshire area were based on information received from Hereford County Council. Our revised forecasts take account of the latest revisions to the Regional Spatial Strategies and will continue to be updated accordingly.</p>
<p><b>Pembrokeshire County Council</b></p>	
<p>Welsh Water should take account of existing development plans which give aspiration or policy led growth forecasts for housing as do emerging Local Development Plans. In the case of Pembrokeshire County Council's planning jurisdiction (the County excluding Pembrokeshire Coast National Park) there is an adopted Joint Unitary Development Plan for Pembrokeshire (which also covers the area of Pembrokeshire Coast National Park Authority) and a recently published Local Development Plan Preferred Strategy which set out expected growth to 2016 and 2021 respectively. In addition Pembrokeshire Coast National Park Authority has published their Deposit Local Development Plan.</p> <p>Population projections used in the WRMP were derived from 1998 based Population and Household Projections for Wales published in November 2001, these have been superceded. The Welsh Assembly Government published population projections in 2008 and household projections are expected imminently. The final WRMP needs to take account of these updated projections.</p>	<p>Thank you for information regarding planning numbers and published population data in Wales. Revised population and property forecasts have been published by WAG since the submission of our Draft Plan to WAG in March 2008. We have therefore fully updated our forecasts based upon these revisions.</p>
<p>What environmental outcomes 1 and 3 relate to and the likely contents and implications of a stage</p>	<p>Environmental Outcome 1 is defined by EAW as 'Ensure that there is,</p>

<b>Comment</b>	<b>Welsh Water response</b>
4 environmental outcome report.	<p>and will be adequate flow throughout the SAC and its estuary to maintain/ restore the integrity of features within the European site’.</p> <p>Environmental Outcome 3 is defined by EAW as ‘Ensure that the River Cleddaus (sic) have a hydrological regime reflecting the properties of natural flow variability to maintain/ restore the integrity of the European site’.</p> <p>Since publication of the Draft Plan we have since received the Stage 4 report from the EAW that details the changes they wish to see made to our abstractions at Pont Hywel and Crowhill.</p>
Who the licensees are that are likely to be affected by any changes to abstraction licences and what the likely impacts upon their businesses will be?	<p>There are other abstractors who the EAW also propose licence amendments for but for confidentiality purposes, the EAW have not disclosed to us who they are. If you wish to receive a copy of the Stage 4 report, we recommend you contact the EAW directly.</p>
Will any impact on the supply -demand balance described from RoC outcomes affect the overall conclusion that Pembrokeshire Water Resource Zone will remain in surplus to 2034?	<p>We have modelled the impacts of the EAW’s proposed amendments to our abstraction licences along the Eastern and Western Cleddau which results in a loss of deployable output of approximately 50% in the Pembrokeshire WRZ. This would place the zone into a significant supply deficit throughout the planning period from approximately 2012 (when we understand the licence amendments are due to be implemented) to 2035. This will require us to make significant capital investment (circa £5.5m) within Pembrokeshire.</p> <p>We have been working closely with the EAW to understand the proposals, the impact to our supply demand balance and the capital investment requirements. In June 2009, the EAW indicated that following an internal quality audit they intend to undertake a review of the sustainability reductions proposed at our abstractions. The final impact to Pembrokeshire will be dependent upon the outcome of this review and our subsequent recalculation if any changes are proposed. Welsh Water proposes to republish a Revised Draft Plan for consultation with full analysis of sustainability reductions. The timing and publication of this will be dependent upon the EAW review and Direction from WAG.</p>

Comment	Welsh Water response
<p><b>Royal Society for the Protection of Birds</b></p>	
<p>Welsh Water’s water resource management plan contains some positives, with some good demand management options. However, the plan is over-reliant on the development of new supply, largely justified by an excessively high prediction of future demand.</p>	<p>Our Preferred options, in the Draft Plan, to resolve the supply demand deficits fully utilise the 'twin-track' approach as the optimum solution is a combination of water efficiency, enhanced leakage reduction and resource schemes. Our demand forecasts follow Environment Agency guidelines and we forecast based upon Local Authority population projections and the national population projections published by WAG. Since the Draft Plan was submitted to WAG in March 2008, Welsh Water has revised its demand forecasts to take into account more up to date information reflecting anticipated demographic changes and the changing economic circumstances and re-evaluated the climate change allowances. These revisions have resulted in four of the seven zones (from the Draft Plan) remaining in surplus to 2035 and not requiring any further intervention to maintain the supply demand balance. Following the revision, significant investment in new resources is driven only by the inclusion of sustainability reductions.</p>
<p>Welsh Water’s forecast for future demand incorporates a number of assumptions that need to be questioned. Defra’s water strategy (Future Water) has a target per capita consumption of 130 litres per person per day, and a number of policy changes have been initiated to help society reach this target – including the Code for Sustainable Homes and water efficiency targets within revised building regulations. In the light of these initiatives, it is disappointing that Welsh Water have chosen a very conservative prediction of per capita consumption as the basis for their demand forecasting; including a predicted per capita consumption of up to 156 litres per head by the end of the plan period for unmetered households. Forecasting such a high demand in the future clearly has implications for the projected supply-demand balance and the need to invest in new resources. If per capita consumption were managed to Defra target levels then many of resource development options would be unnecessary.</p>	<p>Within our Draft Plan our forecasts for measured households per capita consumption (pcc) by 2030 was 120.89 l/h/d and for unmeasured households the figure was 158.45 l/h/d giving an average figure of 139.67 l/h/d. This forecast already includes a number of the policy detailed within the Defra’s strategy, however to achieve such reductions in pcc will require changes to legislation to enforce changes in new property development (in line with the Code for Sustainable Homes) and improvement in the water efficiency of appliances. This shows that we are close to achieving the Defra target for pcc of 130 l/h/d based on our current policies. It is worth noting that the Defra target is specific to England rather than Wales, WAG in their Strategic Position Statement on Water have not set a pcc target.</p>
<p>We welcome the scheme to accelerate metering take-up in southeast Wales. We do believe that metering, particularly in areas of water stress and environmental sensitivity, is the most sustainable and fairest means of charging for water and can help to reduce per capita consumption. It is therefore disappointing that Welsh Water have dismissed accelerating metering in other parts of Wales.</p>	<p>We included metering in line with current trends which raises company-wide metering to a level of 70% under current forecasts by 2035. We are not accelerating metering in the south-east of Wales, over any other area of Wales. This has been praised by the Environment Agency in their response to our plan. Our policy is consistent with the WAG</p>

Comment	Welsh Water response
	Strategic Position Statement. There is no cost-benefit case to support full metering.
<p>The absence of a large-scale programme of water efficiency (particularly in southeast Wales), that offers a true step-change in levels of activity, is unacceptable, particularly in the context of climate change and Welsh Water’s proposals for resource development. The introduction of metering offers a unique opportunity to pursue an integrated campaign of domestic water audits, supply pipe replacement and the fitting of water efficient kit. We are aware that a number of water companies are proposing such options, and would urge Welsh Water to reconsider the scale and ambition of their water efficiency programme. Without such a programme, Welsh Water’s plan cannot claim to be embracing the ‘twin track’ approach.</p>	<p>We considered a full range of options within the Draft Plan to resolve deficits - this included large-scale water efficiency options, enhanced leakage options over and above the economic level of leakage (ELL), viable metering options and resource and production management schemes. The viability of metering is dependent upon the water stress status of the water company; in south-east England a high stress area means that these water companies are legally allowed to compulsory meter. This is not the case in Wales, and neither is this approach supported by WAG. Our water efficiency options, within the Draft Plan, included domestic and industrial audits and both retro-fitting and wholesale replacement of appliances.</p> <p>The final basket of Preferred options is based on environmental, social, technical and financial grounds as determined by our optimisation model. Basically, it will be a combination of those options that are economic and capable of yielding sufficient volume to resolve the supply demand balance in the zone.</p>
<p>While we support any further efforts to reduce rates of leakage, the new targets do not appear to be very ambitious in the light of environmental stress and climate change. While this approach may currently be acceptable to the regulator (though the Economic Level of Leakage will be redefined to better incorporate sustainability) it is unlikely to be politically acceptable, nor acceptable to customers over the course of the plan period.</p>	<p>Since the Draft Plan, we have updated our Leakage Strategy in line with the revised Ofwat (2008) methodology for calculating the ‘Sustainable Economic Level of Leakage’ which includes the full range of environmental, social and carbon-related costs and benefits associated with leakage and leakage control within the leakage calculations. We will maintain or reduce leakage further at zonal level where it is economic to do so. As part of our optimisation process to resolve supply deficits in specific zones we have considered a range of leakage options to take us below the ELL. At company level, we will continue to reduce leakage from 195 MI/d to 184 MI/d by 2014/ 15, in accordance with Ofwat targets.</p>
<p>The RSPB does not believe that Welsh Water has justified the need for the proposed expansion of Craig Goch given the inadequacies of this water resource management plan. We doubt whether this project would continue to be necessary if predicted demand forecasts were in line with Defra targets, and if water efficiency efforts were stepped-up.</p>	<p>At the time of the Draft Plan, the scale of the deficit driven by sustainability reductions means that large-scale water resource options were required to maintain our supply demand balances. The ability for us to justify options under sustainability reductions is dependent upon</p>

Comment	Welsh Water response
	<p>the proposals provided to us by EAW. Welsh Water were disappointed that we were unable to provide full analysis but the 'definitive' sustainability reductions were not provided until November 2008, eight months after submission of the Plan to WAG. The scale of the proposals in March 2008, at 180 MI/d in South-East Wales equivalent to nearly 40% of existing supply in this area or a quarter of the total company supply, meant that raising of Craig Goch would have been a very likely solution.</p> <p>Since this date, Welsh Water have continued to challenge the EAW proposals and this has resulted in a significant reduction in the impact to our licences (whilst maintaining the same environmental outcomes). This means that a resource development of this scale is no longer required. In June 2009, the EAW indicated that following an internal quality audit they need to undertake a full review of their assessment which has the potential to further change the sustainability reductions proposed. Until this review is complete, we are unable therefore to provide a further indication of both the type of options and the required timescales.</p>
<p>Would support catchment studies by DCWW to improve quality of upland raw waters.</p>	<p>Welsh Water is committed to research and studies into catchment quality. This is outside of the scope of the Draft Plan. However, we have included £2 million in our Final Business Plan to further our understanding. We would welcome further discussion with the RSPB to support our studies during AMP5 in this area.</p>