



UNITED UTILITIES WATER PLC

Water Resources Management Plan 2012/13 Annual Review



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The cover photograph shows representatives of United Utilities and GabiH2O collecting a gold award at the Green Apple Environment Awards ceremony in November 2012. We were awarded this for our promotion of water efficiency in the field of education.

1 OUR WATER RESOURCES IN 2012/13

1.1 BACKGROUND

In this annual review we report on United Utilities' water resource position for the year up to 31 March 2013. We compare forecasts made in our 2009 Water Resources Management Plan with actual events between April 2012 and March 2013.

The 2009 Final Water Resources Management Plan was published in September 2009. It presents a comprehensive statement of United Utilities' water supply and demand forecasts along with its strategy to maintain supply reliability throughout the region. The plan also presents detailed information on United Utilities' methodologies, policies, assumptions and key data.

We are in the process of consulting on our updated draft Water Resources Management Plan. Once the consultation process is completed and a revised plan approved it will replace the 2009 Water Resources Plan. We have reviewed all our customer requirements, changes in our supply system, taken into account future effects of climate change and set out what our proposed plan for securing the future for water resources in the North West. The consultation is open from 14 May 2013 to 6 August 2013 and you can find it by following this link: corporate.unitedutilities.com/Water-Resources-Management-Plan.

The 2009 plan is available at corporate.unitedutilities.com/waterresourcesplan.

In compliance with the Water Industry Act 1991, this Annual Review provides an update to the 2009 plan. It describes progress made on implementing the plan and provides commentary on the key issues, in accordance with the Environment Agency Water Resources Planning Guidelines. We are sending this Annual Review to the Secretary of State, to the Environment Agency and to Ofwat. We are also publishing it on the United Utilities website.

1.2 OVERVIEW OF 2012/13

The year was generally wet, particularly during April to September, and no drought powers were required. We have made good progress with leakage control and demand management and maintained security of supply, but have identified new challenges with our abstraction from Ennerdale in West Cumbria. In summary:

- We have maintained an extensive programme of leakage control actions and met the Ofwat leakage target of 464 MI/d for 2012/13. Total leakage across the region averaged 457 MI/d.
- We have implemented a wide range of water efficiency measures and exceeded the water efficiency target set by Ofwat. More details are presented in Part 2 of this report.

Key Messages

- United Utilities maintained its supply demand balance with both dry year and critical period Security of Supply Indices remaining at 100
- We have maintained leakage across the region below the target level of 464 MI/d
- We have made further progress in reducing leakage in West Cumbria
- We outperformed our water efficiency targets
- We have won awards for our water efficiency work
- Higher river flows are required to protect rare species in West Cumbria, reducing water available for use
- We have produced a new draft Water Resources Management Plan for consultation

- We were awarded a prestigious Green Apple award for our work in water efficiency education.
- The Security of Supply Index has remained at 100 for both dry year and critical period assessments in all four of our Water Resource zones.
- In accordance with the 2009 plan, United Utilities has progressed with plans for water supply-demand schemes to maintain adequate future water supplies in West Cumbria.
- New evidence about the river flow needed to maintain a healthy ecology downstream of Ennerdale has led to some immediate changes in our abstraction conditions and will require further changes in the future.

1.3 2012/13 IN COMPARISON TO THE DRY YEAR SCENARIO

United Utilities' region experienced above average rainfall over 2012/13. On our catchments, it was the highest rainfall seen in the last 12 years.

Temperatures for the year have been fairly close to the long term average. From October until March, the average maximum daily temperatures for the region were slightly lower than the long term annual average. Temperatures in the April to September period were just 1.3°C above the long term average. Table A below gives a comparison of temperature and rainfall to 1995/96, which is our reference 'dry year'.

Table A: Comparison of rainfall and temperatures in 2012/13 with long-term averages and 1995/96 values

	April to September	October to March	Full year (April to March)
Regional rainfall (mm)			
2012/13	990	855	1,845
Long-term average	654	906	1,560
1995/96	320	571	891
Average maximum daily temperatures (°C):			
2012/13	17.3	8.1	12.7
Long-term average	16.0	8.5	12.3
1995/96	19.0	8.4	13.7

Distribution input is the average volume of water put into the water supply network. Regional distribution input during 2012/13 was lower than that predicted in the 2009 plan for a 'normal year' and a 'dry year' (see Table B). This is due largely to overall customer demand being lower than forecast and continues the overall decline we have seen over the last twenty years.

Ecological challenges mean that there is a focus on balancing water demand with available resources in West Cumbria and therefore we show distribution input for the West Cumbria Resource Zone in Figure 2 on the following page.

Table B: Comparison of regional distribution input values

	Regional Distribution Input 2012/13 (MI/d)
Actual	1,715
'Normal year' forecast in 2009 plan	1,784
'Dry year' forecast in 2009 plan	1,863

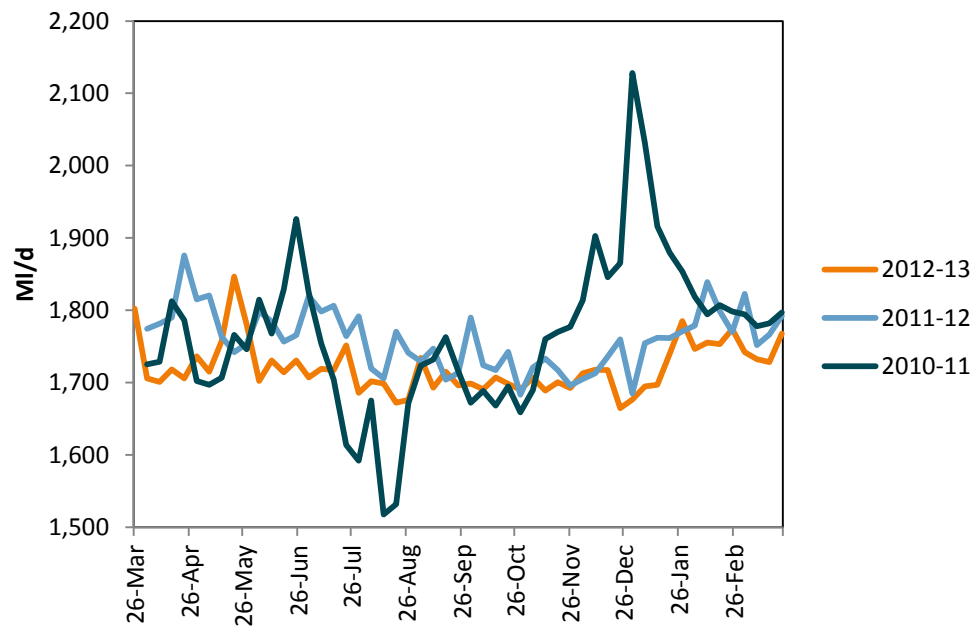


Figure 1: Regional distribution input 2012/13(MI/d)

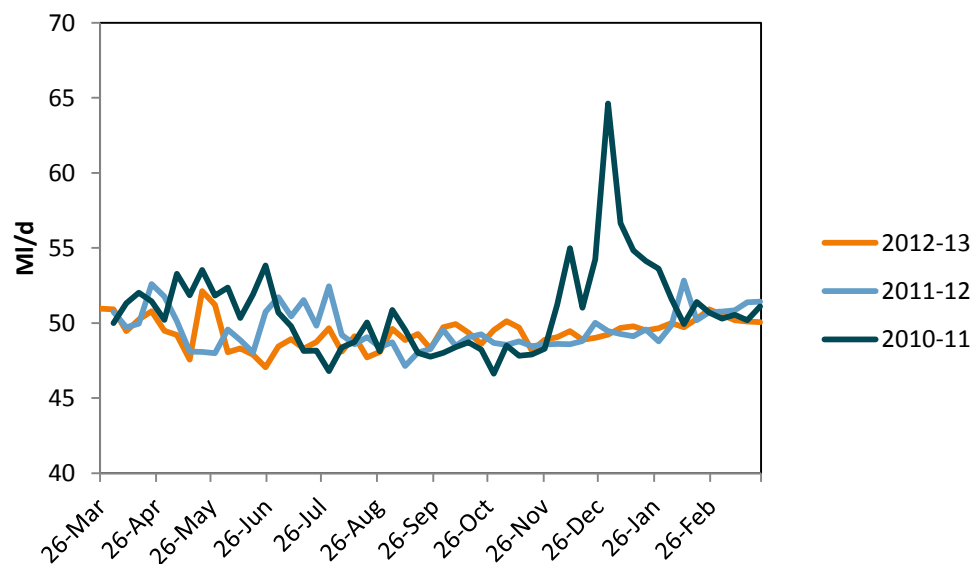


Figure 2: Weekly distribution input for West Cumbria resource zone 2012/13

1.4 WATER RESOURCE ZONES IN 2012/13

United Utilities has four resource zones:

- Integrated Resource Zone
- Carlisle Resource Zone
- North Eden Resource Zone
- West Cumbria Resource Zone

There have been no changes in resource zones since 2004.

We reviewed the resource zone boundaries and interconnectivity as we developed the new draft water resources plan, which we have published for consultation. Following this review, we have concluded that our resource zone boundaries meet the requirements of the latest guidance. Therefore, no changes to resource zone boundaries are required.

In our draft Water Resources Plan, which we have published for consultation, one of the alternatives in the plan considers interconnecting the West Cumbria Zone into the Integrated Zone. This would make West Cumbria more resilient to extreme droughts, and may be implemented by the early 2020's.

1.5 OUTTURN DATA FOR 2012/13

The majority of components of the water balance have performed close to expectations, but there are some minor variances from the 2009 plan:

- The number of metered households in our smaller resource zones is lower than forecast. Metering in West Cumbria has been less than forecast, which may be partly because of the different socio-economic profile and the historic low rateable values in the area. We are undertaking research to look at the different ways customers respond to the free meter option (further information can be found in Section 2)
- There are 57,882 more people in the region than we forecast in 2009. This is because the 2009 plan was based on the Office of National Statistics 2006-based projections, which were the best available at that time. An official census was carried out in 2011, which now gives more up to date population estimates. This year's population data is likely to be the most accurate in the ten year census cycle
- Water consumption volumes by non-households are close to expected values in all zones except for West Cumbria where non-household consumption is 3 MI/d lower than anticipated.
- Household consumption is markedly lower than forecast in the 2009 plan. This is particularly so in the Integrated Zone.

Table C below presents key outturn data for each resource zone for 2012/13, including observed water production and consumption values together with the values forecast for 2012/13 from the 2009 plan.

Table C: Key outturn data for 2012/13 compared with dry year forecasts for 2012/13 in United Utilities' 2009 Final Water Resources Management Plan

	Carlisle Resource Zone	Integrated Resource Zone	North Eden Resource Zone	West Cumbria Resource Zone	Region Total
Water available for use (own water sources) (MI/d)	37	2,009	9	57	2,113
	36	2,006	9	58	2,109
Total population (000's)	109	6,760	14	149	7,031
	108	6,698	15	152	6,973
Number of unmeasured households (000's)	32	1,805	4	49	1,890
	33	1,791	4	53	1,881
Number of metered households (000's)	14	943	2	14	973
	19	940	3	18	979
PCC unmeasured households (l/hd/d)	140	138	160	162	139
	157	153	149	154	154
PCC metered households (l/hd/d)	111	104	128	113	105
	122	127	119	121	126
PCC all households (l/hd/d)	132	127	150	152	128
	144	145	136	146	145
Water consumption by households (MI/d)	14	822	2	21	859
	15	951	2	21	989
Water consumption by non-households (MI/d)	7	354	2	11	373
	8	353	2	14	376
Miscellaneous water use (MI/d)	1	27	0	1	29
	1	37	0	1	38
Total leakage (MI/d)	4.7	435.1	2.2	15.4	457.4
	4.8	441.9	2.0	15.0	463.7
Distribution input (MI/d)	26	1,635	6	49	1,715
	28	1,778	5	51	1,863
Security of supply	In balance	In balance	In balance	In balance	In balance
	In balance	In balance	In balance	In balance	In balance
Key to table	2012/13 Normal year data				
	2012/13 forecast from 2009 final water resources management plan				

Note: numbers may not sum due to rounding.

1.6 WORK TO BE CARRIED OUT DURING 2013/14

To maintain the supply demand balance, we will carry out the following work during 2013/14:

- Continue extensive leakage control activities
- Continue to promote the free meter option on the website and billing leaflet
- Continue to maintain close liaison with the EA concerning the review of consents arising from implementation of the EU Habitats Directive, the implications for United Utilities' plans to maintain adequate supply/demand balances, and other key water resources planning issues

- Progress the supply/demand programme for West Cumbria, including:
 - Accelerate completion of the new groundwater scheme in South Egremont as early as possible and no later than 31 March 2015.
 - Specific leakage reduction plan to reduce leakage levels to the target of 14.5 MI/d for this zone
 - Continuing enhanced levels of water efficiency promotion
- Continue the wide range of activities to promote water efficiency and carry out enhanced activities to achieve the Ofwat water saving targets.

Further details on these activities are presented in section 2 and 3 below.

2 CHANGES IN THE DEMAND FOR WATER

Demand in the North West has continued on a downward trend over the last twenty years. There are a number of factors which influence how much water is used in the region and we review these below.

2.1 OCCUPANCY AND PER CAPITA CONSUMPTION

Average per capita consumption for 2012/13 was 128 l/hd/d, which is one of the lowest in the UK. The average reduction was 4 l/hd/d from 2011/12, which is in line with historic trend for United Utilities.

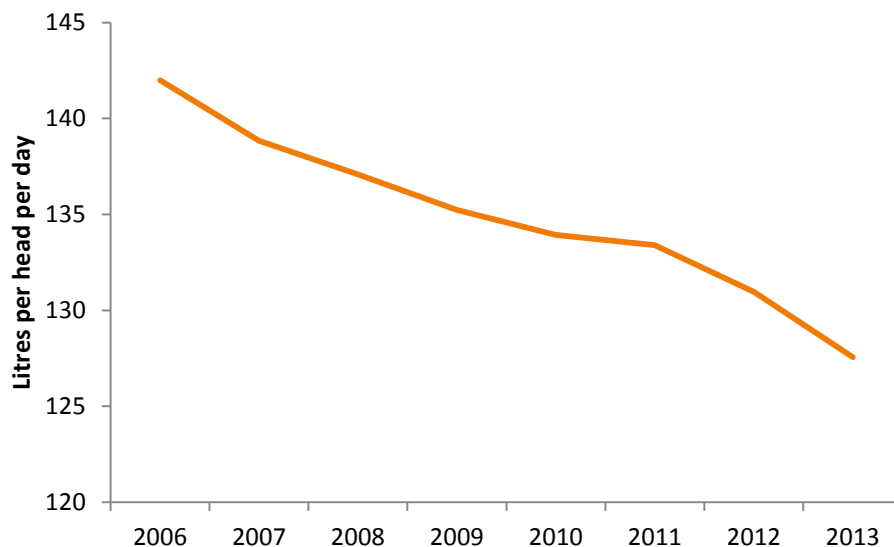


Figure 1: United Utilities household customers used 128 litres per capita per day on average through 2012/13

Unmeasured household consumption has decreased from 141 l/hd/d to 138 l/hd/d regionally, and metered households have also showed a decrease in consumption per capita from 2011/12. Table G below shows the impact on each water resource zone.

Table D: Measured Households Per Capita Consumption from 2011/12 to 2012/13

Water Resource Zone	2011/12 (l/hd/d)	2012/13 (l/hd/d)
Carlisle	112	111
Integrated Zone	108	104
North Eden	114	128
West Cumbria	120	116

The year 2012/13 was one of the wettest the North West has experienced, which could account for the reduction in demand. We have commissioned a study in conjunction with the Met Office to look at how weather can affect demand, the results of which are expected this summer. We will then use this information to calculate average demand taking account of the weather and we will also look at the results for use in our water efficiency programme.

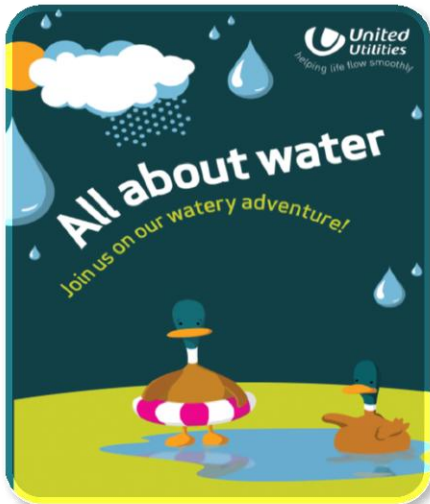
Although the weather can influence demand, water efficiency also plays a large role in reducing customer demand.

2.2

WATER EFFICIENCY INITIATIVES DURING 2012/13

Water efficiency plays a really important role in balancing supply and demand, and we have had a fantastic year. We won two water efficiency awards during 2012/13 and we beat our targets by a significant margin.

The 2009 plan identified an optimum programme of water supply and demand reduction solutions for the next 25 years. The plan identified deficits in the supply/demand balance in AMP5 in the West Cumbria Resource Zone. A proportion of this is being met by an enhanced level of water efficiency activities. In response to the new understanding of river flows needed to protect the ecology downstream of Ennerdale, we have further enhanced our water efficiency promotion in West Cumbria and have achieved more than double the level of saving compared to the 2009 plan.



As part of these enhanced activities, United Utilities held a number of Give Away Days at supermarkets within the West Cumbria area, giving away over 3,000 free water efficient shower heads and information booklets.

This year we were recognised for our work in this area and were awarded a UK Water Efficiency Award for Campaigns and Education and an international gold award in the Green Apple Environment Awards. We were awarded these for our promotion of water efficiency in the field of education.

This year we have offered all primary schools in the North West region the opportunity to take part in a water efficiency education programme. To date over 5,000 pupils aged 8 and 9 years old have taken part.

Through activities in and out of the classroom the children learn about the water cycle, water safety, thinking before you flush and using water wisely. As well as the expert teaching, each child takes away an exercise booklet highlighting the important messages, a set of water efficiency 'trump cards' and a 'toothy timer' to encourage them to turn off the tap when brushing their teeth.



United Utilities has sponsored the Kids TV character Gabi H2O, devised by TV Network Nickelodeon. It is the UK's first on-air animated character dedicated to educating children about saving water.

Since May 2012, an estimated 5.5 million children and 1.6 million parents have tuned into Nickelodeon, where the Gabi message has been played three times a day. The accompanying website has had over 174,700 visits and more than 211,300 page views, suggesting a high level of engagement with Gabi and his message. Gabi has featured in the classroom sessions delivered in primary schools.

Winter pipe protection roadshows and media campaigns are undertaken annually, reaching thousands of customers. This year we have taken the opportunity to sponsor the ITV weather in the Granada and Border television regions as this gives us an ideal way of communicating to a large numbers of our customers on a daily basis.

The sponsorship allows us to deliver messages such as saving water, by turning the tap off when brushing your teeth, in a creative way. Our weather sponsorship also includes the online communication channel and is used to support the many campaigns we run to raise customer awareness, educate and change behaviour.

During 2012/13 United Utilities also maintained its commitment to promote water conservation by the following activities:

- Continuing to leave a pack called “A simple guide to your water meter” (including water saving information) with household customers after a meter is installed
- Holding water efficiency events with business customers providing water butts, shower regulators and Save-a-Flush cistern devices to their staff. Events have taken place at various customers’ premises including hospitals and universities
- We have continued to maintain partnerships with external bodies to promote water conservation and to deliver water efficiency information. Examples of these partnerships include Groundwork Trust who target small to medium sized business customers, local councils, housing authorities and the Environment Agency
- We continue to distribute Hotel Wise cards to hotels and guesthouses around the region. The Hotel Wise cards are aimed at encouraging hotel guests to think about their water usage whilst on holiday and once they return home. Hotels around the region are able to request as many cards as they require. We also distribute copies of our business audit for commercial premises both through our website and at appropriate events.
- We have partnered with energy companies to promote water saving packs to our domestic customers and also to offer water and energy efficiency audits, and depending on the results the appropriate water efficient devices were discussed and offered to the customer.
- United Utilities also developed a number of partnerships to help reach customers that we may have little interaction with other than to send them an annual bill. These partners included the Energy Saving Trust, Faiths 4 Change and Bolton At Home.

One of the key developments in encouraging the uptake of water meters in our area has been the introduction of the Water Usage Calculator. The calculator allows customers to assess where they use the most water and offers advice on how they can reduce their overall consumption such as moving to water efficient washing machines. The calculator also shows customers whether they would be better off financially by moving to a water meter.

We also have an interactive “Water Efficient Home” on the website. This tool provides help and advice for customers for saving water in and around their homes. See unitedutilities.com/WaterEfficiencyHouse.

Our “Guide to using water wisely” contains a section on saving water in the home continues to be distributed. This self water audit enables household customers to calculate their daily water usage. In the year 2012/13, United Utilities has distributed over 139,000 audits in total. There is an increasing trend in customer requests for this leaflet, due to better online visibility and availability. There were also an additional 13,000 completed audits of the online Water Calculator.

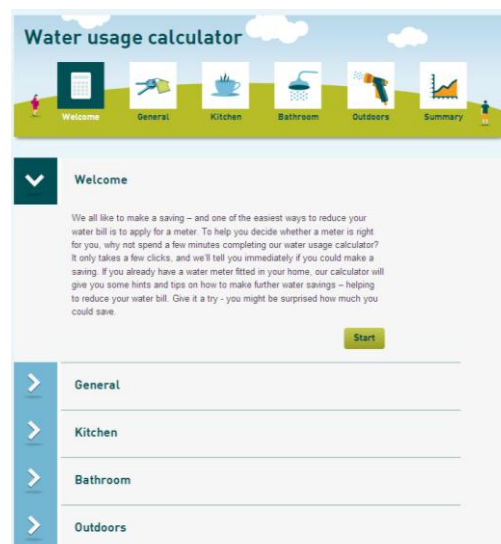


Figure 1: Interactive water use calculator available on United Utilities' website

2.2.1 Our water efficiency results

The 2012/13 base service water efficiency programme saved an estimated total of 3.95 MI/d (excluding free meter options). Over the three years since 2010, we have made base service savings of 11.7 MI/d, beating our Ofwat target by over 3 MI/d.

Table E: Summary of United Utilities water efficiency programme 2012/13

Water Efficiency Activity	Number	Estimated water saving (MI/d)
Cistern devices distributed to customers	54,306	0.52
Water efficiency customer self-audits	152,538	1.06
Water butts distributed to customers	124	0.00
Water Efficiency Education Programme, pupils visited	5,430	0.20
Crystal packs / water sticks distributed to customers	4,636	0.002
Retrofit devices distributed to customers	103,955	1.73
Additional Activity		0.44
Base Service Water Efficiency Programme Total		3.95
Free meter options	48,437	1.64
West Cumbria Sustainable Level of Water Efficiency Programme (shower heads, regulators and audits)	3,341	0.16
TOTAL		5.75

2.2.2 Our Water Efficiency Research

Over the last few years we have undertaken a number of studies and investigations into water efficiency. We have investigated a range of different water saving approaches, considering a wide range of factors that can influence the effectiveness of such projects.

Notable studies include:

- rainwater harvesting trial on a domestic property. Usage was monitored and analysed for periods before and after the kit was installed;
- sponsorship of Bolton at Home Eco Home Research project, in partnership with University of Salford. This project will be monitoring the energy and water use within properties over a two year period to ascertain the extent to which retrofitting reduces consumption;
- testing peoples likes and dislikes of water efficient shower heads;
- car washing research being carried out by Liverpool John Moore's University. The research is trying to find out how much water is used during car washing, how many people actually wash their own cars and how many people would be interested in using a waterless car washing product;
- a customer opinion survey recently carried out by United Utilities on water supply-demand. Included in the survey were a number of questions on customers' awareness and opinion towards water efficiency. The results of this study will be used to help target future water efficiency messages and promotions;
- low consumption clothes washing machine. The basis of the project is to develop a low energy consumption clothes washing machine, which has a number of key differences to a traditional washing machine;
- the West Cumbria "green zone" research programme discussed in the following section.

2.2.3 West Cumbria research

The West Cumbria Water Efficiency Research project started in 2010/11 and will be completed by 2014/15. Its key purpose is to reduce customer water demand in West Cumbria, and thereby help United Utilities to maintain an adequate supply-demand balance. Its secondary purpose is to inform future approaches to water efficiency.

The project has been split into three separate trials:

- cistern displacement devices: these are quick and easy to fit and have a wide appeal;
- free meter options: these look at different ways to encourage customers to opt for a meter and then to encourage them to reduce water consumption after opting; and
- fuel and water affordability initiatives: these work with customers who struggle to afford their fuel bills to find simple and easy ways to reduce these by focusing on bathing and clothes washing as these both use energy and water.

Each trial has three stages:

- Stage 1: developing the intervention. We carry out focus groups, interviews, surveys, and observations;

- Stage 2: piloting several versions of the interventions. Once the intervention has been developed and delivery has begun, we carry out an experiment to test the effectiveness of different versions, to hear how customers find them, and to understand how they can be improved;
- Stage 3: carrying out a large scale trial. Once the most effective version has been identified, a large-scale trial is carried out to assess its impact.

We will use the output from these studies to inform our water efficiency research going forward.

2.2.4 Water Efficiency Strategy and Future Plans

In addition to United Utilities' existing water efficiency activities, the water efficiency plan for 2013/14 will involve working with partners to carry out installations of water efficiency products in customers properties. These will be provided alongside a household water audit and guide to using water wisely in the home, to reinforce water saving behaviour, and will be provided free of charge.

We will continue to offer an enhanced level of water efficiency promotion in West Cumbria.

2.3 KEEPING LEAKAGE LEVELS LOW

2.3.1 Leakage across the region

United Utilities continues to carry out an extensive range of leakage control activities, at significant cost, in all water resource zones. As a result, the regional level of leakage averaged 457 MI/d in 2012/13. United Utilities has therefore met the Ofwat published target of 464 MI/d for 2012/13. Table F below shows the levels of leakage in each of the four water resource zones.

Table F: Zonal leakage levels (MI/d)

	Carlisle Resource Zone	Integrated Resource Zone	North Eden Resource Zone	West Cumbria Resource Zone	Region Total
Forecast for 2012/13 in the 2009 plan	4.8	441.9	2.0	15.0	463.7
Actual total leakage 2012/13	4.7	435.2	2.1	15.4	457.4
Actual total leakage 2011/12	5.5	429.7	2.1	15.7	453.0

Actions during 2012/13 across the region have included:

- Maintaining a high level of leak detection resource. United Utilities has employed around 137 full-time equivalent (FTE) detection resources and 13 FTE leakage analysts
- Maintaining average zonal night pressure (AZNP) at around 39 m. This was achieved by continuing to maintain and optimise 3,000 Pressure Management Valves
- Maintaining the leakage monitoring and reporting system (Netbase) which has a number of advantages including:
 - Automated links to other corporate systems enabling regular updates of customer billing information and asset data

- Includes reservoir and water treatment production data
- Auto-generation of daily leakage reports to assist direction of leakage detection resources
- Continuing to provide a private supply pipe repair/replacement service for household customers. The policy was reviewed in response to customer feedback and unlimited free replacements or one free replacement supply pipe in a 12-month period is offered subject to conditions.

A winter action plan for leakage management is maintained following experience from the extreme winters of previous years. This ensures United Utilities is prepared for similar events in the future. This involves increased frequency of reviewing leakage performance and set trigger levels for increasing detection resources.

District Meter Areas are the part of the water network where most of the leakage occurs, typically the pipes under roads near where we live and work. Figure 4 shows District Meter Area (DMA) leakage performance for 2012/13 against the previous two years.

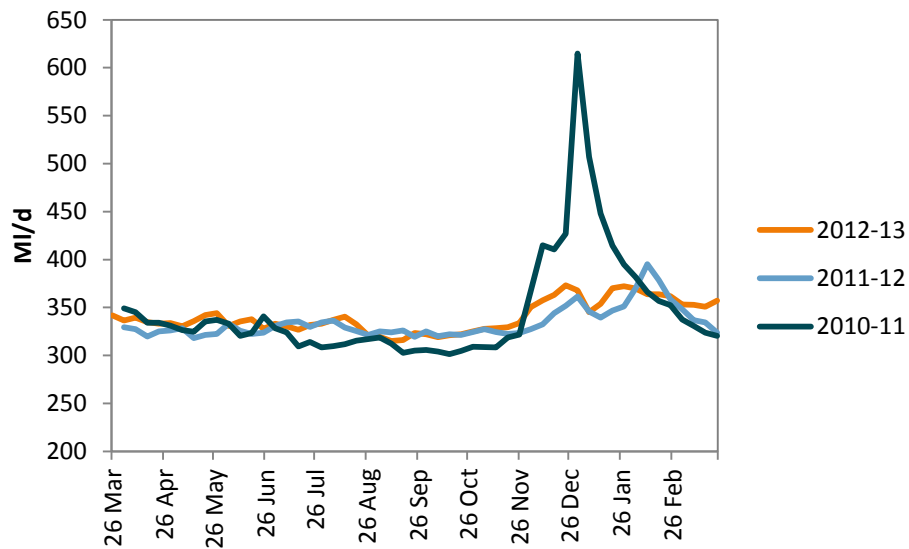


Figure 4: Regional DMA leakage 2010/11 to 2012/13

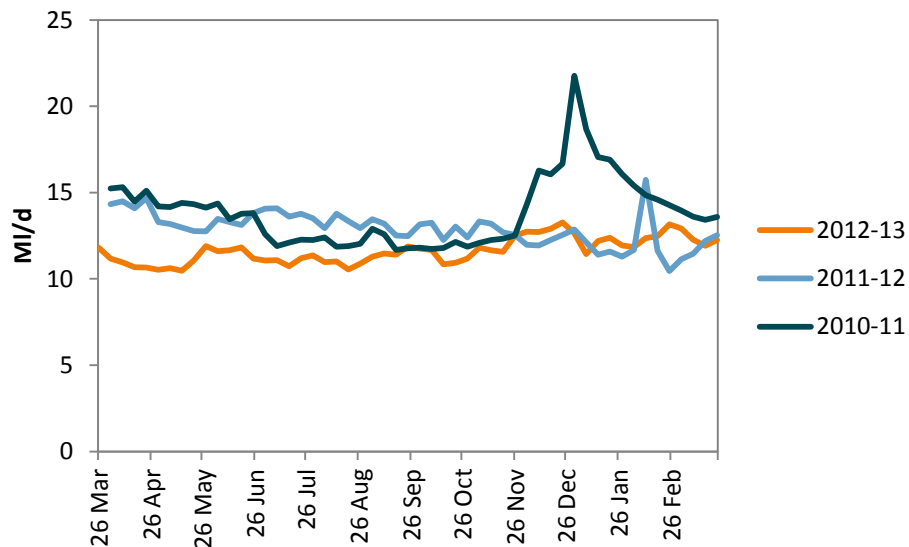


Figure 5: West Cumbria DMA leakage 2010/11 to 2012/13

2.3.2 Leakage in West Cumbria

We are really focused on reducing leakage in West Cumbria as far as we possibly can. In 2012/13 we have maintained leakage in DMA's at a historically low level.

In West Cumbria, leakage is particularly difficult to control. This is because the West Cumbria resource zone is characterised as having long lengths of rural mains and many remote customers, which make the leaks more difficult to locate.

As Figure 5 shows, we have reduced the average level of DMA leakage from 13.8 MI/d in 2010/11 to 12.8 MI/d in 2011/12 to 11.6 in 2012/13. The total amount of water abstracted in West Cumbria has reduced by 3.3 MI/d.

During 2012/13 we have massively improved our data and understanding of where the losses are (see Figure 6). This indicates that there are more losses upstream and probably more illegal use than we previously thought and we have plans in place to address these in 2013/14. As these improvements pass through the water balance to calculate total leakage the average level of total leakage for 2012/13 was 15.4 MI/d, which is only 0.3 MI/d lower than the previous year and slightly above the baseline target of 15.0 MI/d for 2012/13.

We have an on-going programme of demand management, including DMA leakage reduction, in West Cumbria. Actions undertaken to date include:

- Increased active leakage control by enhanced day-time activity using contract resource and United Utilities inspectors from a neighbouring area to further increase resources.
- Increased activate leakage control at night. Additional United Utilities inspectors were transferred into West Cumbria on a full time basis between December 2012 and March 2013. We are training up a team to have a permanent night resource in the area.
- All unmetered areas have been surveyed for leakage regularly.
- Focused on supply pipe leakage to ensure any long standing leaks were resolved and the time for repairing new leaks is optimised (either through using UU's contractors to repair or working with the customer to repair via their insurance company).

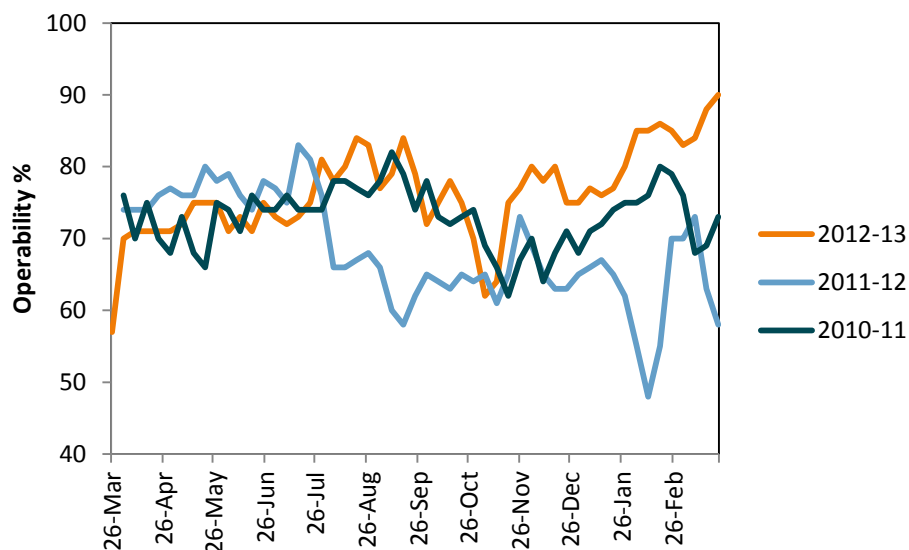


Figure 6: West Cumbria DMA operability 2010/11 to 2012/13

- Increased focus on pressure management/optimisation across the zone. Carried out a detailed pressure review which has so far reduced pressures across 28 DMAs. The pressure management team are now working within the area on a permanent basis. Work is on-going to review the pressure management schemes that were not delivered through the 2011/12 pressure optimisation programme with a view to a capital project in 2013/14.
- There is an on-going upstream losses campaign including meter validation and service reservoir investigations as part of trunk main leakage and losses detection process.
- DMA audits have been carried out to ensure the correct information (e.g. location of DMA boundary, property counts) is provided to the detection teams
- Operability, a measure of data confidence in DMA's has improved significantly from 57% in March 2012 to 90% in March 2013 (see Figure 6). This means leak detection teams can locate areas of leakage more effectively.
- We cut back operational water use, stopping all non-essential service reservoir cleaning and non-essential flushing activities.

2.4 CUSTOMER METERING

There have been no changes in metering policy during 2012/13. United Utilities continues to meter all new households and non-households, and where practical, altered properties. A free meter option for households continues to be provided. A large programme to compulsorily meter unmeasured non-households was undertaken by United Utilities several years ago and so the number remaining unmetered is small. Installation of meters in existing unmeasured non-households is undertaken where feasible.

During 2012/13 United Utilities installed meters at:

- 11,405 new houses
- 48,437 households which opted for a free meter
- 706 new non-households.

In addition, United Utilities has a pro-active programme of replacing household and non-household meters to improve the accuracy of meter readings.

The take-up of the free meter option scheme during 2012/13 was higher than last year. Figure 7 shows take up over the last eight years.

We expect that take up will increase as the 2010-2015 period progresses, following the profile of water prices.

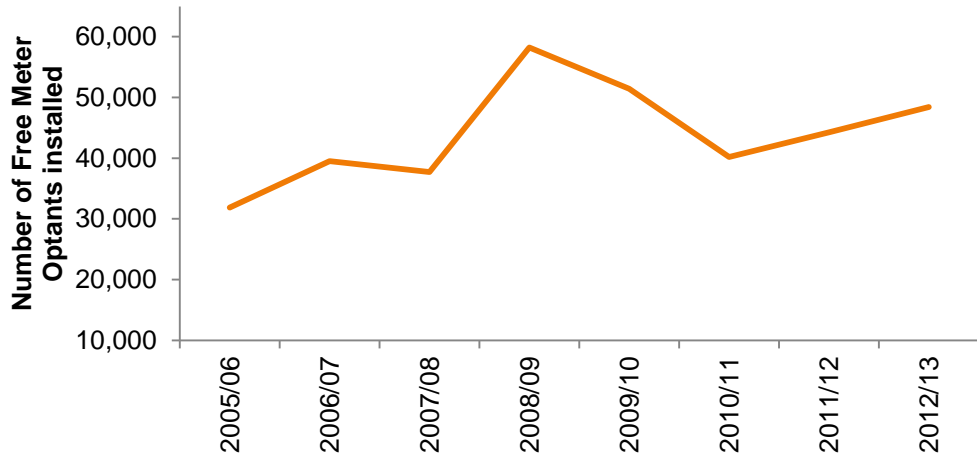


Figure 7: Free Meter Option uptake since 2005/06

3 CHANGES IN THE AVAILABILITY OF WATER

3.1 SUSTAINABILITY REDUCTIONS

3.1.1 Ennerdale and the River Ehen

In June 2012 an important colony of freshwater mussels, a protected species, in the River Ehen suffered severe stress and a small percentage were killed. During this time, the amount of water being put into the river was above the agreed and legally required levels. However, emergency interim contingency measures were agreed between United Utilities, the Environment Agency and Natural England to increase the flow of water over the mussels to protect them and aid their recovery.

Although flow increases had been planned to occur in 2015, evidence emerged following the incident that flows in the River Ehen should be higher than originally planned. Both United Utilities and the Environment Agency have significantly increased the environmental monitoring at Ennerdale and the River Ehen. New flow requirements have been prescribed and these discussed in Section 3.3 below.

The Environment Agency is still reviewing the abstraction licence at Ennerdale Water, including compensation flows from Ennerdale Water to the River Ehen, and the details of the changes are still to be confirmed. However, the likely outcome is that the abstraction licence will be revoked and this has been modelled in the new draft plan.

3.1.2 Brennand and Whitendale

Works on the Rivers Brennand and Whitendale have been completed this year. The joint Environment Agency and United Utilities project – one of the first of its kind in the country – will help the rivers Brennand and Whitendale prosper by taking less from them for drinking water supplies when levels are getting low. The project reduces the amount of water abstracted from the rivers Brennand & Whitendale to comply with new licence conditions designed to help improve the health of the river. The new licence conditions came into effect on 1 April 2013.

3.1.3 Other sustainability reductions

The Environment Agency reviewed the conditions for some of United Utilities' abstraction licences for the 2009 plan:

- Water sources that fall within Special Areas of Conservation (SAC) under the European Union Habitats Directive
- Water sources with national or local environmental drivers, identified under the Environment Agency's Restoring Sustainable Abstraction Programme.

These reviews resulted in the requirement for changes to the abstraction licence conditions at some of these water sources, in some cases to ensure more sustainable water abstraction and protect the environment at times of low flows in certain watercourses. In such cases the quantity of water that will be able to be abstracted in dry weather will be lower in the future than at present. These changes to our deployable output are known as 'sustainability reductions'.

The Environment Agency identified sites where there is certainty that abstraction licence conditions will be modified and the changes that will take place. Calculations of deployable output for the 2009 plan fully included modifications to licences where the Environment Agency reviews were completed and the outcomes certain. This is in accordance with regulatory requirements.

The sustainability reductions are summarised in Table G below and will come into effect in 2014/15, with the exception of the changes at Rivers Brennand and Whitendale, which have already been implemented.

At the time of publication of the 2009 plan, the Environment Agency was still in the process of reviewing of our abstraction licences. As a result, the Environment Agency has identified further proposed changes that we have incorporated into our new draft plan. For example, the Environment Agency has confirmed that sustainability reductions are required at Overwater “Reservoir” following further work undertaken by Natural England that identified the requirement for a ‘hands-off’ lake level condition. No allowance was made for this in the 2009 plan as the outcome was too uncertain.

The Environment Agency completed its review of the abstraction licence at Swindale Beck and this is accounted for in the baseline assessment of the new draft plan (prior to applying sustainability reductions) as a revision of the scheme already included in the 2009 plan.

Table G: Expected sustainability reductions between 2010-2015

Site	Driver	Issue	Estimated sustainability reduction
Integrated Resource Zone			
Haweswater intakes	Habitats Directive	Increased prescribed flow in Heltondale Beck, Cawdale Beck and Swindale Beck (see above note). Provision of spate flows in Heltondale Beck.	18.6 MI/d
Thirlmere catchment	Habitats Directive	Increased prescribed flow in Mill Gill and Helvellyn Gill. Provision of spate flows in Mill Gill and Helvellyn Gill. Provision of spate flows from Thirlmere Reservoir to St John’s Beck.	
Rivers Brennand and Whitendale	National (Site of Special Scientific Interest)	Increased prescribed flow in Rivers Brennand and Whitendale and closure of minor intakes.	
Carlisle Zone			
River Gelt intakes	Habitats Directive	Increased prescribed flows on New Water and River Gelt.	3.8 MI/d
North Eden Zone – No sustainability reductions expected			
West Cumbria Zone			
Dash Beck intake	Habitats Directive	Increased prescribed flows on Dash Beck.	0.4 MI/d
Ennerdale Water	Habitats Directive	Increased compensation flow release from Ennerdale Water to River Ehen. Diversion and loss of Ben Gill catchwater. Provision of spate flow releases from Ennerdale Water to River Ehen. Reductions in annual and daily licence limits.	9.0 MI/d

In accordance with regulatory guidance from Defra and the Environment Agency, no allowance for abstraction licence changes expected as a result of the European Union Water Framework Directive were included in the WRMP 2009. However, further sustainability reductions are likely to occur in the Integrated Water Resource Zone over the Water Framework Directive implementation period up to 2027 and the effects of the likely changes have been included in the new draft plan.

3.2 DISTRIBUTION AND PRODUCTION DEVELOPMENTS

Most of the distribution and production measures included in the 2009 plan comprise leakage reduction activities, as discussed above and the new West East Link Main.

The reporting year 2012/13 is the first year that the West East Link Main has been available for full operation. The new main accounts for the increase in water available for use reported this year.

United Utilities also continues to carry out investment programmes to maintain the accuracy of all flow measurements at water treatment works, aqueducts and district meter areas by installing new, primarily electromagnetic, meters.

3.3 RESOURCE DEVELOPMENTS

Our 2009 plan reviewed the need for future enhancement of water supplies. It identified that the only water resource zone with a supply deficit before 2015 is West Cumbria. The supply/demand plan for West Cumbria during 2010/15 comprises:

- A new groundwater supply with a design of 6.4 Ml/d has been investigated at South Egremont. An environmental assessment was submitted for planning approval in 2012/13 and a response is expected in July 2013.
- Construction, in 2014, of a new pipeline between Hayborough and Crosby to enable additional water to be supplied to North Allerdale.
- Leakage control to progressively reduce leakage in the West Cumbria water resource zone to 14 Ml/d by 2014/15.
- Water efficiency programme across West Cumbria to help customers save 0.3 Ml/d by 2014/15, together with research study on how to trigger change in customer behaviour. United Utilities is on track to achieve this with 0.15 Ml/d savings in 2012/13 (see section 2.2)
- Continued provision of the free meter option scheme.

Following the events during 2012/13 and the new evidence about the flow requirements of freshwater mussels we are reviewing if any of these schemes can be accelerated or enhanced in the short term to provide additional protection.

3.4 CHANGES IN POLICY/PLANNING AND FORECASTING ASSUMPTIONS

3.4.1 Levels of service

There has been no change to United Utilities' level of service, which remains as:

- Hosepipe ban and drought permits to augment supply no more than once in 20 years
- Drought orders to ban non-essential water use and further augment supply no more than once in 35 years
- No standpipes or rota cuts during a repeat of the worst drought on record.

Maintaining this level of service is supported by customer research undertaken in the year and there are no proposals to change the level of service in the new draft plan.

3.4.2 Outage

The outage allowance determined for the Water Resources Management Plan takes into account any asset failures, associated with source works, which would affect ability to supply during a drought. We calculated the actual level of outage experienced this year by considering all reported capacity restrictions during the year and assessing whether they would affect the supplies during a drought situation. Many capacity restrictions are planned and would not be progressed under drought conditions. Only those that would affect supplies during a drought are included in the level of outage reported.

Actual outages during this year have occurred at a range of source-work types including impounding reservoirs, boreholes, river intakes, raw water systems and water treatment works. Outages occur for a variety of reasons such as pollution events, poor water quality, asset failure necessitating emergency repairs and routine maintenance.

Outage experienced this year is 2 MI/d lower than the outage allowance accounted for in our 2009 plan. While this is within the level we plan for and causes no concern for security of supply, it is higher than we would expect on average. One of the contributing factors was a significant pollution incident on the River Wyre. This prevented abstraction for 80 days. We have reassessed the likelihood of pollution incidents in our new draft Water Resources Management Plan in light of this experience.

3.4.3 Ennerdale and water availability in West Cumbria

Deployable output for West Cumbria has been recalculated this year resulting in a reduced level of Water Available for Use. The Water Available For Use (WAFU) in West Cumbria has dropped due to an Environmental Damage Regulations notice we received in December 2012 which has affected the Deployable Output available in the zone.

From 20 December 2012 an Environmental Damage Regulations (EDR) notice has been in force at Ennerdale. The notice was issued by the EA as a result of an incident in June 2012 which caused damage to the internationally designated freshwater mussel population in the downstream River Ehen. The notice required United Utilities to release significantly higher flows (between 60 and 95 MI/d) to the river from Ennerdale lake than normal (32 MI/d requirement set in abstraction licence). The aim of the higher flows is to help the mussel population recover. These higher releases to the River Ehen will result in the lake drawing down to a lower level during dry weather. Under the EDR United Utilities is unable to abstract below a lake level of 1.7m below weir crest level, although the maximum depth of the lake is circa 42m. This means that the amount of water United Utilities can sustainably abstract is lower, resulting in a reduction in deployable output. It also means that the emergency storage allowance is lower.

The EDR has resulted in a reduction in the deployable output for West Cumbria from 60.47 MI/d in 2012 to 59.4 MI/d in 2013. The critical period surplus reduces from 2.12 MI/d in 2011/12, to only 1.05 MI/d in 2012/13. Looking at this another way, the 1.05 MI/d surplus is equivalent to a reserve of 3 days supply in a repeat of the worst drought on record.

3.4.4 Further changes

Detailed assessments of water source yields, climate change impacts demand forecasts, target headroom and the economic level of leakage were all conducted for the 2009 plan. These were undertaken in accordance with the UKWIR and EA best practice methods.

Several UKWIR projects have recently been completed and new Water Resources Planning Guidelines have been published. Projects include climate change assessment, customer behaviour and water use, water resources in the environment and United Utilities was represented on the steering groups to assist in developing future water resources planning techniques.

The new guidance is incorporated in the new draft plan.

3.5 CLIMATE CHANGE

Climate change is likely to have a significant impact on supply-demand balance forecasts, but United Utilities has highlighted that there is a large degree of uncertainty about the forecast impacts. The 2009 plan therefore identified the need for further studies, in particular to improve the understanding of the effects of climate change on source yields.

United Utilities has actively supported the UKWIR study “Impact of climate change on river flows & groundwater levels”. In addition, United Utilities is a member of the Water UK Climate Change Impacts Group, and is maintaining close links with other key water industry research studies of climate change impact for water supply.

The UK Climate Impacts Programme published new climate projections “UKCP09” in June 2009, which give an enhanced UK assessment of climate change. These were too late for use in the 2009 plan, but we will continue the work with UKWIR and the EA to use the findings to review our calculations of climate change impact. We fully reassessment the effects on water source yields, water demand and target headroom for the new draft plan. It shows that while the overall effect of climate change is greater than in the 2009 plan, climate change does not cause a deficit in our water resource zones.

4 PROGRESS ON UPDATING OUR PLANS

4.1 PROGRESS WITH OUR DROUGHT PLAN

Our current drought plan is the 2008 final statutory drought plan, and we have been working to update this over the last two years. During 2012/13 United Utilities has made further progress.

A public consultation on the Draft Drought Plan ran over the period 22 November 2012 to 11 January 2013 and included three public workshops throughout the north west region. The plan was issued to over 250 consultees via email and was also published on our website. A hardcopy was available for viewing at our Head Office at Lingley Mere, Warrington. A press release was issued to bring it to the attention of the general public and many local and regional newspapers ran related articles. We were also interviewed for BBC Radio Cumbria breakfast news. Nineteen representations to the consultation were received, raising nearly 200 separate pieces of feedback.

United Utilities issued a public Statement of Response and sent a Revised Draft Drought Plan to Defra on 7 March 2013 taking account of the representations received through consultation. The final plan will be published by 16 June 2013.

4.2 A NEW DRAFT WATER RESOURCES MANAGEMENT PLAN

We have been developing the next Water Resources Management Plan over the last twelve months and we have now published a draft of this plan for public consultation.

We updated all aspects of the plan, with forecasts prepared until 2040. In developing the new draft plan we have:

- carried out a review of the forecast demand to be completed, with updated household and non-household information. This has been reviewed alongside Local Authority Development Plans and the latest census information to ensure growth assumptions are taken into account.
- leakage estimates have been reviewed, water efficiency targets set and a revised forecast of free meter uptake has been developed.
- a full yield review to identify available water volumes and define the future water balance.
- Options have been identified to address any shortfall in supply and these have been reviewed for their costs, which has also included detailed social and environmental costings.
- We have also commissioned a Strategic Environmental Assessment and a Habitats Regulation Assessment of the proposed Plan.

The plan is currently available for public comment and can be found at our website here: corporate.unitedutilities.com/Water-Resources-Management-Plan. We will also be holding a series of stakeholder events in the region and if you would like to be added to our consultation list please email us at water.resources@uuplc.co.uk.

4.3 CONTINUING TO REVIEW OUR WATER RESOURCES MANAGEMENT PLAN

United Utilities' current Final Water Resources Management Plan was published in September 2009. Water resource planning is a dynamic process and United Utilities is committed to ongoing review of the key elements to ensure that our water resources plan remains up-to-date. United Utilities will continue to discuss and review the key elements of the plan through constructive dialogue with the EA, in particular sustainability reductions as they become clear and how they will affect United Utilities' supply demand balance.

United Utilities' third annual review of the 2009 plan was carried out in 2012 and concluded that no significant changes have arisen since publication. This annual update is the fourth annual review of the plan and reports on progress during 2012/13. During 2012/13 United Utilities has also prepared a full revision of the 2009 plan, as discussed in the previous section.

The next annual review of the Water Resources Management Plan will be available in June 2014.

5

CONCLUSIONS

United Utilities has made good progress on its Statutory Water Resources Management Plan during 2012/13, by pursuing studies for the West Cumbria groundwater scheme, developing plans for water efficiency programmes, and continuing leakage control and metering programmes. Total leakage was less than the Ofwat target of 464 MI/d.

Significant new evidence has come to light about the level of flow required to protect the ecology downstream of Ennerdale. We have made changes to the way we operate the abstraction already, but a long-term solution is likely to involve stopping abstraction from Ennerdale altogether. Three alternative plans for the long-term solution are presented in our draft Water Resources Management Plan, which was submitted to the Secretary of State in March 2013. This is open to consultation until 6 August 2013 and is available at corporate.unitedutilities.com/Water-Resources-Management-Plan