

Environment Agency Active Fund

ACTUARIAL VALUATION 2010



Valuation Report as at 31 March 2010



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1 Executive summary

We have carried out an actuarial valuation of the Environment Agency Active Fund ('the Fund') as at 31 March 2010. The results are presented in this report and are briefly summarised below.

Funding position

The table below summarises the financial position of the Fund at 31 March 2010 in respect of benefits earned by members up to this date.

Past Service Position	(£m)
Past Service Liabilities	1684
Market Value of Assets	1589
Surplus / (Deficit)	(95)
Funding Level	94%

The funding level has fallen from 103% at the previous valuation at 31 March 2007 to 94% at this valuation. This has resulted in the funding position moving from a surplus of £38m at 31 March 2007 to a deficit of £95m at 31 March 2010.

The deterioration of the funding position reflects the adverse market conditions which the Fund investment portfolio has had to contend with since the previous valuation. In particular, investment returns for the three years to 31 March 2010 were poorer than anticipated due to the global financial crisis in 2008/09.

Contribution rates

The Environment Agency is currently paying 16.5% of pay to the Fund. As part of this valuation we have assessed whether this rate is still sufficient to pay for benefits earned in the future and recover any past funding deficit.

The anticipated cost of new benefits being earned by members in future was assessed to be 13.0% of pay. Under the current contribution rate, this leaves 3.5% of pay contributing towards the repayment of the funding deficit.

If the Environment Agency continues to pay 3.5% of pay towards the deficit then, if our assumptions are borne out in the future, the deficit will be repaid over a period of around 8.4 years. This is less than the average remaining working lifetime of the Fund's membership of 9.0 years.

After discussions with the Environment Agency and Administering Authority we have agreed that holding the contribution rate payable steady at 16.5% of pay is an adequate measure to pay for future benefits and reduction of the deficit. This rate is in addition to the contributions that will be made by members.

The valuation results assume that the membership of the Fund stays steady over time. However, given the current economic and political climate, it is possible that the Environment Agency will undertake a programme of job cuts. Cutting jobs and payroll leads to the Fund maturing more quickly as the payroll reduces but the numbers of deferred members and pensioners increase. This makes the Environment Agency's contributions that are expressed as a percentage of pay more sensitive.



This sensitivity problem can be managed by expressing the future service element of the contributions as a percentage of pay and expressing the deficit recovery element of the rate in absolute monetary terms. This approach will be adopted for contributions payable from 1 April 2011.

The minimum contributions to be paid by the Environment Agency from 1 April 2011 to 31 March 2014 are shown in the Rates and Adjustments Certificate in Appendix J.

Assumptions

The results shown above make a prudent allowance for the expectation that the Fund's equity-type investments will outperform gilts/bonds over the long term – the latter being in theory a closer match to the Fund's liabilities.

Our calculations explicitly allow for the change in benefit indexation from RPI to CPI, as announced in the Emergency Budget of June 2010. No allowance has been made for the possible effect on the Fund of the outcomes of Lord Hutton's review of public sector pensions as these are still uncertain at the time of writing.

The results of the valuation are highly sensitive to the actuarial assumptions we have made about the future. If actual future demographic and economic experience does not match these assumptions, the financial position of the Fund could improve or deteriorate materially. This is precisely why the position of the Fund is monitored via regular valuations.

Douglas Anderson

Fellow of the Institute and Faculty of Actuaries

For and on behalf of Hymans Robertson LLP

30 March 2011

Richard Warden

Fellow of the Institute and Faculty of Actuaries



2 Introduction

We have carried out an actuarial valuation of the Environment Agency Active Fund (“the Fund”) as at 31 March 2010. This is my report to the Environment Agency (‘the Administering Authority’) on the results of the valuation.

Purpose

The main purposes of this valuation are:

- to assess the extent to which the Administering Authority’s funding objectives were met at 31 March 2010;
- to identify the future contributions payable by the Environment Agency in order to meet the Administering Authority’s funding objectives;
- to enable completion of all relevant certificates and statements in connection with all relevant regulations;
- to comment on the main risks to the Fund that may result in future volatility in the funding position or to employer contributions.

Scope

This report is provided solely for the purpose of the Administering Authority to consider the management of the Fund and, in particular, to fulfil their and our statutory obligations. It should not be used for any other purpose (e.g. for accounting purposes under FRS17 / IAS19 or termination valuations under Regulation 38 of the Administration Regulations). It should not be released or otherwise disclosed to any third party except as required by law or with my prior written consent, in which case it should be released in its entirety.

Hymans Robertson LLP accepts no liability to any other party unless we have expressly accepted such liability.

Reliances and limitations

This valuation report complies with all of the relevant regulations and professional standards, as set out in Appendix A.

The figures in this report are based on our understanding of the benefit structure of the LGPS as at 31 March 2010. Details of this are provided in Appendix C.

The results of the valuation are dependent on the quality of the data provided to us by the Administering Authority and their Third Party Administrators (Capita Hartshead) for the specific purpose of this valuation. We are satisfied that the data provided was fit for the purposes of this valuation. This data is summarised in Appendix D.



3 About the Fund

The Fund is part of the Local Government Pension Scheme (LGPS) which is a defined benefit pension scheme. It is contracted out of the State Second Pension.

Funding Strategy Statement

The Administering Authority prepares a Funding Strategy Statement (FSS) in respect of the Fund, in collaboration with us (the Fund's actuaries) and after consultation with investment advisors and the Environment Agency. The FSS has been reviewed as part of the 2010 triennial valuation exercise and we have taken account of this as part of our valuation of the Fund. This is included in Appendix B.

Funding objectives

The objectives of the Fund's funding policy are broadly as follows:

- to ensure that sufficient resources are available to meet all benefits as they fall due for payment;
- recover any shortfall in assets, relative to the value of accrued liabilities, over broadly the future working lifetime of current employees;
- enable the Environment Agency's employer contributions to be kept as stable as possible and at reasonable cost to the Environment Agency;
- manage the Environment Agency's liabilities effectively; and
- maximise the returns from investments within reasonable risk parameters.

What are the Fund's liabilities?

The Fund's liabilities are essentially the benefits promised to Fund members (past and current contributors) and, upon their death, any benefits promised to their dependants. This valuation places a current or present value on these liabilities in order to arrive at an estimated cost at the valuation date.

It is important to realise that the results of this valuation can only ever be an estimate. The actual cost of providing members' benefits is not known in advance, as it will be influenced by future events that cannot be predicted with absolute certainty.

The final cost of members' benefits will depend on three main factors:

(i) The benefits promised to members.

The Fund provides pensions and other benefits to members and their beneficiaries. The benefits in force on the valuation date are set out in the following pieces of legislation:

- The Local Government Pension Scheme (Benefits, Membership and Contributions) Regulations 2007 (the "Benefits Regulations") as amended.
- The Local Government Pension Scheme (Administration) Regulations 2008 (the "Administration Regulations") as amended.
- The Local Government Pension Scheme (Transitional Provisions) Regulations 2008 (the "Transitional Regulations") as amended.
- Local Government Pension Scheme (Miscellaneous) Regulations 2009.



The benefits and member contributions payable by and to the LGPS respectively were amended with effect from 1 April 2008. The results presented in this valuation report make full allowance for these changes.

There are a small number of discretionary powers that may be exercised by the Administering Authority or by the Environment Agency as sponsoring employer. With the exception of the Environment Agency's power to augment a member's benefits or to allow a member to receive their benefits earlier than planned without reduction (e.g. upon early retirement) we would not expect the exercise of these powers to have a material effect on the valuation results. In any event, we would expect additional employer payments, in addition to the Environment Agency contributions set out in the rates and adjustments certificate, to be made in respect of such events unless agreed otherwise.

(ii) The profile of the membership.

The profile of the members (e.g. their pensionable pay, age, sex and category) affects how much their future benefits will ultimately cost the Fund. Further details of the membership profile is included in Appendix D.

The cost of the benefits is expressed as a percentage of the pensionable pay of employee members. As the proportion of pensioner and deferred members increases relative to employee members so the contribution rate (as a percentage of pay) becomes more sensitive to the funding position and not simply the cost of new benefits being earned by members in future. A summary of the data at this and the previous valuation is given in Appendix D.

(iii) The level of benefits paid, when they will come into payment and how long they will be paid for.

All of these factors depend on future experience, such as when members will retire and how long they will live for after retirement. In assessing the anticipated cost of members' benefits, we need to make assumptions about this future experience. We explain these actuarial assumptions later in this report.

The purpose of the valuation is to assess how much the Fund needs to hold now to pay those benefits, taking account the above factors and its funding objectives.

What are the Fund's assets?

The Fund's assets are invested by the Administering Authority. The market value of assets at 31 March 2010 (excluding money purchase AVC funds) was £1,589m, as shown in the audited accounts for the Fund for the period ending on 31 March 2010 that have been provided to me by the Administering Authority. No part of the Fund was comprised of insurance policies at 31 March 2010.



4 Funding method and assumptions

We have used a funding method and set of assumptions for this valuation that are consistent with the Administering Authority's funding objectives set out in its Funding Strategy Statement. The methodology and assumptions are described below, and in more detail in Appendix E and Appendix F respectively.

Funding method

For this valuation, as for the previous valuation, we have used a funding method which identifies separately the estimated cost of members' benefits in respect of scheme membership completed before 31 March 2010 ('past service') and in respect of scheme membership expected to be completed after 31 March 2010 ('future service').

Past service

The method we have adopted compares the assets (taken at market value) with the value placed on the Fund's past service liabilities (calculated using a market-based approach) at the valuation date. By maintaining a link to the market in both cases, this helps ensure that the assets and liabilities are valued in a consistent manner. Our calculation of the Fund's liabilities also explicitly allows for anticipated future pay and pension increases.

The funding level is the value of the assets divided by the value of the past service liabilities. Where the funding level is greater than 100% there is a surplus in the Fund (i.e. where assets are greater than the value of the past service benefits). Where the funding level is less than 100% there is a shortfall (i.e. where the assets are lower than the value of the past service benefits). The funding target is to achieve a funding level of at least 100% over a specific period.

Future service

To determine the contribution rate required to cover the estimated cost of future service benefits, we have adopted the "Projected Unit Method".

An allowance for the anticipated future expenses of the Fund is added to the calculated contribution rate.

Total contribution rate

The total contribution rate comprises the future service rate plus any "past service adjustment".

The past service adjustment is the additional employer contribution required to bring the funding level back to 100% over an agreed period. The past service adjustment can be expressed as a monetary amount or as a percentage of the value of the members' pensionable pay over the period.

Actuarial assumptions

In the actuarial valuation, we must use assumptions about the factors affecting the Fund's finances in the future. Broadly speaking, our assumptions fall into two categories – financial and demographic.

Demographic assumptions typically try to forecast **when** exactly benefits will come into payment and what form these will take. For example, when members will retire (e.g. at their normal retirement age or earlier), how long they will then survive and whether they will exchange some of their pension for tax-free cash.

Financial assumptions typically try to predict the **size** of these benefits. For example, how large members' final salaries will be at retirement and how their pensions will increase over time. In addition, the financial assumptions also help us to estimate how much all these benefits will cost the Fund in today's money.

Details of our recommended assumptions for this valuation are set out below.



Financial assumptions

A summary of the main financial assumptions adopted for the valuation of members' benefits are shown below.

Assumption	Description	31 March 2010	
		Nominal	Real
Pension Increases	Market expectation of long term future 'breakeven' retail price inflation as measured by the difference between yields on fixed and index-linked Government bonds at the valuation date, less 0.8% p.a.	3.0%	-
Pay increases*	'Breakeven' RPI plus 1.0% p.a.	4.8%	1.8%
"Gilt-based" discount rate	Yield on fixed interest (nominal) and index-linked (real) Government bonds	4.5%	1.5%
Funding basis discount rate	"Gilt-based" discount rate plus an Asset Outperformance Assumption of 1.6% p.a.	6.1%	3.1%

* 1% p.a. for 2010/11 and 2011/12, reverting to 4.8% p.a. thereafter. Plus an allowance for promotional pay increases.

Discount rate

The funding valuation is effectively a budgeting exercise, to assess the funds needed to meet the benefits as they fall due. In order to place a current value on the future benefit payments from the Fund, we need to 'discount' these future cashflows back to the valuation date at a suitable rate.

Different valuations can be categorised by the approach taken to setting the discount rate. For example, under the accounting standard IAS19, the discount rate is determined as the yield on AA-rated corporate bonds. By comparison, a discontinuance valuation will likely use the yield on suitably dated Government bonds. For a funding valuation such as this one, we have set the discount rate by taking into account the Fund's current and expected future investment strategy and, in particular, how this strategy is expected to outperform the returns from Government bonds over the long term. We allow for this by applying an Asset Outperformance Assumption, which is effectively a margin in excess of the yield available on Government bonds.

For the purposes of this valuation, we have adopted an Asset Outperformance Assumption of 1.6% p.a. This results in a discount rate of 6.1% p.a.

The selection of an appropriate Asset Outperformance Assumption is a matter of judgement, based on available evidence. It is one way of measuring the degree of prudence in the funding strategy. We believe that an Asset Outperformance Assumption of 1.6% p.a. is a prudent one for the purposes of this valuation. However, the degree of risk inherent in the Fund's investment strategy should always be considered as fully as possible when setting out a funding strategy.

Price inflation / pension increases

The Chancellor of the Exchequer announced in his Emergency Budget on 22 June 2010 that the Consumer Prices Index (CPI) rather than the Retail Prices Index (RPI) will be the basis for future increases to public sector pensions in payment and in deferment. We have allowed for this in our valuation calculations as at 31 March 2010.

At the previous valuation, the assumption for RPI was derived from market data as the difference between the yield on long-dated fixed interest and index-linked government bonds. At this valuation, we have adopted a similar approach. However, we have then adjusted this market-derived RPI rate downwards by 0.5% p.a. to derive the assumption for CPI.



We have also considered the volatility present in the bond markets due to supply and demand issues, including the premium that investors are prepared to pay for inflation protection. We have estimated that this has caused inflation expectations to be 0.3% p.a. higher than would otherwise be the case. We have therefore made a further adjustment to the pension increase assumption with a 0.3% p.a. reduction.

Salary increases

Our long term assumption for salary increases is RPI plus 1.0% p.a. This translates to CPI plus 1.5% p.a.

However, the Government has announced that pay for public sector employees will be frozen for a period of two years, with a flat increase of £250 being applied to all those earning less than £21,000 p.a. Based on an analysis of the Fund's membership, we believe that the average expected increase in pensionable pay will be around 1.0% p.a. for the next two years. We have set the salary increase assumption at this valuation to 1.0% p.a. for 2010/11 and 2011/12. After this point, the assumption will revert back to the long-term rate of RPI plus 1.0% p.a.

Note that this assumption is made in respect of the general level of salary increases (e.g. as a result of inflation and other macroeconomic factors). We have also made a separate allowance for expected pay rises granted in the future as a result of members achieving promotion. This assumption takes the form of a set of tables which model the expected promotional pay awards based on each member's age and class.

Longevity

The main demographic assumption to which the valuation results are most sensitive is that relating to the longevity of the Fund's members. For this valuation, we have adopted assumptions which give the following average future life expectancies for members:

Assumed life expectancy at age 65	Actives & Deferreds	Current Pensioners
2007 valuation longevity	22.8	21.1
2010 valuation - baseline	20.1	19.4
2010 valuation - improvements	24.0	21.7

The figures in the above table are weighted averages for the membership of the Fund. The 2010 figures for active and deferred members are calculated at the average age of that membership class.

The Fund commissioned a historic mortality investigation in May 2010 using Club Vita. The longevity assumptions that have been adopted at this valuation are a bespoke set of VitaCurves that are specifically tailored to fit the membership profile of the Fund as a result of this investigation. These curves are based on the data provided for the purposes of this valuation.

Further details of the mortality assumptions adopted for this valuation can be found in Appendix F.

Assets

We have taken the assets of the Fund into account at their market value as indicated in the audited accounts for the period ended 31 March 2010.

In our opinion, the basis for placing a value on members' benefits is compatible with that for valuing the assets - both are related to market conditions at the valuation date.



5 Funding position at 31 March 2010

The Administering Authority has prepared a Funding Strategy Statement (Appendix B) which sets out its funding objectives for the Fund. In broad terms, the main 'past service' objective is to hold sufficient assets in the Fund to meet the assessed cost of members' past service benefits and the main 'future service' objective is to maintain a relatively stable employer contribution rate. These objectives are potentially conflicting.

Past service

In assessing the extent to which the past service funding objective was met at the valuation date, we have used the funding method and actuarial assumptions described in the previous section of this report. Our results are presented in the form of a 'funding level'. This is the ratio of the value of assets to the assessed cost of members' past service benefits (based on service accrued by members prior to the valuation date). A funding level of 100% would correspond to the objective being met exactly. The table below compares the value of the assets and liabilities at 31 March 2010.

Results (£m)	Based on today's mortality	Allowance for future improvements	Total
Past Service Liabilities			
Actives	871	65	936
Deferred Pensioners	152	12	164
Pensioners	544	19	563
Transfer of Former Unfunded Pensioners	20	2	22
Total	1,567	117	1,684
Value of Assets	1,589		1,589
Surplus/(Deficit)	23		(95)
Funding Level	101%		94%

At 31 March 2010 the funding level was 94%.

The main funding objective was not met: there was a shortfall of assets to the assessed cost of members' benefits of £95m.

Future service

We have calculated the average long-term contribution rate that the Environment Agency would need to pay to meet the estimated cost of members' benefits that will be earned after 31 March 2010 (the 'future service contribution rate'). Again, we have used the method and assumptions set out in the previous section of this report. The resulting contribution rate is that which should (if the actuarial assumptions about the future are borne out in practice) ensure that the Administering Authority's main future service funding objective is met. The table below details this future service contribution rate:



Valuation Date	31 March 2010
Future service rate	% of pay
Cost of new benefits earned in future	19.5%
Administration expenses	0.4%
Total	19.9%
Average employee contribution rate	6.9%
Future service rate (employer)	13.0%

Note that this future service contribution rate makes no allowance for the £95m past service shortfall in the Fund described above. The employee contribution rate includes any payments being made by members into the Fund in respect of Added Years or Additional Pension contracts as at 31 March 2010.

The administration expenses are in respect of scheme administration, professional fees (actuarial, legal, investment consultancy and audit) and other administration costs e.g. communication to members.

The average future service rate for the Environment Agency is 13.0% of pensionable pay. This rate is calculated at 31 March 2010 and forms part of the total contribution rate payable from 1 April 2011.

A comparison of the results of this valuation and the previous one at 31 March 2007 is provided in Appendix G.

DRAP



6 Funding position: changes since the previous valuation

The previous formal actuarial valuation of the Fund was carried out with an effective date of 31 March 2007. Since then, there have been changes to the Fund and its membership and to the economic environment in which the Fund operates. Many of these changes have affected the valuation results and these are summarised below.

Changes to the funding objective

In broad terms, the long term Funding objectives are unchanged. However, following an investigation using stochastic modelling of the potential long term funding position and consultation with the Environment Agency, the Administering Authority will introduce additional rules to help stabilise contribution rates from 1 April 2014. Details of this are set out in the FSS. To determine the appropriate stabilisation parameters we checked that the proposed contributions gave an acceptable likelihood of meeting the long term funding objectives of full solvency in the long term

The stabilisation rules from 1 April 2014 would limit contribution increases to 0.5% of pay per annum and reductions to 0.5% of pay per annum (i.e. a maximum increase or decrease of 1.5% of pay between valuations).

Eligibility for stabilisation is dependent on reasonable consistency in the Environment Agency's membership profile. The Administering Authority reserves the right to review eligibility in the event of a significant change in membership profile.

This stabilisation policy will be reconsidered at each triennial valuation and would be subject to future review. If, for example, there was evidence of further improvements in life expectancy or any other significant changes that necessitated changes in contribution rates, the stabilisation policy would be amended appropriately.

Changes to the Fund's benefit structure

Major changes to the benefit structure of the LGPS took effect from 1 April 2008 were detailed in the previous valuation report dated March 2008. As we have already made an allowance for these changes in our valuation calculations at 31 March 2007, they are not responsible for the change in the funding position between 31 March 2007 and 31 March 2010.

Changes to the Fund's membership

Membership movements

The Fund membership has changed since the previous valuation, as new employee members have joined the Fund and members have left the Fund, retired and died. Whilst membership changes were anticipated at the previous valuation, the actual changes have inevitably not exactly matched the assumptions made at the previous valuation.



The table below compares the average ages of the Fund membership at 31 March 2007 and 31 March 2010.

Maturity Profile	2010	2007
Average age weighted by liability:		
Current Employees	49.9	49.2
Deferred Pensioners	47.9	47.1
Pensioners (funded)	64.9	64.2
Pensioners (unfunded)	68.8	-

Unfunded benefits

The Environment Agency has a number of historical gratuity schemes under the provisions of Part VI of the Local Government (Discretionary Payments) Regulations 1996, as amended, and previous provisions. These benefits are paid on a 'pay as you go' basis and the amounts recharged back to the Environment Agency. The implementation of The Local Government Pension Scheme (Miscellaneous) Regulations 2009 has provided the Fund an opportunity to capitalise these unfunded benefits into funded LGPS benefits.

Therefore, the Fund has converted all these unfunded benefits using its third party administrator into funded benefits at this valuation with a view of providing greater certainty of costs, a holistic funding approach and reducing burdensome administrative and accounting processes.

These payments total around £1.5m a year and have been assessed to add on £22m to the Environment Agency balance sheet.

Changes to the Fund's assets

The Fund's assets have been augmented by employer and employee contributions paid in and transfer values received. However, the assets have been depleted by retirement benefit payments, transfer values, refunds paid and payment of administration and other expenses. Most importantly, investment returns for the three years to 31 March 2010 were much lower than anticipated at the 2007 valuation due to adverse market conditions during the global financial crisis in 2008/09.

Overall, the Fund's assets have grown since the previous valuation but by a much smaller amount than anticipated. This has had an adverse impact on the funding position.

Changes to the estimated cost of the Fund's liabilities

Economic factors

The underlying bond yields that form the foundation of our discount rate assumption were the same at 31 March 2010 as they were at the previous valuation. My Asset Outperformance Assumption has also remained constant. The discount rate we have used to estimate the cost of future benefit payments is therefore unchanged.

Benefit payments themselves are linked to inflation – via pension increases and also salary increases. Market expectations of inflation, as measured by the Retail Prices Index (RPI), have risen since the previous valuation. However, this has been largely offset by the Government's policy to link future pension increases to the Consumer Prices Index (CPI) and other analysis we have carried out as explained earlier.

Rising price inflation is often accompanied by rising salary inflation. However, salaries in the public sector are under considerable pressure at present and many employee members are likely to receive much lower pay rises in the short term. We have made an allowance for this in my calculations.



The overall effect of economic factors on the value of the Fund's liabilities at this valuation has been to decrease the value.

Demographic factors

The value placed on the Fund's liabilities is also affected by when future benefits are expected to come into payment and how long they are expected to be paid for. A key factor in this is the life expectancy of members.

2007 - 2010 Pensioner Mortality Relative to 2007 Assumptions	Numbers of Deaths			Amounts of Pension Ceasing (£000s)		
	Actual	Expected	% Diff	Actual	Expected	% Diff
III Health Pensioners	53	42	27%	353	274	29%
Age Pensioners Former Officers	71	75	-5%	647	522	24%
Age Pensioners Former Manuals	41	50	-18%	315	324	-3%
Dependants	23	19	24%	64	54	17%
Total	188	185	2%	1,378	1,175	17%

The anticipated members above are based on the assumptions adopted at the 2007 formal valuation.

The assumptions relating to the longevity of current and future pensioners have changed since the previous valuation, to reflect the recent experience of the Fund and other evidence published by the Actuarial Profession.

Some of the other demographic assumptions that we use have also changed since the previous valuation in light of recent experience e.g. the predicted nature and amount of early leavers and ill health early retirements.

Retirement Age

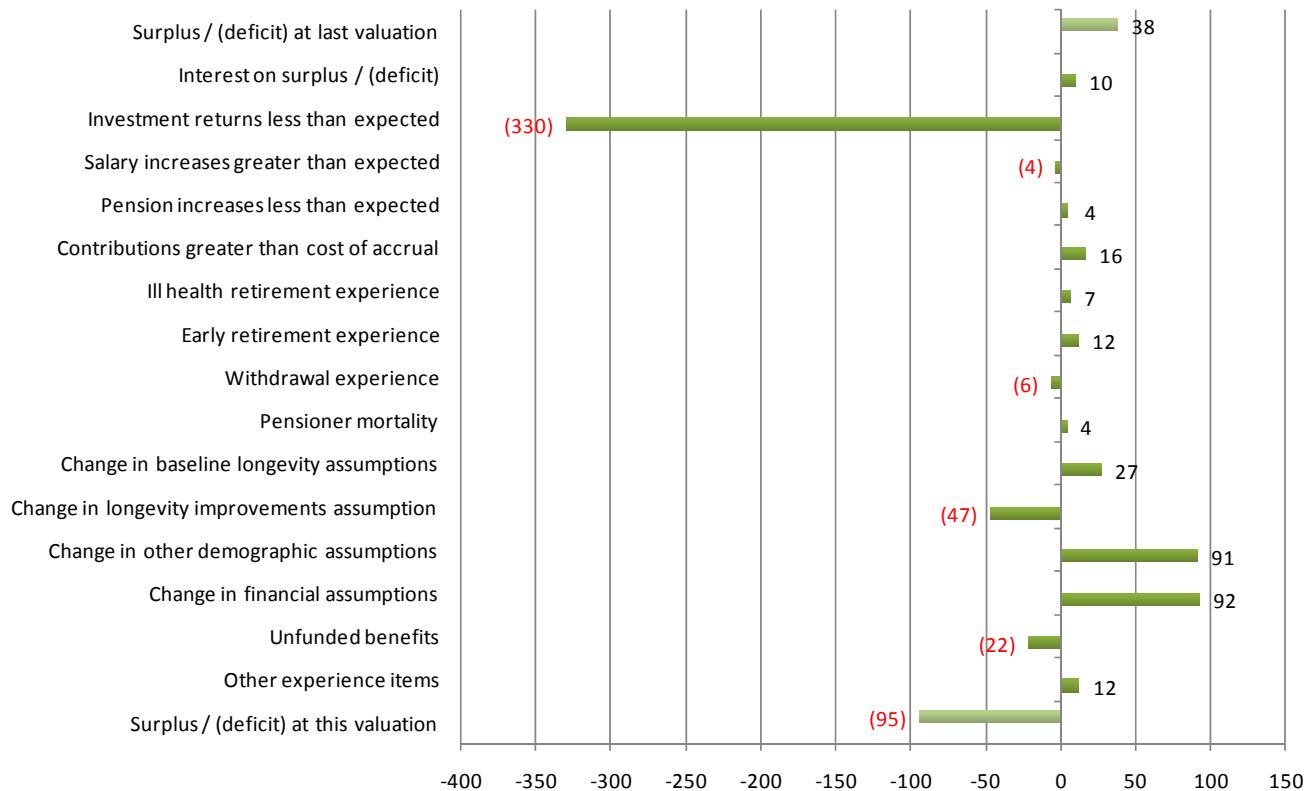
Since the introduction of the new LGPS many members now have two tranches of pension - namely that which was accrued before and after 1 April 2008. In theory, these can be paid without reduction from two different retirement ages. In practice, the member can only retire once and so both pensions are paid from a single age.

In order to ensure that we are treating these accrued benefits correctly in our valuation calculations, we are now explicitly calculating the appropriate retirement age for each member (rather than simply using the age provided in the membership data extract).

The overall effect of changes in demographic factors has been to reduce the value of the Fund's liabilities.

Summary of changes to the funding position

The chart below illustrates the factors that caused the funding position to deteriorate between 31 March 2007 and 31 March 2010:





7 Employer contributions payable

The Fund is unusual compared to other LGPS funds as it currently has only one participating employer, namely the Environment Agency. The Environment Agency is responsible for meeting the cost of future benefit accrual, and any past service deficit, in respect of all the Fund's membership.

The future service rate for the Environment Agency is 13.0% of pensionable pay. This is the future contribution rate payable over the long term by the Environment Agency to meet the cost of benefits earned by members after the valuation date. This reflects the Administering Authority's funding objectives and is based on the assumptions set out in this report.

The total contribution rate payable is the future service rate for the Environment Agency plus an additional amount to recover the deficit. This additional amount is referred to as the past service adjustment.

The contribution rate paid by the Environment Agency in 2010/11 is 16.5% of pay. Under the current rate this leaves 3.5% of pay being contributed towards recovering the funding deficit. This is equivalent to recovering the funding deficit over the next 8.4 years.

At 31 March 2010 the average future working lifetime of the Fund's membership was 9.0 years.

After discussions with the Environment Agency and Administering Authority we have agreed that holding the contribution rate payable steady at 16.5% of pay is an adequate measure to pay for future benefits and reduction of the deficit. This rate is in addition to the contributions that will be made by members.

It has been agreed with the Environment Agency that the funding deficit recovery element of the contribution rate should be expressed as monetary amounts (see comments in the 'Workforce reduction' section below). The following table details these monetary amounts split between Environment Agency Wales and Environment Agency England. The size of the respective liability values has been used as the basis for splitting out the payments between these two parts of the Environment Agency.

	Deficit Recovery Contribution for the Year Ending		
	31 March 2012 £(000)	31 March 2013 £(000)	31 March 2014 £(000)
Environment Agency (England)	10,872	10,981	11,506
Environment Agency (Wales)	1,128	1,139	1,194
Total	12,000	12,120	12,700

Both Environment Agency England and Environment Agency Wales paid advance contributions during March 2011 towards the deficit recovery amounts shown in the table (see last section of Appendix I). These advance contributions have reduced the minimum contribution requirements for both groups for the three years beginning 1 April 2011 as detailed in the Statement to the Rates and Adjustments Certificate at the back of this report.

The Environment Agency may make voluntary additional contributions to recover any shortfall over a shorter period, subject to agreement with the Administering Authority and after receiving the relevant actuarial advice.

Further sums should be paid to the Fund by the Environment Agency to meet the capital costs of any unreduced early retirements, reduced early retirements before age 60 and/or augmentation (i.e. additional membership or additional pension) using the methods and factors issued by us from time to time or as otherwise agreed.

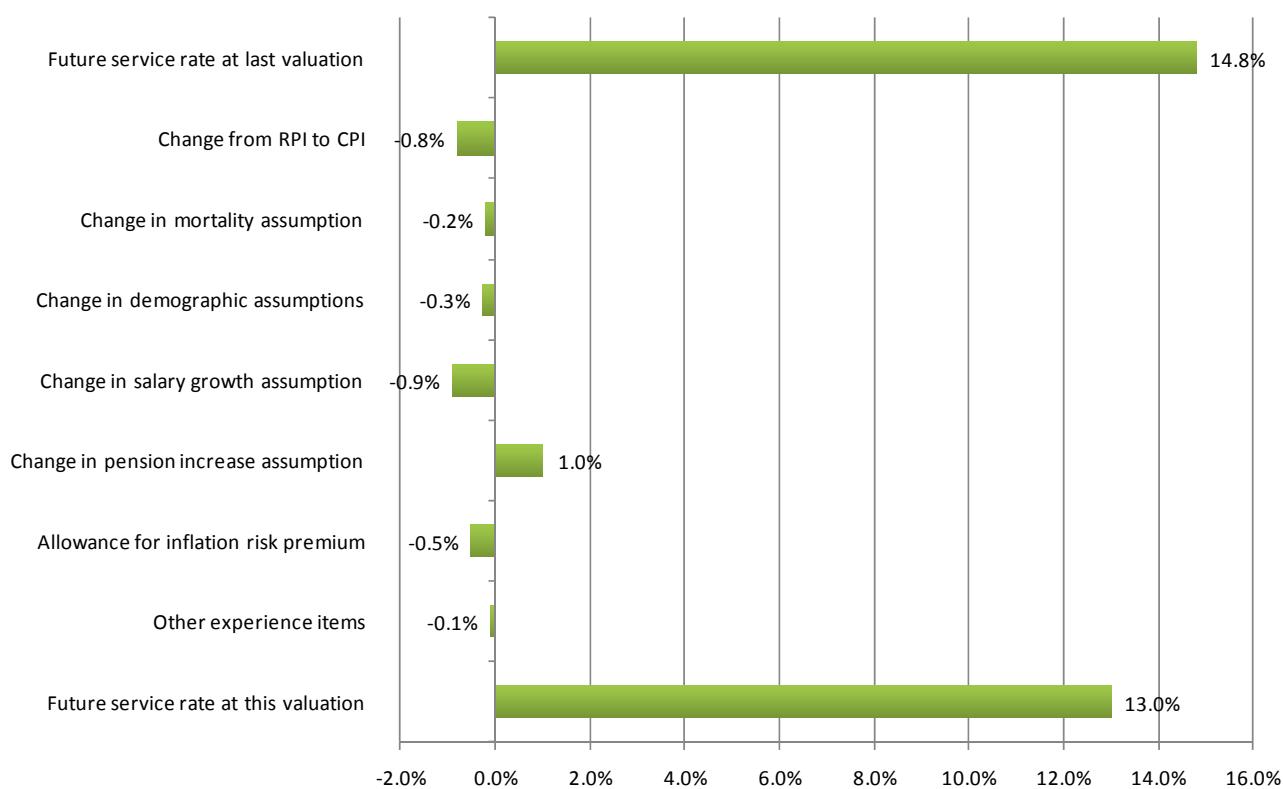


In addition, payments may be required to be made to the Fund by the Environment Agency to meet the capital costs of any ill-health retirements that exceed those allowed for within our assumptions.

The contributions shown in the Rates and Adjustment Certificate include expenses and the expected cost of lump sum death benefits but exclude early retirement strain and augmentation costs which are payable by Fund employers in addition.

Summary of changes to the future service rate

The chart below illustrates the factors that caused the future service rate to increase between 31 March 2007 and 31 March 2010:



Contribution stability mechanism

Following an asset-liability modelling investigation it has been agreed that the Fund will adopt a contribution stability mechanism from 1 April 2014 under which changes to annual contributions would be limited to increases/decreases of a maximum of 0.5% of pay. The likelihood of the Environment Agency's contributions remaining adequate over the long term should be reviewed every three years at future valuations.

Workforce reduction

The valuation results and contribution stabilisation modelling assume that the membership of the Fund stays steady over time. However, given the current economic and political climate, it is possible that the Environment Agency will undertake a programme of job cuts. Cutting jobs and payroll leads to the Fund maturing more quickly as the payroll reduces but the numbers of deferred members and pensioners increase. This makes the Environment Agency's contributions that are expressed as a percentage of pay more sensitive.



This sensitivity problem can be managed by expressing the future service element of the contributions as a percentage of pay and expressing the deficit recovery element of the rate in absolute monetary terms. This approach will be adopted for contributions payable from 1 April 2011 as detailed in Appendix J.

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Further recommendations

Valuation frequency

Under the provisions of the LGPS regulations, the next formal valuation of the Fund is due to be carried out as at 31 March 2013. In light of the uncertainty of future financial conditions, we recommend that the financial position of the Fund is monitored by means of interim funding reviews in the period up to this next formal valuation. This will give early warning of changes to funding positions and possible contribution rate changes.

Investment strategy and risk management

We recommend that the Administering Authority continues to regularly review its investment strategy and ongoing risk management programme.

New employers joining the Fund

Any new employers or admission bodies joining the Fund should be referred to us as the Fund actuaries for individual calculation as to the required level of contribution. They should also agree to pay the capital costs (as a one-off lump sum payment) of any early retirements or augmentation based on my advice and using methods and factors issued by the actuary from time to time, together with any additional contributions that may be required if their ill-health early retirement experience is worse than assumed.

III health monitoring

Although we have allowed for a certain level of future ill health retirements in our calculation of the future service rate, these are based on past experience and may not necessarily reflect the actual levels in future. Tier 1 and Tier 2 ill health retirements are a strain on the Fund. The allowance made in our calculated future service rates for ill health retirements can be provided to the Administering Authority on request. This would allow the Fund to monitor the cost of ill health retirements against these budgets and consider recouping any costs that exceed the budget from the employer.

Pensionable pay increase monitoring

For this valuation we have assumed a lower level of future pay increases for 2010/11 and 2011/12 of 1% in each year and reduced the long term anticipated rate to 1% above RPI each year thereafter (compared to 1.5% at 2007). The benefits received for active members of the Fund are directly linked to pensionable pay. Hence any increase in pensionable pay above those assumed will increase the past service liability associated with those members.

In the past, the impact of pay rises has been analysed after the event at triennial actuarial valuations. This means that any opportunity to rectify higher pay increases immediately is missed, and may mean that unanticipated measures may need to be taken later to cope with the extra build up of liabilities. We recommend that annual reviews of employer's pay increases are carried out to give early warning of the impact of pay increases. The employer is able to pay additional 'top-up' contributions at its discretion if actual pay increases exceed those assumed at the 2010 valuation.

Other matters

Any bulk movement of fund members:

- involving 10 or more fund members being transferred from or to another LGPS fund, or
- involving 2 or more fund members being transferred from or to a non-LGPS pension arrangement

should be referred to us to consider the impact on the Fund.



8 Risk assessment

The valuation results depend critically on the actuarial assumptions that are made about the future of the Fund. If all of the assumptions made at this valuation were exactly borne out in practice then the results presented in this document would represent the true cost of the Fund as it currently stands at 31 March 2010.

However, no one can predict the future with certainty and it is unlikely that future experience will exactly match all of our assumptions. The future therefore presents a variety of risks to the Fund and these should be considered as part of the valuation process.

In particular:

- The main risks to the financial health of the Fund should be **identified**.
- Where possible, the financial significance of these risks should be **quantified**.
- Consideration should be given as to how these risks can then be **managed**.
- These risks should then be **monitored** to assess whether any risk management strategy is actually working.

This section investigates the potential implications of the actuarial assumptions not being borne out in practice.

Set out below is a brief assessment of the main risks and their effect on the valuation results, beginning with a look at the effect of changing the main assumptions and then focusing on two of the most significant risks – namely investment risk and longevity risk.

Sensitivity of valuation results to changes in assumptions

The table below gives an indication of the sensitivity of the valuation results to small changes in some of the main assumptions used.

Assumption	Change	Impact	
		Funding level	Deficit
Discount rate	Increases / decreases by 0.5%	Rises / falls by 9%	Falls / rises by £171m
Salary increases	Increases / decreases by 0.5%	Falls / rises by 3%	Rises / falls by £59m
Price inflation / pension increases	Increases / decreases by 0.5%	Falls / rises by 5%	Rises / falls by £98m
Life expectancy	Increases / decreases by 1 year	Falls / rises by 2%	Rises / falls by £34m

This is not an exhaustive list of the assumptions used in the valuation. For example, changes to the assumed level of withdrawals and ill health retirements will also have an effect on the valuation results. However, the table contains those assumptions that typically are of most interest and have the biggest impact.

Note that the table shows the effect of changes to each assumption in isolation. In reality, it is perfectly possible for the experience of the Fund to deviate from our assumptions simultaneously and so the precise effect on the funding position is therefore more complex.



Investment risk

Valuation results at 31 March 2010 on a gilts basis

The current investment strategy of the Fund includes 68% of equity-type assets. In the long term, it is expected that such assets will outperform gilts, which are generally considered to be a closer match to the future benefit outflows from the Fund. The scale of this outperformance is a matter of judgement based on available evidence. In deriving the discount rate for the purposes of this valuation, we have assumed that the assets held by the Fund will outperform index-linked gilts by 1.6% per annum. We consider this to be a prudent assumption.

However, this outperformance cannot be guaranteed and the Administering Authority must consider the implications of this on the funding position. The following chart summarises the effect on the valuation results if no advance credit is taken for additional outperformance above gilt returns (i.e. if a 'gilts basis' was used to value the liabilities).

Valuation Date	31 March 2010
Past Service Position	(£m)
Total Liabilities	2293
Market Value of Assets	1589
Surplus / (Deficit)	(704)
Funding Level	69%
Contribution rates	% of pay
Future service rate	24.8%
Past Service Adjustment	20.5%
Total contribution rate	45.4%

On this basis, the Administering Authority would need assets of some £2293m to fully fund the liabilities at the valuation date. Given the actual market value of the Fund's assets, this would result in a funding shortfall of £704m.

Sensitivity of valuation results to market conditions and investment performance

As the assets of the Fund are taken at their market value, volatility in investment performance can have an immediate and tangible effect on the funding level and deficit. This is particularly relevant because the Fund is invested predominantly in riskier assets such as equities. A rise or fall in the level of equity markets has a direct impact on the financial position of the Fund, which may seem obvious.

Less obvious is the effect of anticipated investment performance on the Fund's liabilities (and future service cost). Here it is the returns available on government bonds that are of crucial importance, as the discount rate that we use to place a value on the Fund's liabilities is based on gilt yields at the valuation date plus a margin of 1.6% p.a.



The table below shows how the funding level (top) and deficit (bottom) would vary if investment conditions at 31 March 2010 had been different. The level of the FTSE 100 Price index is taken as a suitable proxy for asset performance whilst the index-linked gilt yield is taken as a yardstick for the valuation of liabilities.

Index Linked Gilt Yield	0.50%	80%	86%	91%	96%	101%
		(346)	(253)	(161)	(68)	24
0.70%	83%	89%	94%	100%	105%	
	(280)	(187)	(95)	(2)	90	
0.90%	87%	92%	98%	104%	109%	
	(216)	(124)	(31)	61	154	
	4680	5180	5680	6180	6680	
FTSE 100 Price Index						

The shaded box contains the results for this valuation. Note that this does not take account of the performance of all asset classes held by the Fund (e.g. overseas equities, property, bonds, cash etc) but it does serve to highlight, in broad terms, the sensitivity of the valuation results to investment conditions at the valuation date.

Note that the scenarios illustrated above are by no means exhaustive. They should not be taken as the limit of how extreme future investment experience could be. The discount rate assumption adopted at this valuation is expected to be appropriate over the long term. Short term volatility of equity markets does not invalidate this assumption.

Longevity risk

The valuation results are also very sensitive to unexpected changes in future longevity. All else being equal, if longevity improves in the future at a faster pace than allowed for in the valuation assumptions, the funding level will decline and the required employer contribution rates will increase.

Recent medical advances, changes in lifestyle and a greater awareness of health-related matters have resulted in life expectancy amongst pension fund members improving in recent years at a faster pace than was originally foreseen. It is unknown whether and to what extent such improvements will continue in the future.

For the purposes of this valuation, we have selected assumptions that we believe make an appropriate allowance for future improvements in longevity, based on the actual experience of the Fund since the previous valuation.



The table below shows how the valuation results at 31 March 2010 are affected by adopting different longevity assumptions.

Longevity assumption	Impact		
	Funding level	Deficit (£m)	Future service rate
2007 valuation longevity	96%	(73)	13.7%
2010 valuation (baseline)	101%	23	11.8%
2010 valuation (with improvements)	94%	(95)	13.0%
2010 valuation (further improvements)	90%	(169)	14.0%
1 year extra longevity	88%	(202)	14.6%

The shaded box contains the results for this valuation. This allows for a “cohort effect”. The cohort effect allows for a generation of people born between the two world wars whose life expectancy seems to continue to increase i.e. that generation continues to survive in large numbers each year. A key question would be how much longer we will continue to see this. Current evidence suggests people are living 2 years longer every decade and this phenomenon presently shows no signs of slowing. The mortality assumptions adopted for this valuation allow for people living around 0.75 years longer per decade. We have not allowed for the potential full improvements in life expectancy at this valuation and have effectively adopted a “wait and see” approach.

The “baseline” row illustrates the effect of assuming that there are no future longevity improvements.

The “further improvements” are a more cautious set of assumptions that make an allowance for the continuation of recently observed high levels of improvement in life expectancy, arising from this “cohort effect”. The assumptions adopted here result in people living around 1.5 years longer per decade over the long term.

The last row illustrates the effect of assuming that members live for one year longer than these further improvements imply.

Again, the range of assumptions shown here is by no means exhaustive and should not be considered as the limits of how extreme future longevity experience could be.

Other risks to consider

The table below summarises the effect that changes in some of the other valuation assumptions and risk factors would have on the funding position. Note that these are probably unlikely to change in such a way that would rank them as amongst the highest risks facing the Fund and therefore the analysis is qualitative rather than quantitative.

Risk	Impact	
	Funding level	Future service rate
Greater level of ill health retirement	Decreases	Increases
Greater level of withdrawals	Increases	Decreases
Rise in average age of employee members	Marginal effect	Increases
Pay and price inflation higher than anticipated	Decreases	Increases
Members convert less pension to cash at retirement than assumed	Decreases	Increases
Changes to Regulations that make benefit package more favourable to members	Decreases (if changes affect past service)	Increases



Managing the risks

Whilst there are certain things, such as the performance of investment markets or the life expectancy of members, that are not directly within the control of the pension fund, that does not mean that nothing can be done to understand the risks further and to mitigate their effect. Although these risks are difficult (or impossible) to eliminate, steps can be taken to manage them.

Ways in which some of these risks can be managed could be:

- Set aside a specific reserve to act as a cushion against adverse future experience (possibly by selecting a set of actuarial assumptions at future valuations that are purposely more prudent).
- Take steps internally to monitor the decisions taken by members and the Environment Agency (e.g. relating to early / ill health retirements or salary increases) in a bid to curtail any adverse impact on the Fund. An annual review of actual pay increases against those assumed at the 2010 valuation will be undertaken with the employer making discretionary 'top-up' payments to the Fund if actual pay increases are excessive.
- Insure against specific risks, where such insurance is available (e.g. ill health liability insurance).
- Carrying out a bespoke analysis of the longevity of Fund members and monitor how this changes over time, so that the longevity assumptions at the valuation match as closely as possible the experience of the Fund. The Fund has adopted bespoke baseline longevity assumptions at this valuation for each member based on age, gender, salary and postcode information. This will allow changes to the observed longevity of the Fund's members to be tracked over time.
- Undertake an asset-liability modelling exercise that investigates the effect on the Fund of thousands of possible investment scenarios that may arise in the future. An assessment can then be made as to whether the Environment Agency can stabilise its future contribution rates (thus introducing more certainty into its future budgets) without jeopardising the long-term health of the Fund. Modelling of this nature was carried out as part of the 2010 valuation. As a result the Fund aims to adopt a formal contribution stability mechanism with effect from 1 April 2014.

Adopting one or more of these measures can assist with the management of risk within the pension fund.



9 Summary

We have carried out an actuarial valuation of the Environment Agency Active Fund ('the Fund') as at 31 March 2010. The results are presented in this report and are briefly summarised below.

Funding position

The table below summarises the financial position of the Fund at 31 March 2010 in respect of benefits earned by members up to this date.

Past Service Position	(£m)
Past Service Liabilities	1684
Market Value of Assets	1589
Surplus / (Deficit)	(95)
Funding Level	94%

The deterioration of the funding position reflects the adverse conditions which the Fund has had to contend with since the previous valuation. In particular, investment returns for the three years to 31 March 2010 were significantly poorer than anticipated due to the global financial crisis in 2008/09.

Contribution rates

After assessing the adequacy of the 2010/11 contribution rate (16.5% of pay) in meeting the cost of future benefit accrual and repaying the funding deficit, the Environment Agency has agreed to continue to base its contribution rate on the current level of 16.5% of payroll.

The minimum contributions to be paid from 1 April 2011 to 31 March 2014 are shown in the Rates and Adjustment Certificate in Appendix J.

Douglas Anderson

Fellow of the Institute and Faculty of Actuaries

30 March 2011

Richard Warden

Fellow of the Institute and Faculty of Actuaries



Appendix A: Regulations and professional standards

LGPS regulations

This valuation is carried out in accordance with regulation 36 of the Administration Regulations, which specifies that the Administering Authority must obtain:

- an actuarial valuation of the assets and liabilities of the Fund as at 31 March 2010 and in every third year thereafter;
- a report by an actuary in respect of the valuation; and
- a Rates and Adjustments Certificate prepared by an actuary.

Within the Rates and Adjustments Certificate we are required to specify:

- the employer's common contribution rate which, in our opinion, should be paid by the employer so as to ensure the Fund's solvency, and
- any individual adjustments (increases or decreases) to the common contribution rate which, in my opinion, are required by reason of any circumstances peculiar to a particular employer,

which for this valuation apply for each year of the period of three years beginning with 1 April 2011.

Under the provisions of the Regulations, we are required to have regard to:

- the existing and prospective liabilities of the Fund arising from circumstances common to all those bodies participating in the Fund,
- the desirability of maintaining as nearly constant a common rate as possible, and
- the current version of the Administering Authority's funding strategy statement.

Professional standards

Guidance Note 9 (GN9)

This report has been prepared in accordance with version 8.1 of the guidelines 'GN9: Funding Defined Benefits - Presentation of Actuarial Advice' published by the Board for Actuarial Standards. However the following aspects of GN9 are not relevant to the LGPS and its funds in the current circumstances and we have therefore not reported on them:

- Paragraph 3.4.16 of GN9 requires the actuary to include the certification of technical provision in relation to a valuation under Part 3 of the Pensions Act 2004. As Part 3 of the Pensions Act 2004 does not apply to the LGPS, this report does not comply with paragraph 3.4.16 of GN9; and
- Part 3.5 of GN9 requires the actuary to report on the value of the liabilities that would arise had the Fund wound up on the valuation date (based on the cost of buying out the accrued benefits with insurance policies). As the LGPS is a statutory scheme, there is no regulatory provision for scheme wind up and the scheme members have a statutory right to their accrued benefits. Therefore the concept of solvency on a buy-out basis does not apply to the Fund. Accordingly, this report does not comply with part 3.5 of GN9.

The previous formal actuarial valuation was carried out as at 31 March 2007 by Hymans Robertson and the results were set out in our report dated March 2008.



Technical Actuarial Standards

Technical Actuarial Standards (TASs) are issued by the Board for Actuarial Standards and they set the standard for certain items of actuarial work, in terms of the type of information provided and the way it is communicated. As your actuaries, we must comply with these standards when presenting the results of the triennial valuation.

This valuation report complies with the Technical Actuarial Standards on Reporting (TAS R) and Data (TAS D) for the purpose of recording the results of the actuarial valuation at 31 March 2010.

In order to further ensure that the requirements of TAS R are met and in the interests of clarity, we have issued a separate letter summarising the various pieces of advice that we have issued during this valuation process which have allowed you to make the necessary decisions on funding strategy and contribution rates.

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Appendix B: Funding Strategy Statement

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Appendix C: Summary of the Fund's benefits

The non-discretionary Fund benefits that I have taken into account in this valuation for active members are summarised below.

Provision	Benefit Structure To 31 March 2008	Benefit Structure From 1 April 2008
Normal retirement age (NRA)	Age 65.	Age 65.
Earliest retirement age (ERA) on which immediate unreduced benefits can be paid on voluntary retirement	<p>As per NRA (age 65).</p> <p>Protections apply to active members in the scheme immediately prior to 1 October 2006 who would have been entitled to immediate payment of unreduced benefits prior to 65, due to:</p> <p>(a) having previously had an NRA of age 60 (or after age 60 on attaining 25 years of scheme membership), due to being a member of the scheme immediately prior to 1 April 1998; or</p> <p>(b) having the potential to satisfy the rule of 85 prior to age 65 (if the sum of age (whole years) and membership (whole years) is 85 or more).</p> <p>The benefits relating to various segments of scheme membership are protected as follows, which means their benefits are calculated based on the above definitions of earliest retirement age in relation to these protected periods of scheme membership.</p> <p>(a) A member born on 31 March 1956 or earlier – membership up to 31 March 2016 protected;</p> <p>(b) A member born between 1 April 1956 and 31 March 1960 inclusive and who would reach their Earliest Retirement Age by 31st March 2020 – Membership prior to 31 March 2008 fully protected and membership between 1 April 2008 and 31 March 2020 subject to some protection (tapered);</p> <p>(c) All other members in the scheme immediately prior to 1 October 2006 – membership up to 31 March 2008 protected.</p>	
Member contributions	<p>Officers - 6% of pensionable pay</p> <p>Manual Workers – 5% of pensionable pay if has protected lower rates rights or 6% for post 31 March 1998 entrants or former entrants with no protected rights.</p>	<p>Banded rates (5.5%-7.5%) depending upon level of full-time equivalent pay. A mechanism for sharing any increased scheme costs between employers and scheme members is included in the LGPS regulations.</p>
Pensionable pay	<p>All salary, wages, fees and other payments in respect of the employment, excluding non-contractual overtime and some other specified amounts.</p> <p>Some scheme members may be covered by special agreements.</p>	
Final pay	The pensionable pay in the year up to the date of leaving the scheme. Alternative methods used in some cases, e.g. where there has been a break in service or a drop in pensionable pay.	
Period of scheme membership	Total years and days of service during which a member contributes to the Fund. Additional periods may be granted (e.g. transfers from other pension arrangements, augmentation, or from April 2008 the award of additional pension). For part time members, the membership is proportionate with regard to their contractual hours and a full time equivalent.	



Provision	Benefit Structure To 31 March 2008	Benefit Structure From 1 April 2008
Normal retirement benefits at NRA	<p>Annual Retirement Pension - 1/80th of final pay for each year of scheme membership.</p> <p>Lump Sum Retirement Grant - 3/80th of final pay for each year of scheme membership. Additional lump sum can be provided by commutation of pension (within overriding limits) on a basis of £12 additional lump sum for each £1 of pension surrendered.</p>	<p>Scheme membership to 31 March 2008:</p> <p>Annual Retirement Pension - 1/80th of final pay for each year of scheme membership.</p> <p>Lump Sum Retirement Grant - 3/80th of final pay for each year of scheme membership.</p> <p>Scheme membership from 1 April 2008:</p> <p>Annual Retirement Pension - 1/60th of final pay for each year of scheme membership.</p> <p>Lump Sum Retirement Grant – none except by commutation of pension.</p>
Option to increase retirement lump sum benefit	<p>At the time that benefits come into payment, members have the option to exchange ('commute') some of the retirement pension into additional lump sum. The terms for the conversion of pension in to lump sum is £12 of lump sum for every £1 of annual pension surrendered.</p>	<p>Scheme membership to 31 March 2008:</p> <p>At the time that benefits come into payment, members have the option to exchange ('commute') some of the retirement pension into additional lump sum. The terms for the conversion of pension in to lump sum is £12 of lump sum for every £1 of annual pension surrendered.</p> <p>Scheme membership from 1 April 2008:</p> <p>No automatic lump sum. Any lump sum is to be provided by commutation of pension. The terms for the conversion of pension in to lump sum is £12 of lump sum for every £1 of annual pension surrendered.</p>
Voluntary early retirement benefits (non ill-health)	<p>On retirement after age 60 a pension and lump sum based on actual scheme membership completed may be paid, subject to reduction on account of early payment in some circumstances (in accordance with ERA protections).</p>	
Employer's consent early retirement benefits (non ill-health)	<p>On retirement after age 50 with employer's consent a pension and lump sum based on actual scheme membership completed may be paid.</p> <p>Benefits paid on redundancy or efficiency grounds are paid with no actuarial reduction.</p> <p>Otherwise, benefits are subject to reduction on account of early payment, unless this is waived by the employer.</p>	<p>On retirement after age 55 with employer's consent a pension and lump sum based on actual scheme membership completed may be paid.</p> <p>Benefits paid on redundancy or efficiency grounds are paid with no actuarial reduction.</p> <p>Otherwise, benefits are subject to reduction on account of early payment, unless this is waived by the employer.</p> <p>Active members in the scheme immediately prior to 1 April 2008 who leave before 31 March 2010 have a protected earliest retirement age of 50.</p>



Provision	Benefit Structure To 31 March 2008	Benefit Structure From 1 April 2008
Ill-health benefits	<p>In the event of premature retirement due to permanent ill-health or incapacity, an immediate pension and lump sum are paid based on actual scheme membership plus an enhancement period of scheme membership.</p> <p>The enhancement period is dependent on scheme membership at date of leaving and is seldom more than 6 years 243 days.</p> <p>No reduction is applied due to early payment.</p>	<p>In the event of premature retirement due to permanent ill-health or incapacity and a reduced likelihood of obtaining gainful employment (local government or otherwise) before age 65, an immediate pension and lump sum are due based on actual scheme membership plus an enhanced period of scheme membership.</p> <p>The enhancement period is:</p> <p>25% of the period to age 65, if there is no likelihood of undertaking gainful employment within 3 years of leaving employment; or</p> <p>100% of the period to age 65, if there is no likelihood of undertaking gainful employment prior to age 65.</p> <p>A third tier, with no enhancement, is due where there is a likelihood of undertaking gainful employment within 3 years of leaving employment.</p>
Flexible retirement	<p>After 5th April 2006, a member who has attained the age of 50, with his employer's consent, reduces the hours he works, or the grade in which he is employed, he may elect in writing to the appropriate administering authority and such benefits may, with his employer's consent, be paid to him notwithstanding that he has not retired from that employment.</p> <p>Benefits are paid immediately and subject to actuarial reduction unless the reduction is waived by the employer.</p>	<p>A member who has attained the age of 55 and who, with his employer's consent, reduces the hours he works, or the grade in which he is employed, may make a request in writing to the appropriate administering authority to receive all or part of his benefits.</p> <p>Benefits are paid immediately and subject to actuarial reduction unless the reduction is waived by the employer.</p>
Pension increases	<p>All pensions in payment, deferred pensions and dependant's pensions other than benefits arising from the payment of additional voluntary contributions are increased annually.</p> <p>Pensions are increased partially under the Pensions (Increases) Act and partially in accordance with statutory requirements (depending on the proportions relating to pre 88 GMP, post 88 GMP and excess over GMP).</p>	
Death after retirement	<p>A spouse's or civil partner's pension of one half of the member's pension (generally post 1 April 1972 service for widowers' pension and post 6 April 1988 for civil partners) is payable; plus</p> <p>If the member dies within five years of retiring and before age 75 the balance of five years' pension payments will be paid in the form of a lump sum; plus</p> <p>Children's pensions may also be payable.</p>	<p>A spouse's, civil partner's or nominated cohabiting partner's pension payable at a rate of 1/160th of the member's total membership multiplied by final pay (generally post 1 April 1972 service for widowers' pension and post 6 April 1988 for civil partners and nominated cohabiting partners) is payable; plus</p> <p>If the member dies within ten years of retiring and before age 75 the balance of ten years' pension payments will be paid in the form of a lump sum; plus</p> <p>Children's pensions may also be payable.</p>



Provision	Benefit Structure To 31 March 2008	Benefit Structure From 1 April 2008
Death in service	<p>A lump sum of two times final pay; plus</p> <p>A spouse's or civil partner's pension of one half of the ill-health retirement pension that would have been paid to the scheme member if he had retired on the day of death (generally post 1 April 1972 service for widowers' pension and post 6 April 1988 for civil partners); plus</p> <p>Children's pensions may also be payable.</p>	<p>A lump sum of three times final pay; plus</p> <p>A spouse's, civil partner's or cohabiting partner's pension payable at a rate of 1/160th of the member's total (augmented to age 65) membership (generally post 1 April 1972 service for widowers' pension and post 6 April 1988 for civil partners and nominated cohabiting partners), multiplied by final pay; plus</p> <p>Children's pensions may also be payable.</p>
Leaving service options	<p>If the member has completed three months' or more scheme membership, deferred benefits with calculation and payment conditions similar to general retirement provisions ; or</p> <p>A transfer payment to either a new employer's scheme or a suitable insurance policy, equivalent in value to the deferred pension; or</p> <p>If the member has completed less than three months' scheme membership, a return of the member's contributions with interest, less a State Scheme premium deduction and less tax at the rate of 20%.</p>	
State pension scheme	The Fund is contracted-out of the State Second Pension and the benefits payable to each member are guaranteed to be not less than those required to enable the Fund to be contracted-out.	

Note: Certain categories of members of the Fund are entitled to benefits that differ from those summarised above.



Discretionary benefits

The Local Government Pension Scheme (Benefits, Membership and Contributions) Regulations 2007 give employers a number of discretionary powers, including:

- the power to increase membership of an active member (Regulation 12);
- the award of additional pension to active members (Regulation 13)
- the payment of benefits with the employer's consent prior to age 60 (Regulation 30);
- the payment of benefits due to flexible retirement (Regulation 18)
- the determination that the early payment of pension benefits should not be reduced for compassionate reasons (Regulation 30(5));
- not applying the suspension of spouses' pensions on remarriage or cohabitation for members who retired before 1 April 1998.

The effect on benefits or contributions as a result of the use of these provisions has been allowed for in this valuation to the extent that this is reflected in the membership data provided. No allowance has been made for the future use of discretionary powers. Our assumptions do not anticipate any saving from the suspension of spouses' pension; to the extent that this continues, there will be a saving.

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Appendix D: Data

This section contains a summary of the membership, investment and accounting data provided to us by the Administering Authority and Capita Hartshead for the purposes of this valuation (the corresponding membership and investment data from the previous valuation is also shown for reference).

Membership data

Employee members

Employee membership	31 March 2010		31 March 2007	
	Number	Pensionable Pay* (£'000)	Number	Pensionable Pay* (£'000)
Full-time employee members				
Male officers	2,348	89,495	2,962	98,214
Female officers	759	24,867	990	27,076
Male manuals	651	14,370	842	17,135
Female manuals	1	21	2	41
Post-April 1998 males	3,914	108,903	3,316	81,631
Post-April 1998 females	2,881	74,897	2,527	58,091
Total full-time employee members	10,554	312,552	10,639	282,188
Part-time employee members				
Male officers	61	1,608	67	1,571
Female officers	408	8,230	467	8,100
Male manuals	2	24	1	16
Female manuals	5	79	4	48
Post-April 1998 males	166	2,697	87	1,268
Post-April 1998 females	737	12,722	478	7,138
Total part-time employee members	1,379	25,361	1,104	18,140
Totals	11,933	337,913	11,743	300,328

*actual pay (not full-time equivalent)

The average age of employee members at 31 March 2010 was 49.9 and the average expected future working lifetime of employee members is 9 years. Both of these figures are weighted by liability. The table highlights that at 31 March 2010 the ratio of full time staff to part time staff has dropped significantly (from almost 10:1 to less than 8:1) since 31 March 2007.



HMIP Members

There is a section of the Fund's membership that were former HMIPs who have different benefit entitlement than the rest of the membership. The main entitlement is the allowance to retire on an unreduced pension at age 60. We have allowed for this in our valuation and these members are included in the active membership table above. A summary of the HMIP membership is shown below.

	Number	Pensionable Pay FTE £000s	Average Pay FTE (£)	Average Age Years
Full time Members				
Pre April 1998 joiners:				
Male Officers	101	5,243	51,912	52.0
Female Officers	22	758	34,463	49.5
Post April 1998 Joiners:				
Males	5	319	63,804	54.6
Females	0	0	0	0
Full Timers Total	128	6,320	49,378	
Part Time Members				
Pre April 1998 joiners:				
Male Officers	1	51	51,005	50.5
Female Officers	5	188	37,678	47.8
Post April 1998 Joiners:				
Males	3	165	55,021	64.8
Females	0	0	0	0
Part Timers Total	9	404	44,940	
Grand Total	137	6,725	49,086	51.8

Deferred pensioners

Deferred pensioner membership	31 March 2010		31 March 2007	
	Number	Deferred pension (£000)	Number	Deferred pension (£000)
Male officers	2,344	6,193	1,715	4,560
Female officers	2,680	4,978	1,861	3,187
Male manuals	191	590	184	492
Female manuals	0	0	1	8
Totals	5,215	11,761	3,761	8,247

The deferred pension shown includes revaluation up to and including that granted by the 2010 Pension Increase Order. The average age of deferred pensioners at 31 March 2010 was 47.9 (this figure is weighted by liability).



Current pensioners, spouses and children (including unfunded benefits)

Pensioner membership	31 March 2010		31 March 2007	
	Number	Pension (£000)	Number	Pension (£000)
Normal / early retirement				
Male officers	1,688	19,991	1,209	14,786
Female officers	372	1,906	295	1,383
Male manuals	660	7,501	540	2,844
Female manuals	160	926	8	15
III health retirement				
Male officers	419	3,356	217	2,135
Female officers	51	290	80	416
Male manuals	201	1,443	383	2,132
Female manuals	31	192	0	0
Dependants				
Widows	428	1,800	327	1,129
Widowers	31	68	18	35
Children	48	90	33	39
Totals	4,089	37,563	3,110	24,916

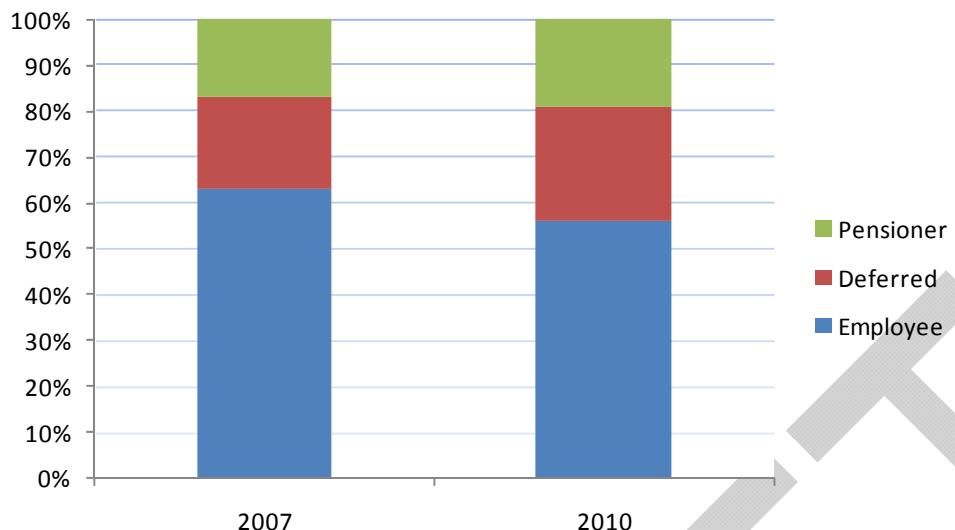
The average age of current pensioner members at 31 March 2010 (weighted by liability and excluding spouses', civil partners' and children's pensions in payment) was 65.1. This includes the Fund's unfunded benefits who are summarised below.

Unfunded benefits

	31 March 2010	
	Number	Annual Pension (£000)
Normal/Early Retirements		
Male Officers	361	1,085
Female Officers	81	138
Male Manuals	135	170
Female Manuals	7	10
Dependants		
Widows	63	65
Widowers	3	2
Children	1	0
Totals	651	1,470

Note that the membership numbers in the table above refer to the number of records provided to us and so will include an element of double-counting in respect of any members who are in receipt (or potentially in receipt of) more than one benefit.

The chart below summarises the membership at this valuation and at the previous one.



The membership data we have been provided with suggests the Fund is gradually maturing, meaning that the burden on contributing members of meeting the costs of the Fund's liabilities is becoming progressively greater. If this trend were to continue, the result would be that in future the overall contribution rate would become much more heavily influenced by the past service funding level, rather than simply the cost of new benefits being earned in future by contributing members.

Assets at 31 March 2010

A summary of the Fund's assets (excluding members' money-purchase Additional Voluntary Contributions) as at 31 March 2010 is as follows:

Asset class	Market Value at 31 March 2010 (£000)	Allocation %
UK equities	361,900	23%
UK fixed interest gilts	293,600	18%
UK corporate bonds	103,500	7%
UK index-linked gilts	0	0%
Private equities	81,000	5%
Overseas equities	557,600	35%
Overseas bonds	29,100	2%
Property	49,700	3%
Cash and net current assets	113,000	7%
Total	1,589,400	100%

"Cash and net current assets" includes currency and derivatives funds

A brief comparison of the asset allocation of the Fund at this and the previous valuation is shown below:



Asset class	Asset Allocation	
	31 March 2010	31 March 2007
Equities	63%	68%
Bonds	27%	23%
Property	3%	5%
Cash & other assets	7%	4%
Total	100%	100%

Accounting data – revenue account for the three years to 31 March 2010

Consolidated accounts (£'000)	Year to		
	31 March 2008	31 March 2009	31 March 2010
Income			
Employer - normal contributions	45,680	49,391	55,431
Employer - additional contributions	6,780	8,040	3,122
Employee - normal contributions	18,285	21,141	23,055
Employee - additional contributions	1,262	1,489	1,594
Transfers In Received (including group and individual)	5,020	2,998	9,349
Other Income	0	654	701
Total Income	77,027	83,713	93,252
Expenditure			
Gross Retirement Pensions	27,199	31,608	35,777
Lump Sum Retirement Benefits	17,639	13,578	13,920
Death in Service Lump sum	920	962	1,173
Gross Refund of Contributions	2	26	27
Transfers out (including bulk and individual)	4,272	2,668	4,216
Fees and Expenses	1,243	2,243	2,383
Total Expenditure	51,275	51,085	57,496
Net Cashflow	25,752	32,628	35,756
Assets at start of year	1,525,855	1,496,007	1,131,587
Net cashflow	25,752	32,628	35,756
Total asset return	-55,600	-397,048	427,699
Assets at end of year	1,496,007	1,131,587	1,595,042
Approximate rate of return on assets	-3.6%	-26.2%	37.3%

Note that the figures above are based on the Fund accounts provided to us for the purposes of this valuation, which were fully audited at the time of our valuation calculations. The above accounts includes monies in respect of AVC activities. The audited Fund assets at 31 March 2010 excluding AVC assets are £1,589m.



Appendix E: Funding method

Using the actuarial assumptions described earlier (and summarised in Appendix F) we have estimated the payments which will be made from the Fund throughout the future lifetimes of existing employee members, deferred pensioners, pensioners and their dependants. We have then calculated the amount of money which, if invested now, should be sufficient to meet all of these payments in future, assuming that future investment returns are in line with the discount rate. This amount is the estimated cost of members' benefits. We have calculated separately the estimated cost of benefits arising from scheme membership accrued by members before the valuation date ('past service') and from scheme membership after the valuation date ('future service').

Past service funding position

We have compared the value of the assets with the estimated cost of members' past service benefits (i.e. the past service liabilities) at 31 March 2010. Our calculation of the liabilities allows for all expected future pay and pension increases. The ratio of the asset value to the past service liabilities is known as the 'funding level'. If the funding level is more than 100% there is a 'surplus'; if it is less than 100% there is a 'shortfall'.

Future service contribution rate

We have calculated the estimated cost of benefits that will be earned by existing employee members over the year following 31 March 2010, allowing for all expected future pay and pension increases. This amount is expressed as a percentage of the members' pensionable pay over the year following the valuation date and is known as the 'future service contribution rate'.

This method of assessing the future contribution requirement is applied only to the Fund's membership at the valuation date. If new entrants are admitted to the Fund to the extent that the membership profile remains broadly unchanged (and if the actuarial assumptions are unchanged) then the future service contribution rate assessed at future valuations should be reasonably stable. However, if the average age of employee members rises (for example if few or no new entrants are admitted to the Fund), and if the actuarial assumptions are unchanged, then the future service contribution rate will increase.

This funding method is known as the Projected Unit Method.

The estimated cost of any lump sum death in service benefits is separately assessed as the amount which is likely to be paid out in an average year, based on the membership structure at the valuation date.

The total 'future service contribution rate' is then the sum of the 'Projected Unit Method' rate plus the lump sum death benefit cost. It is the rate at which the Fund's employer, together with the employee members, should contribute to the Fund to meet the cost of members' benefits expected to arise from service after the valuation date. Employee members will be contributing at fixed rates (albeit with various tiers). Therefore the employer future service contribution rate is the total future service contribution rate less the member contribution rate. An addition is then made to cover the expected future expenses of administering the Fund.



Appendix F: Assumptions

Financial assumptions

Financial assumptions	31 March 2007 Funding basis (%pa)	31 March 2010	
		Funding basis (%pa)	Gilts basis (%pa)
Discount rate	6.1%	6.1%	4.5%
Retail price inflation	3.2%	3.8%	3.8%
Pay increases*	4.7%	4.8%	4.8%
Pension increases:			
pension in excess of GMP	3.2%	3.0%	3.0%
post-88 GMP	2.8%	2.8%	2.8%
pre-88 GMP	0.0%	0.0%	0.0%
Revaluation of deferred pension	3.2%	3.0%	3.0%
Administration expenses	0.4%	0.4%	0.4%

*An allowance is also made for promotional pay increases (see table below). Note that the assumption at 31 March 2010 is actually 1% p.a. for 2010/11 and 2011/12, reverting to 4.8% p.a. thereafter.

Mortality assumptions

Longevity assumptions	31 March 2010
Longevity - baseline	VitaCurves
Longevity - improvements	Medium Cohort with 1% minimum improvements from 2007

The Fund commissioned a historic mortality investigation in May 2010 using Club Vita. The longevity assumptions that have been adopted at this valuation are a bespoke set of VitaCurves that are specifically tailored to fit the membership profile of the Fund as a result of this investigation. These curves are based on the data you have provided us with for the purposes of this valuation. Full details of these are available on request.

Other demographic valuation assumptions

Age retirements	It is assumed that actives and deferred pensioners will retire at age 60 or when satisfy the <i>Rule of 85</i> if later subject to no later than age 65, with the exception of those who reach age 60 after 31 March 2020 who will take all of their benefits at age 65.
Retirements in ill health	Allowance has been made for ill-health retirements before Normal Pension Age (see table below).
Withdrawals	Allowance has been made for withdrawals from service (see table below).
Family details	A varying proportion of members are assumed to be married (or have an adult dependant) at retirement or on earlier death. For example, at age 60 this is assumed to be 90% for males and 85% for females. Husbands are assumed to be 3 years older than wives.

**Commutation**

Future pensioners are assumed to elect to exchange pension for additional tax-free cash up to 50% of HMRC limits.

The tables below show details of the assumptions actually used for specimen ages. The promotional pay scale is in addition to the allowance for general pay inflation described above. For membership movements, the figures represent the number of members per 1000 at each age that are assumed to leave service within the following twelve months.

Withdrawals for members with less than 2 years service

Age	Incidence for 1000 active members per annum											
	Male Officers		Male Manuals		Female Officers		Female Manuals		Post 98 Males		Post 98 Females	
	Withdrawals		Withdrawals		Withdrawals		Withdrawals		Withdrawals		Withdrawals	
	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
20	202.69	337.82	202.69	337.82	192.26	267.03	192.26	267.03	371.61	743.21	256.35	427.25
25	133.89	223.15	133.89	223.15	129.33	179.63	129.33	179.63	245.46	490.92	172.44	287.41
30	94.97	158.29	94.97	158.29	108.39	150.54	108.39	150.54	174.11	348.23	144.51	240.86
35	74.19	123.65	74.19	123.65	93.48	129.84	93.48	129.84	136.01	272.03	124.64	207.74
40	59.70	99.50	59.70	99.50	77.75	107.99	77.75	107.99	109.45	218.90	103.67	172.78
45	48.85	81.42	48.85	81.42	64.00	88.90	64.00	88.90	89.56	179.12	85.34	142.23
50	37.84	63.07	37.84	63.07	48.77	67.74	48.77	67.74	69.37	138.75	65.03	108.38
55	32.79	54.65	32.79	54.65	37.59	52.21	37.59	52.21	60.11	120.23	50.12	83.54
60	19.87	33.12	19.87	33.12	17.47	24.27	17.47	24.27	36.43	72.86	23.29	38.82

Withdrawals for members with more than 2 years service

Age	Incidence for 1000 active members per annum											
	Male Officers		Male Manuals		Female Officers		Female Manuals		Post 98 Males		Post 98 Females	
	Withdrawals		Withdrawals		Withdrawals		Withdrawals		Withdrawals		Withdrawals	
	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT	FT	PT
20	149.82	249.70	149.82	249.70	142.11	197.37	142.11	197.37	274.67	549.33	189.48	315.79
25	98.96	164.93	98.96	164.93	95.59	132.77	95.59	132.77	181.43	362.85	127.46	212.43
30	70.20	116.99	70.20	116.99	80.11	111.27	80.11	111.27	128.69	257.39	106.81	178.02
35	54.84	91.39	54.84	91.39	69.09	95.97	69.09	95.97	100.53	201.06	92.13	153.54
40	44.13	73.54	44.13	73.54	57.47	79.82	57.47	79.82	80.90	161.79	76.62	127.70
45	36.11	60.18	36.11	60.18	47.31	65.71	47.31	65.71	66.20	132.40	63.08	105.13
50	27.97	46.61	27.97	46.61	36.05	50.07	36.05	50.07	51.28	102.55	48.06	80.10
55	24.24	40.39	24.24	40.39	27.78	38.59	27.78	38.59	44.43	88.86	37.05	61.74
60	14.69	24.48	14.69	24.48	12.91	17.94	12.91	17.94	26.93	53.86	17.22	28.70

**III health retirements – Tier 1**

Age	Incidence per 1000 active members per annum							
	Male Officers & Post 98		Male Manuals		Female Officers & Post 98		Female Manuals	
	III Health		III Health		III Health		III Health	
	FT	PT	FT	PT	FT	PT	FT	PT
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.27	0.27	0.05	0.04	0.31	0.31
30	0.05	0.04	0.44	0.44	0.08	0.06	0.43	0.43
35	0.07	0.05	0.66	0.66	0.17	0.13	0.62	0.62
40	0.12	0.09	0.91	0.91	0.22	0.16	0.86	0.86
45	0.27	0.20	1.31	1.31	0.35	0.26	1.10	1.10
50	0.74	0.55	1.92	1.92	0.69	0.52	1.63	1.63
55	4.08	3.06	8.35	8.35	4.90	3.67	8.29	8.29
60	16.73	12.55	32.54	32.54	19.35	14.51	32.54	32.54

III health retirements – Tier 2

Age	Incidence per 1000 active members per annum							
	Male Officers & Post 98		Male Manuals		Female Officers & Post 98		Female Manuals	
	III Health		III Health		III Health		III Health	
	FT	PT	FT	PT	FT	PT	FT	PT
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	1.14	1.14	0.21	0.16	1.33	1.33
30	0.21	0.16	1.86	1.86	0.36	0.27	1.84	1.84
35	0.29	0.21	2.78	2.78	0.71	0.54	2.65	2.65
40	0.50	0.37	3.86	3.86	0.93	0.70	3.67	3.67
45	1.14	0.86	5.57	5.57	1.50	1.12	4.69	4.69
50	3.98	2.98	10.31	10.31	3.71	2.78	8.79	8.79
55	5.70	4.27	11.65	11.65	6.84	5.13	11.58	11.58
60	3.26	2.44	6.33	6.33	3.76	2.82	6.33	6.33

III health retirements – Tier 3

Age	Incidence per 1000 active members per annum							
	Male Officers & Post 98		Male Manuals		Female Officers & Post		Female Manuals	
	III Health		III Health		III Health		III Health	
	FT	PT	FT	PT	FT	PT	FT	PT
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
25	0.00	0.00	0.38	0.38	0.07	0.05	0.44	0.44
30	0.07	0.05	0.62	0.62	0.12	0.09	0.61	0.61
35	0.10	0.07	0.93	0.93	0.24	0.18	0.88	0.88
40	0.17	0.12	1.29	1.29	0.31	0.23	1.22	1.22
45	0.38	0.29	1.86	1.86	0.50	0.37	1.56	1.56
50	0.21	0.16	0.54	0.54	0.20	0.15	0.46	0.46
55	0.30	0.22	0.61	0.61	0.36	0.27	0.61	0.61
60	0.17	0.13	0.33	0.33	0.20	0.15	0.33	0.33

**Death in service**

Age	Incidence per 1000 active members per annum			
	Male Officers & Post 98	Male Manuals	Female Officers & Post 98	Female Manuals
	Death	Death	Death	Death
20	0.25	0.32	0.14	0.18
25	0.25	0.32	0.14	0.18
30	0.30	0.38	0.21	0.26
35	0.35	0.44	0.35	0.44
40	0.60	0.76	0.56	0.70
45	1.00	1.26	0.91	1.14
50	1.60	2.02	1.33	1.67
55	2.50	3.15	1.75	2.20
60	4.50	5.67	2.24	2.82

Promotional salary scale

Age	Promotional Salary Scales							
	Male Officers & Post 98 Males		Male Manuals		Female Officers & Post 98 Females		Female Manuals	
	FT	PT	FT	PT	FT	PT	FT	PT
20	100	100	100	100	100	100	100	100
25	135	116	100	100	118	105	100	100
30	169	134	100	100	137	111	100	100
35	192	146	100	100	151	116	100	100
40	208	153	100	100	163	121	100	100
45	222	154	100	100	166	122	100	100
50	236	154	100	100	166	122	100	100
55	239	154	100	100	166	122	100	100
60	239	154	100	100	166	122	100	100



Appendix G: Comparison of valuation results with 2007

The tables below summarise the valuation results for the Fund as a whole at this valuation and at the previous valuation.

Valuation Date	31 March 2010			31 March 2007		
	Based on today's	Allowance for	Total	Based on today's	Allowance for future	Total
Past Service Position (£m)						
Past Service Liabilities						
Employees	871	65	936	924	42	966
Deferred Pensioners	152	12	164	117	5	122
Pensioners	544	19	563	380	15	395
Transfer of Former Unfunded Pensioners	20	2	22	0		0
Total Liabilities	1,567	117	1,684	1,421	62	1,483
Market Value of Assets	1,589		1,589	1,521		1,521
Surplus / (Deficit)	23		(95)	100		38
Funding Level	101%		94%	107%		103%

Valuation Date	31 March 2007			31 March 2010		
	% of pay			% of pay		
Future service rate						
Cost of new benefits earned in future	18.3%	1.2%	19.5%	20.2%	1.0%	21.2%
Expenses	0.4%		0.4%	0.4%		0.4%
Total	18.7%	1.2%	19.9%	20.6%	1.0%	21.6%
Average employee contribution rate	(6.9%)		(6.9%)	(6.8%)		(6.8%)
Future service rate	11.8%		13.0%	13.8%		14.8%



Appendix H: Summary of past valuations

Valuation Date	31/03/1992	31/03/1995	31/03/1998	31/03/2001	31/03/2004	31/03/2007	31/03/2010
Number of Active Members	6,984	6,495	8,709	9,912	11,087	11,743	11,933
Number of Deferred Members	200	589	1,140	1,706	2,522	3,761	5,215
Number of Pensioner Members	308	1,063	1,538	2,002	2,501	3,110	4,089
Total	7,492	8,147	11,387	13,620	16,110	18,614	21,237
Proportion of Active Members	93%	80%	76%	73%	69%	63%	56%
Proportion of Deferred Members	3%	7%	10%	13%	16%	20%	25%
Proportion of Pensioner Members	4%	13%	14%	15%	16%	17%	19%
Total	100%	100%	100%	100%	100%	100%	100%
Environment Agency Payroll at Valuation (£000)	101,317	109,328	166,073	209,491	260,700	300,328	337,913
Past Service Liabilities							
Actives	177.1	248.4	448.1	604.3	710.0	966.0	936.0
Deferreds	5.3	7.5	16.6	36.8	65.0	122.0	164.0
Pensioners	51.3	71.9	124.7	198.1	275.0	395.0	585.0
Total	234	328	589	839	1,050	1,483	1,684
Proportion of Active Liability (£m)	76%	76%	76%	72%	68%	65%	56%
Proportion of Deferred Liability (£m)	2%	2%	3%	4%	6%	8%	10%
Proportion of Pensioner Liability (£m)	22%	22%	21%	24%	26%	27%	35%
	100%	100%	100%	100%	100%	100%	100%
Actuarial Value of Assets	355.2	457.9	662.1	937.4	983	1521	1589
Market Value of Assets	359.9	463.9	842.5	993.6	982.2	1521	1589
Surplus/(Deficit)	122	130	73	98	(67)	38	(95)
Funding Level	152%	140%	112%	112%	94%	103%	94%
Gearing Ratio	231%	300%	355%	401%	403%	494%	498%
Assumed Employee Contribution Rate (% of pay)	5.90%	5.90%	5.90%	5.90%	5.90%	6.80%	6.90%
Employer Future Service Rate (% of employees)	180%	190%	200%	230%	237%	218%	188%
Deficit Correction Contribution Rate (% of employees)	-80%	-75%	-60%	-45%	42%	-21%	45%
Total Employer's Contribution Rate (% of employees)	100%	115%	140%	185%	279%	197%	233%
Employer Future Service Rate (% of payroll)	10.6%	11.2%	11.8%	13.6%	14.0%	14.8%	13.0%
Deficit Correction Contribution Rate (% of payroll)	-4.7%	-4.4%	-3.5%	-2.7%	2.5%	-1.4%	3.1%
Total Employer's Contribution Rate (% of payroll)	5.9%	6.8%	8.3%	10.9%	16.5%	13.4%	16.1%
Deficit correction period	40	40	12	20	13	10	9
Valuation Method	PUM	PUM	PUM	PUM	PUM	PUM	PUM

Notes:

- 1992 split of liabilities is calculated by assuming the same split as 1995 liabilities.
- 2 The Market Value of Assets at 1992 is assumed from the relationship between the Actuarial and Market Value of Assets at 1995.
- 3 The average employee contribution rate is 5.9% at each valuation before 2007. The 2007 and 2010 results allow for the tiered employee contribution rate structure that applied from 1 April 2008.
- 4 The post retirement mortality assumptions for the 1992 and 1995 valuations are assumed to be identical to those in the 1998 valuation.
- 5 The employer's contribution rates that are shown are theoretical rates derived directly from the ongoing funding assumptions and results. In practice, the actual contributions payable in any year may differ from those shown e.g. due to phasing or stabilisation.



Appendix I: Post-valuation events

These valuation results are effectively a snapshot of the Fund as at 31 March 2010. Since that date, various events have had an effect on the financial position of the Fund. Whilst we have not explicitly altered the valuation results to allow for these events (other than for the switch from RPI to CPI-based pension increases) a short discussion of these “post-valuation events” can still be beneficial in understanding the likelihood of meeting the various funding objectives.

Investment conditions since 31 March 2010

In the period since the valuation date, investment markets moved in the following manner:

- equity markets have risen
- bond yields have fallen
- anticipated price inflation has fallen

The table below compares the initial valuation results presented in this report with those that would have applied if our assumptions had been based on current market conditions (i.e. assumptions as at 24 March 2011).

Assumptions as at:	31 March 2010	24 March 2011
Past Service Position	(£m)	(£m)
Total Liabilities	1684	1800
Market Value of Assets	1589	1700
Surplus / (Deficit)	(95)	(100)
Funding Level	94%	94%

Although anticipated price inflation has fallen at 24 March 2011 (compared to 31 March 2010), this has been offset by a fall in bond yields resulting in a very minor reduction (around £15m) to the Fund's liabilities. The increase in liabilities shown above is due to accrual of benefit by members and interest on liabilities since 31 March 2010. The increase in assets is due to strengthening equity markets but also makes allowance for estimated cashflows in and out of the Fund.

Arm's Length Bodies review

Since the valuation date there have been various discussions around transferring members to other public sector pension funds as a result of the Arm's Length Bodies review. Those that are currently under discussion are:

- 1 transfer of Navigation to British Waterways;
- 2 transfer of Environment Agency laboratories to Defra;
- 3 transfer of HR Service Centre and Financial Services Centre to new Defra Shared Services body;
- 4 merger with Natural England; and

Environment Agency Wales to new Welsh Assembly Government Environmental Body. At the time of writing there have been no definite decisions made but if member transfers were to occur there would be an effect on the funding position of the Fund that needs to be quantified.



Voluntary Early Retirements (VERs) exercise

In the current economic and political climate the Environment Agency has been under pressure to reduce costs. One course of action the Environment Agency has taken to achieve this is to offer enhanced voluntary early retirement to around 500 members. The current exercise is underway and is likely to last until around June 2011. This action will have some pension funding implications:

- An increase to the Fund's liabilities due to early retirements and, in some cases, augmentations, for any employees aged 55 or over who are awarded immediate unreduced pension benefits. However these costs are met by lump sum payments from the Agency and this corresponding boost to assets means that there is little overall impact on the funding level.
- A decrease in assets as lump sums are paid to those members retiring upon redundancy.
- A one off 'withdrawal profit' due to the removal of the link to final salary on the past service benefits of departing employees who are under age 55.

We estimate that the overall impact of the VERs exercise will be to reduce the deficit by around £0.5m. This amount is very small (around 0.5%) in relation to the value of the Fund's deficit at the valuation date. The change to the deficit arises from

- liabilities reducing by around £3.6m to £1,680m as the impact of members aged under 55 losing their link to salary increases is greater than the increase in liabilities of pensions being paid out longer to members 55 or over; and
- assets also reducing by around £3.1m to £1,586m as around £8.3m is paid out in lump sums to members aged 55 or over whilst the Environment Agency pays around £5.2m to the Fund in respect of early retirement strain contributions.

The post VERs exercise funding level will remain unchanged at 94%.

Lord Hutton review of public sector pensions

The Government has set up an independent review of public sector pensions including the LGPS, chaired by Lord Hutton. This review will look at issues such as affordability, fairness, impact on mobility and plurality of current public service provision.

Ultimately, this review may or may not recommend changes to the LGPS. These could have far-reaching effects on the Fund. However, at this point in time the possibilities are so wide-ranging that it would be inappropriate to make any allowance for this in the results of this particular valuation. If that situation changes then we will keep you informed of the likely impact of any proposals from Lord Hutton on the Fund's financial position, as and when they arise.

Unfunded Compensatory Added Years and Gratuities

The implementation of The Local Government Pension Scheme (Miscellaneous) Regulations 2009, which introduced regulations 12B and 13A of The Local Government Pension Scheme (Benefits, Membership and Contributions) Regulations 2007, has provided the Fund an opportunity to convert these unfunded benefits into funded LGPS benefits. Regulations 12B and 13A allows the award of increased membership to replace compensatory added years and additional pension to replace annual compensation (i.e. gratuities) respectively.

Following a resolution by the Environment Agency to make use of these provisions, unfunded compensatory added years and gratuities awarded to members that were already in payment (as at 31 March 2010) have been replaced by awards of funded benefits (as a result of increased membership and additional pension) and those



funded benefits are now included in these valuation results. Accordingly, the increased contributions required by Regulation 40 of the Local Government Pension Scheme (Administration) Regulations 2008 are included in the employer contributions outlined in the enclosed Rates and Adjustment Certificate.

There are expected to be further awards of gratuities in the period from 1 April 2010 up to 31 March 2012 (i.e. in relation to scheme members who had not retired as at 31 March 2010) which are covered by this resolution.

Accordingly, awards of additional pension will replace these unfunded gratuities. **The capital value of these additional benefits is estimated to be £Xm.** Any such awards that directly relate to unfunded gratuities will not require further sums to be paid to the Fund by the employer (as would normally be the case where additional pension is awarded). Instead these will be included in the determination of the employer contribution rate at the 31 March 2013 actuarial valuation.

Advance contribution payments towards deficit recovery

The Environment Agency has paid advance contributions towards the deficit identified at the 2010 valuation. The payment made by the Environment Agency Wales was £3,167,000 which represents the discounted value of the next three years worth of deficit recovery payments (see Section 7) that had been due under the recovery plan. In addition, the Environment Agency England paid £10,872,000 which represents the total (un-discounted) contribution that had been due to be made towards the deficit in 2011/12. Both of these payments were made on 18 March 2011. These payments have been reflected in the Statement to the Rates and Adjustments Certificate.

DRAT



Appendix J: Rates and Adjustments Certificate

Chairman of the Pensions Committee, Accounting Officer and Director of Finance

Environment Agency

Dear Sirs

ENVIRONMENT AGENCY ACTIVE FUND (“THE FUND”)

CERTIFICATE OF THE ACTUARY REGARDING SOLVENCY POSITION OF THE FUND

- (1) On your instruction, I have made an actuarial valuation of the Environment Agency Active Fund as at 31 March 2010. The value of the Fund's assets at that date was £1,589m.
- (2) In accordance with Regulation 36(1) of the Local Government Pension Scheme (Administration) Regulations 2008 in relation to the Fund, we have made an assessment of the solvency of the Fund. Our results show that the solvency level of the Fund was 94% at 31 March 2010.
- (3) I hereby certify that as at 31 March 2010 the value of the Fund's existing assets was less than the value of the Fund's existing and prospective liabilities by £95m.

In accordance with regulation 36(1) of the Administration Regulations 2008 we have made an assessment of the contributions that should be paid into the Fund by the Environment Agency for the period 1 April 2011 to 31 March 2014 in order to maintain the solvency of the Fund.

The method and assumptions used to calculate the contributions set out in the Rates and Adjustments certificate are detailed in the Funding Strategy Statement dated 17 March 2011 and my report on the actuarial valuation dated March 2011.

The required contribution rates that should be paid to the Fund by the Environment Agency from 1 April 2011 in order to maintain the solvency of the Fund are set out in the attached statement.

Signature:

Name: Douglas Anderson

Richard Warden

Qualification: Fellow of the Institute and Faculty of Actuaries Fellow of the Institute and Faculty of Actuaries

Date: 30 March 2011

Firm: Hymans Robertson LLP

20 Waterloo Street

Glasgow

G2 6DB



Statement to the Rates and Adjustments Certificate

The Common Rate of Contribution payable by the employer under regulation 36(4)(a) of the Administration Regulations for the period 1 April 2011 to 31 March 2014 is 16.5% of pensionable pay (as defined in Appendix C).

Individual Adjustments are required under regulation 36(4)(b) of the Administration Regulations for the period 1 April 2011 to 31 March 2014 resulting in Minimum Total Contribution Rates are as set out below:

Employer name	Minimum Contributions for the Year Ending					
	31 March 2012		31 March 2013		31 March 2014	
	% payroll	£(000)	% payroll	£(000)	% payroll	£(000)
Environment Agency (England)	13.0%	-	13.0%	10,803	13.0%	11,328
Environment Agency (Wales)	13.0%	-	13.0%	-	13.0%	-

Further comments

Contributions, which are expressed as a percentage of pensionable pay and absolute monetary amounts, should be paid into the Environment Agency Active Fund ('the Fund') at a frequency in accordance with the requirements of the Regulations.

Further sums should be paid to the Fund to meet the costs of any early and flexi-retirements and/or augmentation using methods and factors issued by me from time to time.

Further sums should be paid to the Fund by the Environment Agency to meet the costs of any ill-health retirements that exceed those included within our assumptions.

The certified contribution rates represent the minimum level of contributions to be paid. The Environment Agency may pay further amounts at any time and future periodic contributions may be adjusted on a basis approved by the Fund actuary.