Environment Agency
Pension Fund

March 2017

Active Fund Funding Strategy Statement

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Introduction

What is this document?

This is the Funding Strategy Statement (FSS) of the Environment Agency Active Pension Fund ("the Fund"), which is administered by the Environment Agency on behalf of the Environment Agency Pensions Committee ("the Administering Authority").

It has been prepared by the Administering Authority in collaboration with the Fund's actuary, Hymans Robertson LLP, and after consultation with the Fund's employers and investment adviser. It is effective from 23 March 2017.

What is the Environment Agency Active Pension Fund?

The Fund is part of the national Local Government Pension Scheme (LGPS). The LGPS was set up by the UK Government to provide retirement and death benefits for local government employees, and those employed in similar or related bodies, across the whole of the UK.

The Environment Agency Active Fund was established as the National Rivers Authority Active Pension Fund in 1989 at the time of the privatisation of the water industry in England and Wales. The Fund inherited active members' accrued liabilities from the predecessor pension arrangements, but no pensioners or deferred pensioner liabilities. In 1996 it transferred to the Environment Agency and became the Environment Agency Active Pension Fund. Since then, the Fund has been gradually maturing.

As at 31 March 2016, the Active Fund contained 10,759 active members, 6,082 pensioners and 7,332 deferred pension members whose benefits have yet to come into payment.

The Active Fund has three participating employers – the Environment Agency (EA), Natural Resources Wales (NRW) and Shared Services Connected Ltd (SSCL).

The Administering Authority runs the Environment Agency Active Pension Fund to make sure it:

- Receives the proper amount of contributions from employees and employers, and any transfer payments.
- Invests the contributions appropriately, with the aim that the Fund's assets grow over time with investment income and capital growth.
- Uses the assets to pay Fund benefits to the members (as and when they retire, for the rest of their lives), and to their dependants (as and when members die), as defined in the LGPS Regulations. Assets are also used to pay transfer values and administration costs.

The roles and responsibilities of the key parties involved in the management of the Fund are summarised in Appendix B.

Why does the Fund need a Funding Strategy Statement?

Employees' benefits are guaranteed by the LGPS Regulations, and do not change with market values or employer contributions. Investment returns will help pay for some of the benefits, but probably not all, and certainly with no guarantee. Employees' contributions are fixed in those Regulations also, at a level which covers only part of the cost of the benefits.

Therefore, employers need to pay the balance of the cost of delivering the benefits to members and their dependants.

The FSS focuses on how employer liabilities are measured, the pace at which these liabilities are funded, and how employers or pools of employers pay for their own liabilities. This statement sets out how the Administering Authority has balanced the conflicting aims of:

- affordability of employer contributions,
- transparency of processes,
- stability of employers' contributions, and
- prudence in the funding basis.

There are also regulatory requirements for an FSS, as given in Appendix A.

The FSS is a summary of the Fund's approach to funding its liabilities, and this includes reference to the Fund's other policies; it is not an exhaustive statement of policy on all issues. The FSS forms part of a framework which includes:

- The LGPS Regulations;
- The Rates and Adjustments Certificate (confirming employer contribution rates for the next three years) which can be found in an appendix to the formal valuation report.
- The Fund's policies on admissions, cessations and bulk transfers.
- Actuarial factors for valuing individual transfers, early retirement costs and the costs of buying added service.
- The Fund's Statement of Investment Principles / Investment Strategy Statement (see Section 4)

How does the Fund and this FSS affect me?

This depends on who you are:

- A member of the Fund, i.e. a current or former employee, or a dependant: the Fund needs to be sure it is collecting and holding enough money so that your benefits are always paid in full.
- An employer in the Fund (or which is considering joining the Fund): you will want to know how your contributions are calculated from time to time, that these are fair by comparison to other employers in the Fund, and in what circumstances you might need to pay more. Note that the FSS applies to all employers participating in the Fund.

What does the FSS aim to do?

The FSS sets out the objectives of the Fund's funding strategy, such as:

- To ensure the long-term solvency of the Fund, using a prudent long term view. This will ensure that sufficient funds are available to meet all members'/dependants' benefits as they fall due for payment.
- To ensure that employer contribution rates are reasonably stable where appropriate.

- To minimise the long-term cash contributions which employers need to pay to the Fund, by recognising the link between assets and liabilities and adopting an investment strategy which balances risk and return.
- To reflect the different characteristics of different employers in determining contribution rates. This involves the Fund having a clear and transparent funding strategy to demonstrate how each employer can best meet its own liabilities over future years.
- To use reasonable measures to reduce the risk to other employers and ultimately to the UK tax payer from an employer defaulting on its pension obligations.

How do I find my way around this document?

In Section 2 there is a brief introduction to some of the main principles behind funding, i.e. deciding how much an employer should contribute to the Fund from time to time.

In Section 3 we outline how the Fund calculates the contributions payable by different employers in different situations.

In Section 4 we show how the funding strategy is linked with the Fund's investment strategy.

In the Appendices we cover various issues in more detail if you are interested:

A. the regulatory background, including how and when the FSS is reviewed,

B. who is responsible for what,

C. what issues the Fund needs to monitor, and how it manages its risks,

D. some more details about the actuarial calculations required,

E. the assumptions which the Fund actuary currently makes about the future,

F. a glossary explaining the technical terms occasionally used here.

For any queries please contact David Williams, Engagement Manager on info@eapf.org.uk.

Basic Funding issues

(More detailed and extensive descriptions are given in Appendix D).

How does the actuary measure the required contribution rate?

In essence this is a three-step process:

Calculate the ultimate funding target for that employer, i.e. the ideal amount of assets it should hold in order to be able to pay all its members' benefits. See Appendix E for more details of what assumptions we make to determine that funding target.

Determine the time horizon over which the employer should aim to achieve that funding target. See the table in 3.3 and Note (d) for more details.

Determine a contribution strategy that has at least a given probability of achieving that funding target over that time horizon, allowing for different likelihoods of various possible economic outcomes over that time horizon. See 2.3 below, and the table in 3.3 Note (e) for more details.

What is each employer's contribution rate?

This is described in more detail in Appendix D. Employer contributions are normally made up of two elements:

a) the estimated cost of benefits being built up each year, after deducting the members' own contributions and including administration expenses. This is referred to as the "*Primary rate*", and is expressed as a percentage of members' pensionable pay; plus

b) an adjustment for the difference between the Primary rate above, and the actual contribution the employer needs to pay, referred to as the "*Secondary rate*". In broad terms, payment of the Secondary rate will aim to return the employer to full funding over an appropriate period (the "time horizon"). The Secondary rate may be expressed as a percentage of pay and/or a monetary amount in each year.

The rates for all employers are shown in the Fund's Rates and Adjustments Certificate, which forms part of the formal Actuarial Valuation Report. Employers' contributions are expressed as minima, with employers able to pay contributions at a higher rate. Account of any higher rate will be taken by the Fund actuary at subsequent valuations, i.e. will be reflected as a credit when next calculating the employer's contributions.

How does the contribution rate vary for different employers?

All three steps above are considered when setting contributions (more details are given in Section 3 and Appendix D).

Funding target

The funding target is based on a set of assumptions about the future (e.g. investment returns, inflation, pensioners' life expectancies).

For employers **open to new entrants** a long-term view is taken to determine the funding target. In particular, the investment return assumption makes an allowance for anticipated returns from equities and other assets held by the Fund being in excess of UK Government bonds (gilts) over the long term. For the 2016 valuation, it was assumed that the Fund's assets will, over the long-term, deliver an average additional return of 1.6% a year in excess of the return available from investing in index-linked gilts. This is known as the 'ongoing' funding basis.

The EA (including SSCL by virtue of their risk-sharing agreement – see Section 3 note (c)) was funded on the ongoing funding basis at the 2016 valuation date.

If an employer that is **closed to new entrants** is approaching the end of its participation in the Fund then its funding target may be set on a more prudent basis, so that its liabilities are less likely to be spread among other employers after its cessation. This basis is known as the 'gilts cessation' basis and does not make any allowance for the outperformance of the Fund's assets above the rate of return on long dated index-linked gilts. Furthermore, the gilts cessation basis allows for future improvements in life expectancy in excess of those assumed under the ongoing funding assumptions.

NRW was funded on the gilts cessation basis at the 2016 valuation date.

Time horizon

The time horizon required is, in broad terms, the period over which any deficit is to be recovered. A shorter period will lead to higher contributions, and vice versa (all other things being equal).

When considering the adequacy of funding for employers that are **open to new entrants** (other than those open employers that participate in the Fund for a fixed period), the primary focus of the Pension Committee should be on the long-term because:

- liabilities are paid over a long period, rather than crystallising on a single day;
- market prices of assets with growth potential can be volatile;
- pension liabilities are significant compared to the employer's payroll; and
- cuts in employer contributions are easy to implement, but very slow to reverse.

The EA's contribution strategy was determined using a 20 year time horizon (from 1 April 2017) at the 2016 valuation.

For employers that are **closed to new entrants**, the Pensions Committee has regard to each employer's likely remaining period of participation in the Fund.

As a closed employer, the funding objective for NRW is to be 100% funded on the gilts cessation basis by the time the last active member leaves, triggering a cessation event (see section 3 note (c) for more details). For contribution setting purposes, a 20 year time horizon (from 1 April 2017) has been modelled. In practice, NRW's cessation date is expected to be beyond this time horizon.

Probability of achieving the funding target

The **probability of achieving** the funding target over that time horizon will be dependent on the Fund's view of the strength of employer covenant and its funding profile. Where an employer is considered to be weaker, then the required probability will be set higher, which in turn will increase the required contributions (and vice versa).

The EA and NRW are secure employers with a Government guarantee. The Pensions Committee have settled on contribution strategies for both employers that aim to meet their respective funding targets with at least a 73% probability of success.

Any costs of non ill-health early retirements must be paid by the employer, see 3.5.

Costs of ill-health early retirements are covered in 3.5 also.

How is a surplus or deficit calculated?

An employer's "funding level" is defined as the ratio of:

- The market value of the employer's share of assets (see Appendix D, section D5, for further details of how this is calculated), to
- The value placed by the actuary on the benefits built up to date for the employer's employees and ex-employees (the "liabilities"). The Fund actuary agrees with the Administering Authority the assumptions to be used in calculating this value.

If this is less than 100% then it means the employer has a shortfall, which is the employer's deficit; if it is more than 100% then the employer is said to be in surplus. The amount of deficit or shortfall is the difference between the asset value and the liabilities value.

It is important to note that the deficit/surplus and funding level are only measurements at a particular point in time, on a particular set of assumptions about the future. Whilst we recognise that various parties will take an interest in these measures, for most employers the key issue is how likely it is that their contributions will be sufficient to pay for their members' benefits (when added to their existing asset share and anticipated investment returns).

In short, deficits and funding levels are short term measures, whereas contribution-setting is a longer term issue.

How does the Fund balance the conflicting objectives of benefit security and contribution rate affordability?

The Administering Authority and the Fund actuary are acutely aware that, all other things being equal, a higher contribution required to be paid to the Fund will mean less cash available for the employer to spend on the provision of services.

Whilst this is true, it should also be borne in mind that:

- The Fund provides invaluable financial security to former employees and their families after their death.
- The Fund must have the assets available to meet these retirement and death benefits, which in turn means that the various employers must each pay their own way. Lower contributions today will mean higher contributions tomorrow: deferring payments does not alter the employer's ultimate obligation to the Fund in respect of its current and former employees.
- Each employer will generally only pay for its own employees and ex-employees (and their dependants), not for those of other employers in the Fund.
- The Fund strives to maintain reasonably stable employer contribution rates where appropriate and possible. However, a recent shift in regulatory focus means that solvency within each generation is considered by the Government to be a higher priority than stability of contribution rates.
- The Fund wishes to avoid the situation where an employer falls so far behind in managing its funding shortfall that its deficit becomes unmanageable in practice: such a situation may lead to employer insolvency and the resulting deficit falling on the other Fund employers. In that situation, those employers' services would in turn suffer as a result.

Overall, therefore, there is clearly a balance to be struck between the Fund's need for maintaining prudent funding levels, and the employers' need to allocate their resources appropriately. The Fund achieves this through various techniques which affect contribution increases to various degrees (see 3.1).

In deciding which of these techniques to apply to any given employer, the Administering Authority takes a view on the financial standing of the employer, i.e. its ability to meet its funding commitments and the relevant time horizon.

The Administering Authority will consider a risk assessment of that employer using a knowledge base which is regularly monitored and kept up-to-date. This database will include such information as the type of employer, its membership profile and funding position, any guarantors or security provision, material changes anticipated, etc.

For instance, where the Administering Authority has reasonable confidence that an employer will be able to meet its funding commitments, then the Fund will permit options such as stabilisation (see 3.3 Note (a)), a longer time horizon, and/or a lower probability of achieving their funding target. Such options will temporarily produce lower contribution levels than would otherwise have applied. This is permitted in the expectation that the employer will still be able to meet its obligations for many years to come.

On the other hand, where there is doubt that an employer will be able to meet its funding commitments or withstand a significant change in its commitments, then a higher funding target, and/or a shorter deficit recovery period, and/or a higher probability of achieving the target may be required.

The Fund actively seeks employer input, including to its funding arrangements, through various means: see Appendix A.

Calculating contributions for individual Employers

General comments

A key challenge for the Administering Authority is to balance the need for stable, affordable employer contributions with the requirement to take a prudent, longer-term view of funding and ensure the solvency of the Fund. With this in mind, the Fund's three-step process identifies the key issues:

1. What is a suitably (but not overly) prudent funding target?

2. How long should the employer be permitted to reach that target? This should be realistic but not so long that the funding target is in danger of never actually being achieved.

3. What probability is required to reach that funding target? This will always be less than 100% as we cannot be certain of future market movements. Higher probability hurdles can be used for employers where the Fund wishes to reduce the risk that the employer ceases leaving a deficit to be picked up by other employers.

These and associated issues are covered in this Section. The Administering Authority recognises that there may occasionally be particular circumstances affecting individual employers that are not easily managed within the rules and policies set out in the Funding Strategy Statement. Therefore the Administering Authority may, at its sole discretion, direct the actuary to adopt alternative funding approaches on a case by case basis for specific employers.

The effect of paying lower contributions

In limited circumstances the Administering Authority may permit employers to pay contributions at a lower level than is assessed for the employer using the three step process above. At their absolute discretion the Administering Authority may:

- extend the time horizon for targeting full funding;
- adjust the required probability of meeting the funding target;
- permit an employer to participate in the Fund's stabilisation mechanisms;
- permit extended phasing in of contribution rises or reductions.

Employers which are permitted to use one or more of the above methods will often be paying, for a time, contributions less than required to meet their funding target, over the appropriate time horizon with the required likelihood of success. Such employers should appreciate that:

- Their true long term liability (i.e. the actual eventual cost of benefits payable to their employees and ex-employees) is not affected by the pace of paying contributions.
- Lower contributions in the short term will be assumed to incur a greater loss of investment returns on the deficit. Thus, deferring a certain amount of contribution may lead to higher contributions in the long-term.
- It may take longer to reach their funding target, all other things being equal.

Overleaf (3.3) is a summary of how the main funding policies differ for the 3 employers currently participating in the EAPF, followed by more detailed notes.

Section 3.4 onwards deals with various other funding issues which apply to all employers.

Section 3.6 outlines the funding principles that will apply if any new employers join the Fund in future.

The different approaches used for different employers

Employer	Environment Agency (EA)	Natural Resources Wales (NRW)	Shared Services Connected Limited (SSCL)
Funding Target Basis used	Ongoing funding basis (see Appendix E)	Gilts cessation basis	Ongoing funding basis (see Appendix E)
Primary rate approach	(see Appendix D – D.2)		
Method for assessing total contributions payable	Contribution Stability Overlay - see Note (a)	NRW funding arrangement – see note (b)	Risk sharing arrangement – see note (c)
Maximum time horizon – Note (d)	20 years	20 years (for assessment of Primary rate)	20 years (for assessment of Primary rate)
Treatment of surplus	Covered by Contribution Stabilisation Mechanism	Covered by NRW funding arrangement	Covered by risk sharing arrangement
Probability of achieving target – Note (e)	76%	73%	N/A – see note (c)
Phasing of contribution changes	Covered by Contribution Stabilisation Mechanism	None	N/A
Review of rates – Note (f)	Administering Authority reserves the right to review contribution rates and amounts, at regular intervals between valuations		
Cessation of participation: cessation debt payable	Cessation is assumed not to be generally possible, as Scheduled Bodies are legally obliged to participate in the LGPS. In the rare event of cessation occurring (machinery of Government changes for example), the cessation debt principles applied would be as per Note (g).	As per note (g)	Covered by fixed rate arrangement

Note (a) Contribution Stabilisation Mechanism

Stabilisation is a mechanism where employer contribution rate variations from year to year are kept within a pre-determined range, thus allowing those employers' rates to be relatively stable. In the interests of stability and affordability of employer contributions, the Administering Authority, on the advice of the Fund Actuary, believes that stabilising contributions can still be viewed as a prudent longer-term approach. However, employers whose contribution rates have been "stabilised" (and may therefore be paying less than their theoretical contribution rate) should be aware of the risks of this approach and should consider making additional payments to the Fund if possible.

This stabilisation mechanism allows short term investment market volatility to be managed so as not to cause volatility in employer contribution rates, on the basis that a long term view can be taken on net cash inflow, investment returns and strength of employer covenant.

Stabilisation in the Environment Agency Active Pension Fund is reserved for long, term secure open employers. At present, the EA is the only employer with a stabilised contribution rate.

On the basis of extensive asset liability modelling carried out for the 2016 valuation exercise (see Section 4), the stabilised details are as follows:

Employer	Environment Agency
Short term contribution increases	+0% p.a. until 31 March 2020
Max cont increase per year thereafter	+0.5% of pay
Max cont decrease per year thereafter	-0.5% of pay

The stabilisation criteria and limits will be reviewed at the 31 March 2019 valuation, to take effect from 1 April 2020. However the Administering Authority reserves the right to review the stabilisation criteria and limits at any time before then, on the basis of membership and/or employer changes.

Note (b) NRW funding arrangement

NRW joined the Environment Agency Active Pension Fund on 1 April 2013. As an employer closed to new entrants, NRW's period of participation is finite and will cease when the last current active member leaves employment. At the 2013 valuation of the Fund, NRW were certified a contribution rate which aimed to target full funding on the ongoing basis over a period of 12 years (the estimated future working lifetime of the active membership at the time). In practice, an actual cessation event may not be for another 30-40 years.

Following the 2013 valuation, NRW indicated to the Fund that a fixed monetary contribution would be desirable as this would provide budgeting certainty. At the instruction of the Administering Authority, the Fund Actuary has carried out extensive asset liability modelling to determine a fixed level of contribution that would provide the Fund with the desired probability of funding success. As the employer will eventually be asked to meet a cessation payment assessed on the 'gilts cessation' basis, this been used as the funding target for the purpose of this modelling.

On the basis of this modelling, the following fixed annual contributions have been agreed:

Employer	Natural Resources Wales
Fixed annual contributions – 1 April 2017 to 31 March 2020	£7m
Fixed annual contributions – from 1 April 2020	Intended to remain at £7m but subject to regular review

The long term contributions of £7m p.a. are intended to be fixed from 1 April 2020 until the last active member leaves employment and a cessation event is triggered. Based on the modelling carried out by the actuary, the Administering Authority is comfortable that the payment of a fixed amount of £7m p.a. leads to a sufficiently high likelihood of NRW being fully funded on the gilts cessation basis in the long term. However, the Administering Authority will carry regular monitoring of progress against the funding objective to ensure NRW remains 'on track'. The Administering Authority reserves the right to change the level of fixed contribution in the event of a significant change in funding position or to the economic outlook, or a change in employer circumstances (e.g. a significant change in membership).

Note (c) Risk sharing arrangement

An Awarding Authority may enter into a 'risk sharing' arrangement with a participating employer (typically a contractor). A 'risk sharing' arrangement is defined whereby the contribution and/or cessation requirements of an employer have been altered through the implementation of a separate side agreement between the Awarding Authority and the employer. The terms of any 'risk sharing' arrangement will be documented appropriately (i.e. in a signed legal agreement) and shared with the Administering Authority.

The terms of separate 'risk sharing' arrangement may differ (for example, the rate payable by the participating employer could be fixed or capped in some way). In addition, the approach taken to certify contributions required from employers in respect of separate 'risk sharing' arrangements may also differ. The Administering Authority will ensure that the Rates and Adjustments (R&A) certificate reflects any specific 'risk sharing' arrangement in place between an Awarding Authority and a participating employer.

The Administering Authority reserves the right to veto any risk sharing proposal in the event that the terms of the proposal leads to undue risk on the Fund and its participating employers.

There is currently one risk sharing agreement between EAPF employers, which exists between SSCL and the EA. As per the terms of this agreement, SSCL will be certified to pay a total contribution rate of 22.7% of payroll throughout their period of participation in the Fund. On ceasing to participate in the Fund, no cessation debt will be payable and all assets and liabilities of this employer will revert to the EA.

Note (d) Maximum time horizon

The maximum time horizon starts at the commencement of the revised contribution rate (1 April 2017 for the 2016 valuation). The Administering Authority would normally expect the same period to be used at successive triennial valuations, but would reserve the right to propose alternative time horizons, for example where there were no new entrants.

Note (e) Probability of achieving funding target

Each employer has its funding target calculated, and a relevant time horizon over which to reach that target. Contributions are set such that, combined with the employer's current asset share and anticipated market movements over the time horizon, the funding target is achieved with a given minimum probability. A higher required probability bar will give rise to higher required contributions, and vice versa.

Different probabilities are set for different employers depending on their nature and circumstances: in broad terms, a higher probability will apply due to one or more of the following:

- the Fund believes the employer poses a greater funding risk than other employers,
- the employer does not have a guarantor or other sufficient security backing its funding position; and/or
- the employer is likely to cease participation in the Fund in the short or medium term.

The EA and NRW are secure employers with a Government guarantee. The Pensions Committee have settled on contribution strategies for both employers that aim to meet their respective funding targets with at least a 73% probability of success.

Note (f) Regular Reviews

Such reviews may be triggered by significant events including but not limited to: significant reductions in payroll, altered employer circumstances, Government restructuring affecting the employer's business, or failure to pay contributions or arrange appropriate security as required by the Administering Authority.

The result of a review may be to require increased contributions (by strengthening the actuarial assumptions adopted and/or moving to monetary levels of deficit recovery contributions), and/or an increased level of security or guarantee.

Note (g) Cessation of participating employers

An employer's participation in the Fund is generally assumed to be open-ended and to continue until all the benefits have been paid in full. Contributions, expressed as capital payments, can continue to be levied after all the employees have retired. Participation in the Fund can however be terminated at any point, subject to the terms of any admission agreement.

The Fund, however, considers any of the following as triggers for the termination of an admission agreement:

- Last active member ceasing participation in the Fund;
- The insolvency, winding up or liquidation of the employer;

- Any breach by the employer of any of its obligations under the agreement that they have failed to remedy to the satisfaction of the Fund;
- A persistent failure by the employer to pay any sums due to the Fund within the period required by the Fund, which leads to the accrual of arrears to a level deemed by the Fund to be significant; or
- The failure by the employer to renew or adjust the level of the bond or indemnity or to confirm an appropriate alternative guarantor as required by the Fund.

In addition either party can voluntarily terminate the agreement by giving the appropriate period of notice to the other party.

If an employer ceased to participate in the Fund, the Administering Authority instructs the Fund actuary to carry out a special valuation to determine whether there is any deficit.

The assumptions adopted to value the departing employer's liabilities for this valuation will depend upon the circumstances. For example, for admission bodies whose participation is voluntarily ended either by themselves or the Fund, the Administering Authority must look to protect the interests of other ongoing employers and will require the actuary to adopt valuation assumptions which, to the extent reasonably practicable, protect the other employers from the likelihood of any material loss emerging in future. Where there is a guarantor, and the guarantor participates in the Fund, the cessation valuation will normally be calculated using an ongoing valuation basis appropriate to the investment strategy. Where a guarantor does not exist (or in the case where the guarantor does not participate in the Fund) then, in order to protect other employers in the Fund, the cessation liabilities and final deficit will normally be calculated using a 'gilts cessation basis' with no allowance for potential future investment outperformance and with an allowance for further future improvements in life expectancy. This approach results in a higher value being placed on the liabilities than would be the case under a valuation on the ongoing funding basis and could give rise to significant payments being required. These principles also apply to any employers that are not admission bodies.

Any shortfall would be levied on the departing admission body as a capital payment.

In the event that the Fund is not able to recover the required payment in full directly from the admission body or from any bond or indemnity or guarantor, then the unpaid amounts fall to be shared amongst all of the employers in the Fund. This will normally be reflected in contribution rates set at the formal valuation following the cessation date.

Where the ceasing admission body is continuing in business, the Fund, at its absolute discretion, reserves the right to enter into an agreement with the ceasing admission body to accept an appropriate alternative security to be held against any funding deficit and to carry out the cessation valuation on an ongoing valuation basis. This approach would be monitored as part of each triennial valuation and the Fund reserves the right to revert to a 'gilts cessation basis' and seek immediate payment of any funding shortfall identified.

For those employers whose lifespan is limited (e.g. closed employers), the Administering Authority may seek to increase or reduce the employer's contributions to the Fund in the period leading up to cessation to target a position where the employer's assets are equal to their liabilities on an appropriate basis.

Protection mechanisms

The Administering Authority has a duty to set prudent funding assumptions and protect the long term health of the Fund. The following table explains the key tools that have been used in the decision making process to arrive at the recommended set of assumptions.

	Tool	Description
1	Contribution stability	
	a. Contribution stability overlay	Limit on annual changes in contributions for long term, secure employers (currently only the Environment Agency) of +/-0.5% of pay from April 2020 (contributions fixed at 2016/17 levels until then)
	b. Contribution stability overlay safety check	Asset liability modelling was carried out to ensure that the likelihood of the employer achieving full funding with the contribution stability mechanism in place was sufficiently high.
2	NRW funding strategy	
	c. Fixed annual contributions	Long term contributions for NRW have been set at £7m per annum.
	d. Fixed annual contributions check	Asset liability modelling was carried out to ensure that the likelihood of the employer achieving full funding on the 'gilts cessation' basis in the long term (20 years) was sufficiently high. Fixed annual contributions will be reviewed regularly (e.g. triennially) and tweaked as necessary
2	Pay growth check	An annual check on the impact of pay awards on the value of accrued liabilities, compared to assumptions made at this actuarial valuation, will continue to be undertaken. Each employer will be able to pay additional top-up contributions at the Fund's discretion.
3	Time horizon	Determined separately for each participating employer by reference to the employer's circumstances and basis of participation in the Fund.

Funding for early retirement

Non Ill health retirements

The actuary's funding basis makes no allowance for premature retirement except on grounds of ill health. Each employer is required to pay a lump sum contribution whenever an employee retires before attaining the age at which the valuation assumes that benefits are payable.

It is assumed that members' benefits are payable from the earliest age that the employee could retire, on or after age 60, without incurring a reduction to their benefit and without requiring their employer's consent to retire.

Employees who joined the LGPS before 1 October 2006 (and are subject to Rule of 85 protections on their pre April 2008 benefits) but reach age 60 after 31 March 2020, plus all employees who joined after 1 October 2006 (and are assumed to retire before 1 April 2022), are assumed to take all of their benefits at age 65. Otherwise all benefits accrued will be payable at the member's State Pension Age (SPA). SPA is as per current legislation where the SPA is due to rise to 67 between 2034 and 2036 and to 68 between 2044 and 2046. The Government has indicated that further changes will be made to SPA, but as yet these are to be confirmed in legislation.

The additional costs of premature retirement are calculated by reference to these ages. Each employer is required to meet all costs of early retirement strain caused by early retirements other than on the grounds of ill health by immediate capital payments into the Fund.

Ill health monitoring

The Fund monitors employees' ill health experience on an ongoing basis. If the cumulative number of ill health retirements in any financial year exceeds the allowance at the previous valuation, the employer may, after the Administering Authority has consulted with the actuary, be charged additional contributions on the same basis as apply for non ill-health cases.

New employers participating in the Fund

The Fund currently has three participating employers. It is possible that more employers will join the Fund in future. There are a number of ways in which new bodies can participate in the LGPS, such as a scheduled body or an admission body.

In general, the following principles will apply when a new employer enters the Fund:

- Starting assets and liabilities will be notionally ring-fenced within the Fund and the funding level of the new employer tracked over time based on its own experience, cash flows in and out and membership movements.

- The new employer will have its own individual contribution rate separate from any other employer in the Fund and based on its own membership profile, with a time horizon no greater than the average future working lifetime of its active employees.

- Any deficit left behind if past service benefits are transferred from a ceding employer in the Fund to the new employer as result of a fully funded transfer should be met via either an up-front capital payment or over a suitable spreading period, which should be no longer than that applied to the Environment Agency, as agreed with the paying body.

- Any deficit that the new body inherits at commencement (e.g. as a result of a “share of fund” transfer from another employer within or outside the Fund) would be expected to be met via an up-front capital payment from the new employer or over some suitable spreading period, which should be no longer than that applied to the Environment Agency.

- The calculation of all up-front capital payments are based on market conditions at the date that the new employer joins the Fund (i.e. the vesting or transfer date).

The extent to which these principles will apply will depend on the individual circumstances of the new employer. For example, the Fund will take into account the type of new body (e.g. admission or scheduled body), whether or not it is closed or open to new entrants, its financial covenant and the existence of any Crown guarantee. The Fund will also refer to its policy on the participation of new admission bodies and bulk transfers when agreeing its entry requirements.

Policies on bulk transfers

The Fund’s policy on bulk transfers is based on the following key principles:

- When a group of active scheme members joins the EAPF, the Administering Authority’s objective is to ensure, as far as practical that the EAPF does not accept an ongoing funding deficit in respect of the transferring employees.

- When a group of active scheme members leaves the EAPF, in order to protect the funding position in respect of the remaining members, the transfer values in respect of the transferring members should be no more than the assets held in respect of the transferring liabilities, and at most be 100% of the transferring liabilities on the ongoing funding basis as set out in the EAPF’s Funding Strategy Statement.

- Service credits granted to active scheme members should fully reflect the value of the benefits being transferred, irrespective of the transfer value paid or received.

- There is also an overriding objective to ensure that the LGPS Regulations and any supplementary guidance (in particular the Cabinet Office Statement of Practice on Staff Transfers in the Public Sector 2000 (COSOP) and Fair Deal guidance) as they pertain to bulk transfers are adhered to. The Fair Deal guidance, in as much as it relates to LGPS employers, is currently under review. At the time of drafting the outcome of this review was still unknown.

EAPF employers should treat the EAPF’s preferred terms on bulk transfers as non-negotiable. Any differences between the value the EAPF is prepared to pay (or receive) and that which the other scheme involved is prepared to accept should be dealt with by the employers concerned outside the EAPF.

Funding strategy and links to investment strategy

What is the Fund's investment strategy?

The Fund has built up assets over the years, and continues to receive contribution and other income. All of this must be invested in a suitable manner, which is the investment strategy.

Investment strategy is set by the administering authority, after consultation with the employers and after taking investment advice. The precise mix, manager make up and target returns are set out in the Statement of Investment Principles (being replaced by an Investment Strategy Statement under new LGPS Regulations), which is available to members and employers.

The investment strategy is set for the long-term, but is reviewed from time to time. Normally a full review is carried out as part of each actuarial valuation, and is kept under review annually between actuarial valuations to ensure that it remains appropriate to the Fund's liability profile.

The Environment Agency's Pensions Committee has decided to adopt a more flexible approach to the Active Fund future investment strategy and asset allocation so that we can respond responsibly and robustly to both the changing global economic environment and impacts of climate change. This will ensure that the Fund's approach to environmental issues remains in the best interest of fund members with many environmental issues able to affect the financial and physical wellbeing of individuals.

The same investment strategy is currently followed for all employers.

What is the link between funding strategy and investment strategy?

The Fund must be able to meet all benefit payments as and when they fall due. These payments will be met by contributions (resulting from the funding strategy) or asset returns and income (resulting from the investment strategy). To the extent that investment returns or income fall short, then higher cash contributions are required from employers, and vice versa

Therefore, the funding and investment strategies are inextricably linked.

How does the funding strategy reflect the Fund's investment strategy?

In the opinion of the Fund actuary, the current funding policy is consistent with the current investment strategy of the Fund. The asset outperformance assumption contained in the discount rate (see Appendix E3) is within a range that would be considered acceptable for funding purposes; it is also considered to be consistent with the requirement to take a "prudent longer-term view" of the funding of liabilities as required by the UK Government (see Appendix A1).

However, in the short term – such as the three yearly assessments at formal valuations – there is the scope for considerable volatility and there is a material chance that in the short-term and even medium term, asset returns will fall short of this target. The stability measures described in Section 3 will damp down, but not remove, the effect on employers' contributions.

The Fund does not hold a contingency reserve to protect it against the volatility of equity investments.

How does this differ for a large stable employer? (e.g. the EA)

The Actuary has developed four key measures which capture the essence of the Fund's strategies, both funding and investment:

Prudence - the Fund should have a reasonable expectation of being fully funded in the long term;

Affordability – how much can employers afford;

Stewardship – the assumptions used should be sustainable in the long term, without having to resort to overly optimistic assumptions about the future to maintain an apparently healthy funding position; and

Stability – employers should not see significant moves in their contribution rates from one year to the next, to help provide a more stable budgeting environment.

The key problem is that the key objectives often conflict. For example, minimising the long term cost of the scheme (i.e. keeping employer rates affordable) is best achieved by investing in higher returning assets e.g. equities. However, equities are also very volatile (i.e. go up and down fairly frequently in fairly large moves), which conflicts with the objective to have stable contribution rates.

Therefore, a balance needs to be maintained between risk and reward, which has been considered by the use of Asset Liability Modelling: this is a set of calculation techniques applied by the Fund's actuary to model the range of potential future solvency levels and contribution rates.

The Actuary was able to model the impact of these four key areas, for the purpose of setting a stabilisation approach (see 3.3 Note (a)). The modelling demonstrated that retaining the present investment strategy, coupled with constraining employer contribution rate changes as described in 3.3 Note (a), struck an appropriate balance between the above objectives. In particular the stabilisation approach currently adopted meets the need for stability of contributions without jeopardising the Administering Authority's aims of prudent stewardship of the Fund.

Whilst the current stabilisation mechanism is to remain in place until 2020, it should be noted that this will need to be reviewed following the 2019 valuation.

Does the Fund monitor its overall funding position?

The Administering Authority monitors the relative funding position, i.e. changes in the relationship between asset values and the liabilities value, quarterly. It reports this to the regular Pensions Committee meetings, and also to employers through regular communication.

Statutory reporting and comparison to other LGPS Funds

Purpose

Under Section 13(4)(c) of the Public Service Pensions Act 2013 ("Section 13"), the Government Actuary's Department must, following each triennial actuarial valuation, report to the Department of Communities & Local Government (DCLG) on each of the LGPS Funds in England & Wales. This report will cover whether, for each Fund, the rate of employer contributions are set at an appropriate level to ensure both the solvency and the long term cost efficiency of the Fund.

This additional DCLG oversight may have an impact on the strategy for setting contribution rates at future valuations.

Solvency

For the purposes of Section 13, the rate of employer contributions shall be deemed to have been set at an appropriate level to ensure solvency if:

(a) The rate of employer contributions is set to target a funding level for the Fund of 100%, over an appropriate time period and using appropriate actuarial assumptions (where appropriateness is considered in both absolute and relative terms in comparison with other funds).

(b) Employers collectively have the financial capacity to increase employer contributions, and/or the Fund is able to realise contingent assets should future circumstances require, in order to continue to target a funding level of 100%.

(c) There is an appropriate plan in place should there be, or if there is expected in future to be, a material reduction in the capacity of fund employers to increase contributions as might be needed.

Long Term Cost Efficiency

The rate of employer contributions shall be deemed to have been set at an appropriate level to ensure long term cost efficiency if:

i. The rate of employer contributions is sufficient to make provision for the cost of current benefit accrual.

ii. With an appropriate adjustment to that rate for any surplus or deficit in the Fund.

In assessing whether the above condition is met, DCLG may have regard to various absolute and relative considerations. A relative consideration is primarily concerned with comparing LGPS pension funds with other LGPS pension funds. An absolute consideration is primarily concerned with comparing Funds with a given objective benchmark.

Relative considerations include:

1. The implied deficit recovery period.
2. The investment return required to achieve full funding after 20 years.

Absolute considerations include:

1. The extent to which the contributions payable are sufficient to cover the cost of current benefit accrual and the interest cost on any deficit.

2. How the required investment return under “relative considerations” above compares to the estimated future return being targeted by the Fund’s current investment strategy.

3. The extent to which contributions actually paid have been in line with the expected contributions based on the extant rates and adjustment certificate.

4. The extent to which any new deficit recovery plan can be directly reconciled with, and can be demonstrated to be a continuation of, any previous deficit recovery plan, after allowing for actual Fund experience.

DCLG may assess and compare these metrics on a suitable standardised market-related basis, for example where the local funds’ actuarial bases do not make comparisons straightforward.

Appendix A – Regulatory framework

Why does the Fund need an FSS?

The Department for Communities and Local Government (DCLG) has stated that the purpose of the FSS is:

"To establish a **clear and transparent fund-specific strategy** which will identify how employers' pension liabilities are best met going forward.

To support the regulatory framework to maintain **as nearly constant employer contribution rates as possible**.

To take a **prudent longer-term view** of funding those liabilities."

These objectives are desirable individually, but may be mutually conflicting.

The requirement to maintain and publish a FSS is contained in LGPS Regulations which are updated from time to time. In publishing the FSS the Administering Authority has to have regard to any guidance published by Chartered Institute of Public Finance and Accountancy (CIPFA) (most recently in 2016) and to its Statement of Investment Principles / Investment Strategy Statement.

This is the framework within which the Fund's actuary carries out triennial valuations to set employers' contributions and provides recommendations to the Administering Authority when other funding decisions are required, such as when employers join or leave the Fund. The FSS applies to all employers participating in the Fund.

Does the Administering Authority consult anyone on the FSS?

Yes. This is required by LGPS Regulations. It is covered in more detail by the most recent CIPFA guidance, which states that the FSS must first be subject to "consultation with such persons as the authority considers appropriate", and should include "a meaningful dialogue at officer and Pensions Committee level with council tax raising authorities and with corresponding representatives of other participating employers".

In practice, for the Fund, the consultation process for this FSS was as follows:

a) A draft version of the FSS was issued to all participating employers on 9 March 2017 for comment;

b) Comments were requested within 14 days;

c) Following the end of the consultation period the FSS was updated where required and then published on 23 March 2017.

How is the FSS published?

The FSS is made available through the following routes:

Published on the website, at www.eapf.org.uk

A copy sent by e-mail to each participating employer in the Fund

A full copy included in the annual report and financial statements of the Fund

Copies made available on request.

How often is the FSS reviewed?

The FSS is reviewed in detail at least every three years as part of the triennial valuation. This version is expected to remain unaltered until it is consulted upon as part of the formal process for the next valuation in 2019.

It is possible that (usually slight) amendments may be needed within the three year period. These would be needed to reflect any regulatory changes, or alterations to the way the Fund operates (e.g. to accommodate a new class of employer). Any such amendments would be consulted upon as appropriate:

- trivial amendments would be simply notified at the next round of employer communications,
- amendments affecting only one class of employer would be consulted with those employers,
- other more significant amendments would be subject to full consultation.

In any event, changes to the FSS would need agreement by the Pensions Committee and would be included in the relevant Committee Meeting minutes.

How does the FSS fit into other Fund documents?

The FSS is a summary of the Fund's approach to funding liabilities. It is not an exhaustive statement of policy on all issues, for example there are a number of separate statements published by the Fund including the Statement of Investment Principles/Investment Strategy Statement, Governance Strategy and Communications Strategy. In addition, the Fund publishes an Annual Report and Accounts with up to date information on the Fund.

These documents can be found at www.eapf.org.uk

Appendix B – Responsibilities of key parties

The efficient and effective operation of the Fund needs various parties to each play their part.

The Administering Authority should:-

Operate the Fund as per the LGPS Regulations.

Effectively manage any potential conflicts of interest arising from its dual role as Administering Authority and a Fund employer.

Collect employer and employee contributions, and investment income and other amounts due to the Fund.

Ensure that cash is available to meet benefit payments as and when they fall due.

Pay from the Fund the relevant benefits and entitlements that are due.

Invest surplus monies (i.e. contributions and other income which are not immediately needed to pay benefits) in accordance with the Fund's Statement of Investment Principles/Investment Strategy Statement (SIP/ISS) and LGPS Regulations.

Communicate appropriately with employers so that they fully understand their obligations to the Fund.

Take appropriate measures to safeguard the Fund against the consequences of employer default.

Manage the valuation process in consultation with the Fund's actuary.

Provide data and information as required by the Government Actuary's Department to carry out their statutory obligations (see Section 5).

Prepare and maintain a FSS and a SIP/ISS, after consultation.

Notify the Fund's actuary of material changes which could affect funding (this is covered in a separate agreement with the actuary).

Monitor all aspects of the fund's performance and funding and amend the FSS and SIP/ISS as necessary and appropriate.

The Individual Employer should:-

Deduct contributions from employees' pay correctly.

Pay all contributions, including their own as determined by the actuary, promptly by the due date.

Have a policy and exercise discretions within the regulatory framework.

Make additional contributions in accordance with agreed arrangements in respect of, for example, augmentation of scheme benefits, early retirement strain.

Notify the Administering Authority promptly of all changes to its circumstances, prospects or membership, which could affect future funding.

The Fund Actuary should:-

Prepare valuations, including the setting of employers' contribution rates. This will involve agreeing assumptions with the Administering Authority, having regard to the FSS and LGPS Regulations, and targeting each employer's solvency appropriately.

- Provide data and information as required by the Government Actuary's Department to carry out their statutory obligations (see Section 5).
- Provide advice relating to new employers in the Fund, including the level and type of bonds or other forms of security (and the monitoring of these).
- Prepare advice and calculations in connection with bulk transfers and individual benefit-related matters.
- Assist the Administering Authority in considering possible changes to employer contributions between formal valuations, where circumstances suggest this may be necessary.
- Advise on the termination of employers' participation in the Fund.
- Fully reflect actuarial professional guidance and requirements in the advice given to the Administering Authority.

Other parties:-

Investment advisers (either internal or external) should ensure the Fund's SIP/ISS remains appropriate, and consistent with this FSS.

Investment managers, custodians and bankers should all play their part in the effective investment (and dis-investment) of Fund assets, in line with the SIP/ISS.

Auditors should comply with their auditing standards, ensure Fund compliance with all requirements, monitor and advise on fraud detection, and sign off annual reports and financial statements as required.

Governance advisers may be appointed to advise the Administering Authority on efficient processes and working methods in managing the Fund.

Legal advisers (either internal or external) should ensure the Fund's operation and management remains fully compliant with all regulations and broader local government requirements, including the Administering Authority's own procedures.

The Department for Communities and Local Government (assisted by the Government Actuary's Department) and the Scheme Advisory Board, should work with LGPS Funds to meet Section 13 requirements.

Appendix C – Key risks and controls

Types of risk

The Administering Authority has an active risk management programme in place. The measures that it has in place to control key risks are summarised below under the following headings:

- financial
- demographic
- regulatory
- governance

Financial risks

Risk	Summary of Control Mechanisms
Fund assets fail to deliver returns in line with the anticipated returns underpinning the valuation of liabilities over the long-term.	Only anticipate long-term returns on a relatively prudent basis to reduce risk of under-performing. Assets invested on the basis of specialist advice, in a suitably diversified manner across asset classes, geographies, managers, etc. Analyse progress at three yearly valuations for all employers. Inter-valuation roll-forward of liabilities between valuations at whole Fund level.
Inappropriate long-term investment strategy.	Overall investment strategy options considered as an integral part of the funding strategy. Used asset liability modelling to measure 4 key outcomes. Chosen option considered to provide the best balance.
Fall in risk-free returns on Government bonds, leading to rise in value placed on liabilities.	Asset liability modelling at for EA and NRW allows for the probability of this within a longer term context. Inter-valuation monitoring, as above. Some investment in bonds helps to mitigate this risk.
Active investment manager under-performance relative to benchmark.	Quarterly investment monitoring analyses market performance and active managers relative to their index benchmark.

Risk	Summary of Control Mechanisms
Pay and price inflation significantly more than anticipated.	The focus of the actuarial valuation process is on real returns on assets, net of price and pay increases. Inter-valuation monitoring, as above, gives early warning. Some investment in bonds also helps to mitigate this risk. Employers pay for their own salary awards and should be mindful of the geared effect on pension liabilities of any bias in pensionable pay rises towards longer-serving employees.
Effect of possible increase in employer's contribution rate on service delivery and admission/scheduled bodies	An explicit stabilisation mechanism has been agreed as part of the funding strategy for the EA, whilst a stable monetary contribution (subject to triennial review) has been agree for NRW. SSCL participate in the Fund with a fixed contribution rate.
Effects of possible shortfall in cash required to meet benefit outgo due to reduced cash contributions and/or maturing demographic profile	Mitigate risk by introducing a cash flow monitoring process, whereby any possible future cash shortfall is identified early enough for appropriate action to be taken. Accuracy of cashflow projections is improved by use of bespoke baseline longevity assumptions.
Effect of possible asset underperformance as a result of climate change	The EAPF has a comprehensive approach to managing this risk outlined in its Policy to Address the Risks of Climate Change.

Demographic risks

Risk	Summary of Control Mechanisms
Pensioners living longer, thus increasing cost to Fund.	Set mortality assumptions with some allowance for future increases in life expectancy. The Fund Actuary has direct access to the experience of over 50 LGPS funds which allows early identification of changes in life expectancy that might in turn affect the assumptions underpinning the valuation.
Maturing Fund – i.e. proportion of actively contributing employees declines relative to retired employees.	Continue to monitor at each valuation, consider seeking monetary amounts rather than % of pay and consider alternative investment strategies.

Risk	Summary of Control Mechanisms
Deteriorating patterns of early retirements	Employers are charged the extra cost of non ill-health retirements following each individual decision. Employer ill health retirement experience is monitored, and insurance is an option.
Reductions in payroll causing insufficient deficit recovery payments	In many cases this may not be sufficient cause for concern, and will in effect be caught at the next formal valuation. However, there are protections where there is concern, as follows: The EA may be brought out of the stabilisation mechanism to permit appropriate contribution increases (see Note (a) to 3.3). For other employers, review of contributions is permitted in general between valuations (see Note (f) to 3.3). NRW pay contributions as a monetary amount rather than a percentage of payroll to avoid a gradually reducing annual contribution.

Regulatory risks

Risk	Summary of Control Mechanisms
Changes to national pension requirements and/or HMRC rules e.g. changes arising from public sector pensions reform.	The Administering Authority considers all consultation papers issued by the Government and comments where appropriate. The results of the most recent reforms were built into the 2013 valuation. Any changes to member contribution rates or benefit levels will be carefully communicated with members to minimise possible opt-outs or adverse actions.
Time, cost and/or reputational risks associated with any DCLG intervention triggered by the Section 13 analysis (see Section 5).	Take advice from Fund Actuary on position of Fund as at prior valuation, and consideration of proposed valuation approach relative to anticipated Section 13 analysis.
Changes by Government to particular employer participation in LGPS Funds, leading to impacts on funding and/or investment strategies.	The Administering Authority considers all consultation papers issued by the Government and comments where appropriate. Take advice from Fund Actuary on impact of changes on the Fund and amend strategy as appropriate.

Governance risks

Risk	Summary of Control Mechanisms
Administering Authority unaware of structural changes in an employer's membership (e.g. large fall in employee members, large number of retirements) or not advised of an employer closing to new entrants.	The Administering Authority has a close relationship with employing bodies and communicates required standards e.g. for submission of data. The Actuary may revise the rates and Adjustments certificate to increase an employer's contributions between triennial valuations Deficit contributions may be expressed as monetary amounts.
Actuarial or investment advice is not sought, or is not heeded, or proves to be insufficient in some way	The Administering Authority maintains close contact with its specialist advisers. Advice is delivered via formal meetings involving Pensions Committee Members, and recorded appropriately. Actuarial advice is subject to professional requirements such as peer review.
An employer ceasing to exist with insufficient funding or adequacy of a bond.	The Administering Authority believes that it would normally be too late to address the position if it was left to the time of departure. The risk is mitigated by: Seeking a funding guarantee from another scheme employer, or external body, where-ever possible Alerting the prospective employer to its obligations and encouraging it to take independent actuarial advice. Vetting prospective employers before admission. Where permitted under the regulations requiring a bond to protect the Fund from various risks. Requiring new Community Admission Bodies to have a guarantor. Reviewing bond or guarantor arrangements at regular intervals (see Note (f) to 3.3). Reviewing contributions well ahead of cessation if thought appropriate (see Note (g) to 3.3).

Appendix D – The calculation of Employer contributions

In Section 2 there was a broad description of the way in which contribution rates are calculated. This Appendix considers these calculations in much more detail.

All three steps above are considered when setting contributions (more details are given in Section 3 and Appendix D:

1. The **funding target** is based on a set of assumptions about the future, eg investment returns, inflation, pensioners' life expectancies. However, if an employer is approaching the end of its participation in the Fund then its funding target may be set on a more prudent basis, so that its liabilities are less likely to be spread among other employers after its cessation of participation;

2. The **time horizon** required is, in broad terms, the period over which any deficit is to be recovered. A shorter period will lead to higher contributions, and vice versa (all other things being equal). Employers may be given a lower time horizon if they have a less permanent anticipated membership, or do not have tax-raising powers to increase contributions if investment returns under-perform;

3. The required **probability of achieving** the funding target over that time horizon will be dependent on the Fund's view of the strength of employer covenant and its funding profile. Where an employer is considered to be weaker, or potentially ceasing from the Fund, then the required probability will be set higher, which in turn will increase the required contributions (and vice versa).

The calculations involve actuarial assumptions about future experience, and these are described in detail in Appendix E.

What is the difference between calculations across the whole Fund and calculations for an individual employer?

Employer contributions are normally made up of two elements:

a) the estimated cost of ongoing benefits being accrued, referred to as the "Primary contribution rate" (see D2 below); plus

b) an adjustment for the difference between the Primary rate above, and the actual contribution the employer needs to pay, referred to as the "Secondary contribution rate" (see D3 below).

The contribution rate for each employer is measured as above, appropriate for each employer's funding position and membership. The whole Fund position, including that used in reporting to DCLG (see section 5), is calculated in effect as the sum of all the individual employer rates. DCLG currently only regulates at whole Fund level, without monitoring individual employer positions.

How is the Primary contribution rate calculated?

The Primary element of the employer contribution rate is calculated with the aim that these contributions will meet benefit payments in respect of members' **future** service in the Fund. This is based upon the cost (in excess of members' contributions) of the benefits which employee members earn from their service each year.

The Primary rate is calculated separately for all the employers. The Primary rate is calculated such that it is projected to:

- Meet the required funding target for all future years' accrual of benefits*, excluding any accrued assets.
- Within the determined time horizon (see note 3.3 Note (d) for further details).
- With a sufficiently high probability, as set by the Fund's strategy for the category of employer (see 3.3 Note (e) for further details).

* The projection is for the current active membership where the employer no longer admits new entrants, or additionally allows for new entrants where this is appropriate.

The projections are carried out using an economic modeller developed by the Fund's actuary Hymans Robertson: this allows for a wide range of outcomes as regards key factors such as asset returns (based on the Fund's investment strategy), inflation, and bond yields. The measured contributions are calculated such that the proportion of outcomes meeting the employer's funding target (by the end of the time horizon) is equal to the required probability.

The approach includes expenses of administration to the extent that they are borne by the Fund, and includes allowances for benefits payable on death in service and on ill health retirement.

How is the Secondary contribution rate calculated?

The combined Primary and Secondary rates aim to achieve the employer's funding target, within the appropriate time horizon, with the relevant degree of probability.

For the funding target, the Fund actuary agrees the assumptions to be used with the Administering Authority – see Appendix E. These assumptions are used to calculate the present value of all benefit payments expected in the future, relating to that employer's current and former employees, based on pensionable service to the valuation date only (i.e. ignoring further benefits to be built up in the future).

The Fund operates the same target funding level for all employers of 100% of its accrued liabilities valued on the ongoing basis, unless otherwise determined (see Section 3).

The Secondary rate is calculated as an adjustment to the Primary rate, such that the total is projected to:

Meet the required funding target relating to combined past and future service benefit accrual, including accrued asset share (see D5 below)

Within the determined time horizon (see 3.3 Note (d) for further details)

With a sufficiently high probability, as set by the Fund's strategy for the category of employer (see 3.3 Note (e) for further details).

The projections are carried out using an economic modeller developed by the Fund Actuary Hymans Robertson: this allows for a wide range of outcomes as regards key factors such as asset returns (based on the Fund's investment strategy), inflation, and bond yields. The measured contributions are calculated such that the proportion of outcomes with at least 100% solvency (by the end of the time horizon) is equal to the required probability.

What affects a given employer's valuation results?

The results of these calculations for a given individual employer will be affected by:

1. Past contributions relative to the cost of accruals of benefits
2. Different liability profiles of employers (e.g. mix of members by age, gender, service vs. salary)
3. The effect of any differences in the funding target, i.e. the valuation basis used to value the employer's liabilities
4. Any different time horizons
5. The difference between actual and assumed rises in pensionable pay
6. The difference between actual and assumed increases to pensions in payment and deferred pensions
7. The difference between actual and assumed retirements on grounds of ill-health from active status
8. The difference between actual and assumed amounts of pension ceasing on death
9. The additional costs of any non ill-health retirements relative to any extra payments made
10. Differences in the required probability of achieving the funding target.

How is each employer's asset share calculated?

The Administering Authority does not account for each employer's assets separately. Instead, the Fund's actuary is required to apportion the assets of the whole Fund between the employers, at each triennial valuation.

This apportionment uses the income and expenditure figures provided for certain cash flows for each employer. This process adjusts for transfers of liabilities between employers participating in the Fund, but does make a number of simplifying assumptions. The split is calculated using an actuarial technique known as "analysis of surplus".

Actual investment returns achieved on the Fund between each valuation are applied proportionately across all employers, to the extent that employers in effect share the same investment strategy. Transfers of liabilities between employers within the Fund occur automatically within this process, with a sum broadly equivalent to the reserve required on the ongoing basis being exchanged between the two employers.

The Fund actuary does not allow for certain relatively minor events, including but not limited to:

The actual timing of employer contributions within any financial year

The effect of the premature payment of any deferred pensions on grounds of incapacity.

These effects are swept up within a miscellaneous item in the analysis of surplus, which is split between employers in proportion to their liabilities.

The methodology adopted means that there will inevitably be some difference between the asset shares calculated for individual employers and those that would have resulted had they participated in their own ring-fenced section of the Fund.

The asset apportionment is capable of verification but not to audit standard. The Administering Authority recognises the limitations in the process, but it considers that the Fund actuary's approach addresses the risks of employer cross-subsidisation to an acceptable degree.

Appendix E – Actuarial assumptions

What are the actuarial assumptions?

These are expectations of future experience used to place a value on future benefit payments ("the liabilities"). Assumptions are made about the amount of benefit payable to members (the financial assumptions) and the likelihood or timing of payments (the demographic assumptions). For example, financial assumptions include investment returns, salary growth and pension increases; demographic assumptions include life expectancy, probabilities of ill-health early retirement, and proportions of member deaths giving rise to dependants' benefits.

Changes in assumptions will affect the measured funding target. However, different assumptions will not of course affect the actual benefits payable by the Fund in future.

The combination of all assumptions is described as the "basis". A more optimistic basis might involve higher assumed investment returns (discount rate), or lower assumed salary growth, pension increases or life expectancy; a more optimistic basis will give lower funding targets and lower employer costs. A more prudent basis will give higher funding targets and higher employer costs.

What basis is used by the Fund?

The Fund's standard funding basis is described as the 'ongoing' basis, which applies to the EA (and SSCL) as an open employer in the Fund. This is described in more detail below. It anticipates the EA remaining in the Fund in the long term.

However, in certain circumstances, typically where the employer is not expected to remain in the Fund long term, a more prudent basis applies: this is know as the 'gilt cessation' basis (see Note (g) to 3.3). As a closed employer which will eventually cease participation in the Fund, NRW's contribution strategy has been set with regard to this eventual funding target.

What assumptions are made in the ongoing basis?

a) Investment return / discount rate

The key financial assumption is the anticipated return on the Fund's investments. This "discount rate" assumption makes allowance for an anticipated out-performance of Fund returns relative to long term yields on UK Government bonds ("gilts"). There is, however, no guarantee that Fund returns will out-perform gilts. The risk is greater when measured over short periods such as the three years between formal actuarial valuations, when the actual returns and assumed returns can deviate sharply.

Given the very long-term nature of the liabilities, a long term view of prospective asset returns is taken. The long term in this context would be 20 to 30 years or more.

For the purpose of the triennial funding valuation at 31 March 2016 and setting contribution rates effective from 1 April 2017, the Fund actuary has assumed that future investment returns earned by the Fund over the long term will be 1.6% per annum greater than gilt yields at the time of the valuation (this is in line with the assumption used at the 2013 valuation). In the opinion of the Fund actuary, based on the current investment strategy of the Fund, this asset out-performance assumption is within a range that would be considered acceptable for the purposes of the funding valuation.

b) Salary growth

Pay for public sector employees is currently subject to a restriction of 1% p.a. by the UK Government until 2020. Allowing for this restriction, and assuming that salaries are in line with the RPI after 2020, leads to an overall salary increase assumption at the 2016 valuation of RPI less 0.7% per annum. This is a change from the previous valuation, which assumed annual salary increases would be in line with RPI on average. The change has led to a reduction in the funding target (all other things being equal). The measure of RPI used in the actuary's calculations includes an inflation risk premium deduction of 0.3% (see 'Pension increases' below).

c) Pension increases

Since 2011 the consumer prices index (CPI), rather than RPI, has been the basis for increases to public sector pensions in deferment and in payment. Note that the basis of such increases is set by the Government, and is not under the control of the Fund or any employers.

As at the previous valuation, we derived our assumption for RPI from market data as the difference between the yield on long-dated fixed interest and index-linked government bonds. An inflation risk premium was then applied to the market-implied RPI, by means of a 0.3% deduction to allow for market distortions. This is then reduced to arrive at the CPI assumption, to allow for the "formula effect" of the difference between RPI and CPI. At this valuation, we have used a reduction of 1.0% per annum. This is a larger reduction than at 2013 (which was 0.8%), which will serve to reduce the funding target (all other things being equal). (Note that the reduction is applied in a geometric, not arithmetic, basis).

d) Life expectancy

The demographic assumptions are intended to be best estimates of future experience in the Fund based on past experience of LGPS funds which participate in Club Vita, the longevity analytics service used by the Fund, and endorsed by the actuary.

The longevity assumptions that have been adopted at this valuation are a bespoke set of "VitaCurves", produced by the Club Vita's detailed analysis, which are specifically tailored to fit the membership profile of the Fund. These curves are based on the data provided by the Fund for the purposes of this valuation.

It is acknowledged that future life expectancy and, in particular, the allowance for future improvements in life expectancy, is uncertain. There is a consensus amongst actuaries, demographers and medical experts that life expectancy is likely to improve in the future. Allowance has been made in the ongoing valuation basis for future improvements in line with the 2013 version of the Continuous Mortality Investigation model published by the Actuarial Profession and a 1.25% per annum minimum underpin to future reductions in mortality rates. This is a similar allowance for future improvements to that made in 2013.

The combined effect of the above changes from the 2013 valuation approach, is to reduce life expectancy slightly (by around 0.1-0.2 years), which reduces the funding target all other things being equal. The approach taken is considered reasonable in light of the long term nature of the Fund and the assumed level of security underpinning members' benefits.

e) General

The same financial assumptions are adopted for most employers, in deriving the funding target underpinning the Primary contribution rates: as described in (3.3). The Secondary contributions are calculated in different ways, depending on the employer's circumstances (See Section 3.3, notes (a) to (c)).

The demographic assumptions, in particular the life expectancy assumption, in effect vary by type of member and so reflect the different membership profiles of employers.

Appendix F – Glossary

Actuarial assumptions/basis	The combined set of assumptions made by the actuary, regarding the future, to calculate the value of **the funding target**. The main assumptions will relate to the **discount rate**, salary growth, pension increases and longevity. More prudent assumptions will give a higher target value, whereas more optimistic assumptions will give a lower value.
Administering Authority	The council with statutory responsibility for running the Fund, in effect the Fund's "trustees".
Admission Bodies	Employers where there is an Admission Agreement setting out the employer's obligations. These can be Community Admission Bodies or Transferee Admission Bodies.
Covenant	The assessed financial strength of the employer. A strong covenant indicates a greater ability (and willingness) to pay for pension obligations in the long run. A weaker covenant means that it appears that the employer may have difficulties meeting its pension obligations in full over the longer term.
Discount rate	The annual rate at which future assumed cashflows (in and out of the Fund) are discounted to the present day. This is necessary to provide a **funding target** which is consistent with the present day value of the assets. A lower discount rate gives a higher target value, and vice versa. It is used in the calculation of the **Primary and Secondary rates**.
Employer	An individual participating body in the Fund, which employs (or used to employ) **members** of the Fund. Normally the assets and **funding target** values for each employer are individually tracked, together with its **Primary rate** at each **valuation**.
Funding target	The actuarially calculated present value of all pension entitlements of all **members** of the Fund, built up to date. This is compared with the present market value of Fund assets to derive the **deficit**. It is calculated on a chosen set of **actuarial assumptions**.
Gilt	A UK Government bond, ie a promise by the Government to pay interest and capital as per the terms of that particular gilt, in return for an initial payment of capital by the purchaser. Gilts can be "fixed interest", where the interest payments are level throughout the gilt's term, or "index-linked" where the interest payments vary each year in line with a specified index (usually RPI). Gilts can be bought as assets by the Fund, but their main use in funding is as an objective measure of solvency.
Guarantee / guarantor	A formal promise by a third party (the guarantor) that it will meet any pension obligations not met by a specified employer. The presence of a guarantor will mean, for instance, that the Fund can consider the employer's **covenant** to be as strong as its guarantor's.
Letting employer	An employer which outsources or transfers a part of its services and workforce to another employer (usually a contractor). The contractor will

pay towards the LGPS benefits accrued by the transferring members, but ultimately the obligation to pay for these benefits will revert to the letting employer. A letting employer will usually be a local authority, but can sometimes be another type of employer such as an Academy.

LGPS	The Local Government Pension Scheme, a public sector pension arrangement put in place via Government Regulations, for workers in local government. These Regulations also dictate eligibility (particularly for Scheduled Bodies), members' contribution rates, benefit calculations and certain governance requirements. The LGPS is divided into 101 Funds which map the UK. Each LGPS Fund is autonomous to the extent not dictated by Regulations, e.g. regarding investment strategy, employer contributions and choice of advisers.
Maturity	A general term to describe a Fund (or an employer's position within a Fund) where the members are closer to retirement (or more of them already retired) and the investment time horizon is shorter. This has implications for investment strategy and, consequently, funding strategy.
Members	The individuals who have built up (and may still be building up) entitlement in the Fund. They are divided into actives (current employee members), deferreds (ex-employees who have not yet retired) and pensioners (ex-employees who have now retired, and dependants of deceased ex-employees).
Primary contribution rate	The employer contribution rate required to pay for ongoing accrual of active members' benefits (including an allowance for administrative expenses). See Appendix D for further details.
Profile	The profile of an employer's membership or liability reflects various measurements of that employer's **members**, ie current and former employees. This includes: the proportions which are active, deferred or pensioner; the average ages of each category; the varying salary or pension levels; the lengths of service of active members vs their salary levels, etc. A membership (or liability) profile might be measured for its **maturity** also.
Rates and Adjustments Certificate	A formal document required by the LGPS Regulations, which must be updated at least every three years at the conclusion of the formal **valuation**. This is completed by the actuary and confirms the contributions to be paid by each employer (or pool of employers) in the Fund for the three year period until the next valuation is completed.
Scheduled Bodies	Types of employer explicitly defined in the LGPS Regulations, whose employers must be offered membership of their local LGPS Fund. These include Councils, colleges, universities, academies, police and fire authorities etc, other than employees who have entitlement to a different public sector pension scheme (e.g. teachers, police and fire officers, university lecturers).
Secondary	The difference between the employer's total and **Primary contribution rates**.

contribution rate	See Appendix D for further details.
Stabilisation	Any method used to smooth out changes in employer contributions from one year to the next. This is very broadly required by the LGPS Regulations, but in practice is particularly employed for large stable employers in the Fund. Different methods may involve: probability-based modelling of future market movements; longer deficit recovery periods; higher discount rates; or some combination of these.
Valuation	An actuarial investigation to calculate the liabilities, future service contribution rate and common contribution rate for a Fund, and usually individual employers too. This is normally carried out in full every three years (last done as at 31 March 2016), but can be approximately updated at other times. The assets value is based on market values at the valuation date, and the liabilities value and contribution rates are based on long term bond market yields at that date also.