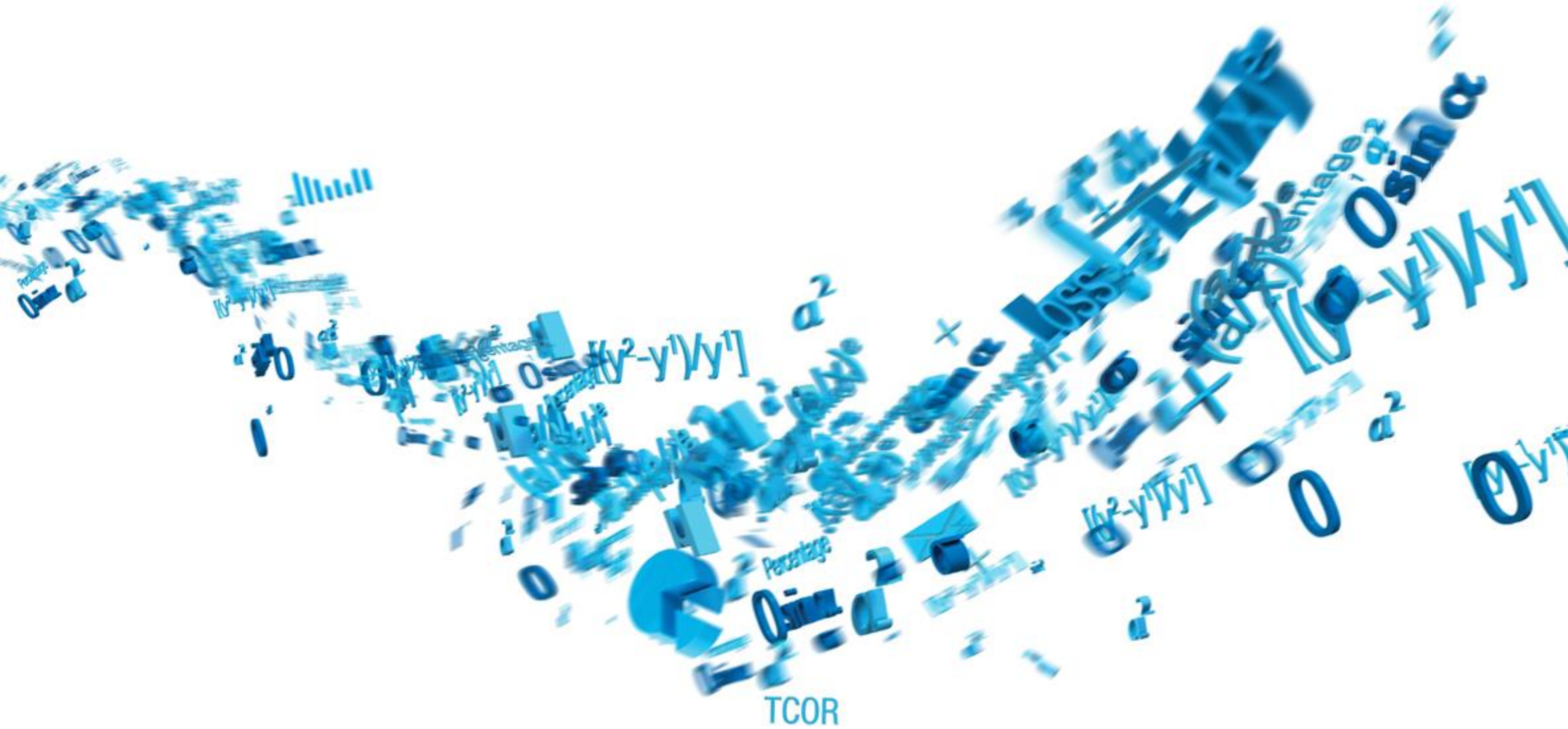
Aon Hewitt
Retirement & Investment



Brush Group (2013) Pension Scheme

Actuarial valuation at 31 December 2016

Prepared for	The Directors, Brush Scheme Trustees Limited ("the Trustees")
Prepared by	Alka Shah
Date	16 January 2018
Signed	

Alka Shah FIA
Scheme Actuary
0121 230 6841
alka.shah@aonhewitt.com

Executive Summary

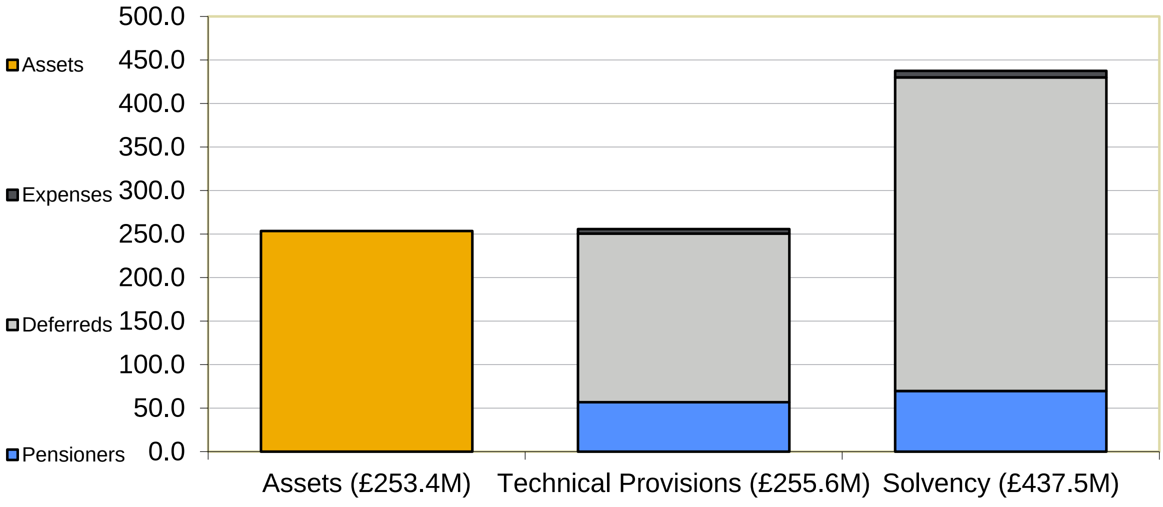
The key results of the valuation at 31 December 2016 are set out below.

There was a deficit of £2.2M relative to the technical provisions

(i.e. the level of assets agreed by the Trustees and the Company as being appropriate to meet members benefits, assuming the Scheme continues as a going concern).

There was an estimated deficit of £184.1M relative to the solvency liabilities

(i.e. the estimated level of assets needed to buy insurance policies for benefits earned to the valuation date).



No contributions are required to eliminate the deficit relative to the technical provisions. This is because it is anticipated that the investment return over the period of the Recovery Plan will be sufficient to remove the shortfall. This return is assumed to be the discount rate plus 1.2% p.a.

The expenses of administering the Scheme (including the Pension Protection Fund levy) are met directly by the Company, with the Scheme then reimbursing the Company for the net of VAT amount.

Brush Group (2013) Pension Scheme

Contents

Introduction	**2**
Developments since the previous valuation	**3**
Membership data	**4**
Benefits valued	**5**
Asset data	**6**
Funding objective	**7**
Summary of method and assumptions for technical provisions	**8**
Technical provisions	**9**
Reasons for change in past service position	**10**
Update since the valuation date	**11**
Recovery plan	**12**
Solvency	**13**
Risks and uncertainties	**14**
Agreed contributions	**16**
Next steps	**17**
Appendix 1: Legal framework and actuarial framework	**18**
Appendix 2: Membership data	**19**
Appendix 3: Benefits	**20**
Appendix 4: Assumptions for technical provisions	**23**
Appendix 5: Assumptions for solvency estimate	**27**
Appendix 6: Certificate of technical provisions	**29**
Appendix 7: Glossary	**30**
Report Framework	**33**

Introduction

This report has been prepared for the Trustees. It sets out the results and conclusions of the valuation as at 31 December 2016.

- This is a scheme funding report. It relies on and draws together other pieces of work and advice from throughout the valuation process which are listed in Appendix 1.
- Appendix 1 also sets out the legal framework within which the valuation has been completed.
- Throughout the body of this report, defined contribution (DC) benefits (including DC AVCs) have been excluded from the valuation results because in my view this provides a clearer picture. In order to comply formally with the legislation, an alternative presentation of the valuation results is shown in Appendix 1 which includes DC benefits in both the asset and liability measures.
- Some shorthand used in this report is explained opposite. Some technical pensions terms are explained in the glossary in Appendix 7.

Shorthand

Scheme

Brush Group (2013) Pension Scheme

Trustees

The Directors, Brush Scheme Trustees Limited

Company

Brush Electrical Machines Limited

Rules

The Scheme's Trust Deed and Rules dated 4 April 2013, and amending legal documents.

Snapshot view

The report concentrates on the Scheme's financial position at the valuation date. As time moves on, the Scheme's finances will fluctuate. If you are reading this report some time after it was produced, the Scheme's financial position could have changed significantly.

Developments since the previous valuation

The key results from the previous valuation at 31 December 2013 were:

The Scheme's assets were £167.0M and the technical provisions were £190.0M, which corresponded to a deficit of £23.0M and a funding level of 88%.

The Scheme was 56% funded using a solvency measure.

Following discussions between the Trustees and Company, a Recovery Plan was put in place that was designed to restore the funding level to 100%.

This resulted in a Schedule of Contributions being agreed, consisting of contributions of £5M p.a. payable monthly for 2 years and 8 months from 1 January 2015. This was in addition to £4.85M paid in the year since the valuation date.

Over the period the Company actually paid £5M in each of the years ended 31 December 2015 and 31 December 2016. A further £3.3M was paid in the year ended 31 December 2016 in respect of the 2017 contributions which were due under the Recovery Plan.

As well as the contributions paid to the Scheme since the previous valuation and the returns achieved on the Scheme's assets, there has been the following key development since the previous valuation:

- The Trustees made significant changes to the investment strategy introducing a liability driven investment ("LDI") solution and alternative bond funds in place of index-linked gilt and corporate bond funds. This change has significantly increased the hedging of the Scheme to interest rate and inflation movements.

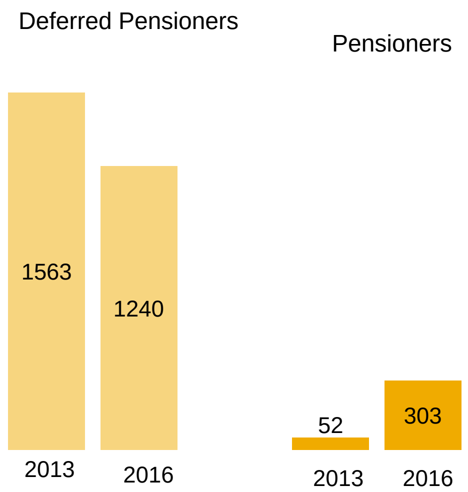
Membership data

This valuation is based on membership data as at 31 December 2016 supplied to us by the administrators, Aon Hewitt Limited.

A summary of the membership data is included in Appendix 2.

The chart below shows how the membership profile of the Scheme has changed between the two valuations. During this period, the Scheme has become increasingly mature with the proportion of pensioners increasing from 3% of the Scheme's membership at 31 December 2013 to 20% at 31 December 2016.

Membership profile of the Scheme



I have carried out some general checks to satisfy myself that:

- The information used for this valuation is sensible compared with the information used for the previous valuation and also with that shown in the Scheme's Trustee Report and Accounts.
- The results of this valuation can be traced from the results of the previous valuation.

However, the results in this report rely entirely on the accuracy of the information supplied. If you believe the data I have used may be incomplete or inaccurate, please let me know.

Benefits valued

Members are entitled to benefits defined in the Rules. A summary of the benefits valued is set out in Appendix 3.

- **GMP equalisation**

  In July 2014 the Government stated an intention to develop fully considered proposals and to publish guidance on equalising **Guaranteed Minimum Pensions (GMPs)** between men and women. No target date was given for publication.

  In November 2016 the Government launched a new consultation on the method of equalisation and published its initial response to this in March 2017.

  In May 2017, the Lloyds Banking Group launched legal action in the High Court with the aim of gaining clarity on whether GMP equalisation needs to take place, and if so what method should be applied. The case is expected to be heard in 2018.

  Therefore, at this stage, I have made no allowance for the equalisation of **GMPs** in the valuation.

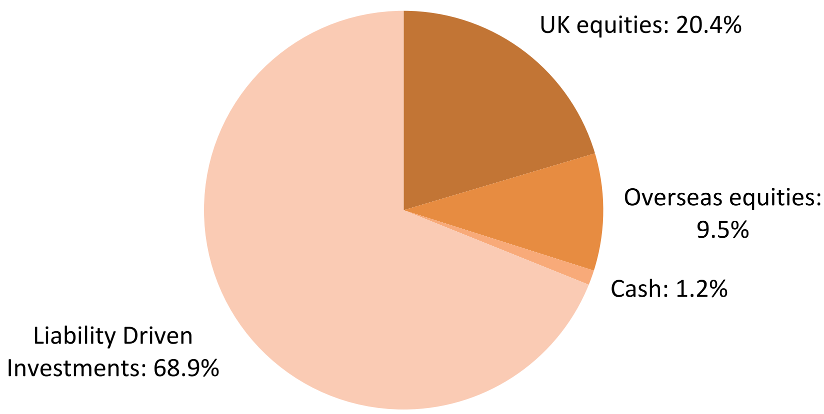
- **Discretionary benefits**

  No allowance for discretionary benefits is made in the **technical provisions** as the Scheme has no recent history of granting such benefits.

Asset data

The audited accounts for the Scheme for the year ended 31 December 2016 show the assets were £255.1M of which £1.7M related to AVC assets.

The balance of the assets of £253.4M is invested as follows:



The asset allocation strategy was determined with regard to the actuarial characteristics of the Scheme, in particular the strength of the funding position, the liability profile and the employer covenant. The Trustees' policy is to make the assumption that equities will outperform gilts over the long term, and that active fund management can be expected to add value. However, the Trustees recognise the potential volatility in equity returns, particularly relative to the Scheme's liabilities, and the risk that the investment managers do not achieve the targets set.

The Trustees have adopted a Liability Driven Investment ("LDI") strategy to match the nature and duration of the Scheme's liabilities more closely through the use of physical assets and pooled LDI funds.

The LDI portfolio is designed to reduce the Scheme's exposure to interest rate and inflation risk by providing a better match for the liabilities. Through the LDI assets the Trustees are aiming to hedge approximately 70% of both the inflation risk and the interest rate risk associated with the economic value of the liabilities (on a gilts + 0% p.a. basis).

Since the valuation date, the Scheme sold its corporate bond investments in order to fund three new Diversified Growth Funds ("DGFs"). In addition, the Scheme sold part of its investments in active equity funds to invest in passive global equity funds.

Funding objective

Terminology

Technical provisions

The funding target for a scheme agreed as part of the actuarial valuation.

Statutory funding objective

To hold sufficient and appropriate assets to meet the technical provisions.

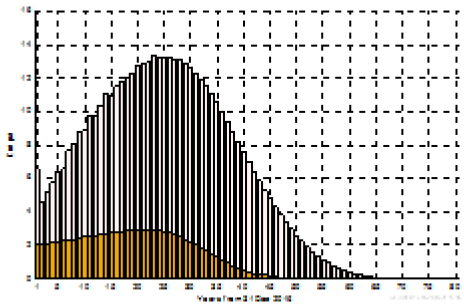
Statement of funding principles

Sets out the Trustees' policy for meeting the statutory funding objective

The Trustees' funding objective is to hold assets which are at least equal to the technical provisions, i.e. to meet the **statutory funding objective**.

In order to calculate the **technical provisions** the benefits paid out by the Scheme are estimated for each year into the future. The estimated benefit payments are then 'discounted back' to the valuation date using an agreed rate of interest known as the discount rate.

The benefit payments from the Scheme are expected to be made for a very long period – the chart to the right shows the cashflow pattern for a typical scheme. Some cashflows will be fixed but others will be linked to future levels of inflation.



A key factor in setting the funding objective is the Trustees' assessment of the employer covenant.

Summary of method and assumptions for technical provisions

The Trustees and Company have agreed the assumptions that will be used to calculate the technical provisions. The table below summarises the key assumptions, together with those used for the previous valuation, and the reasons for any change. Further details of all of the assumptions are set out in Appendix 4.

Assumption	This valuation	Previous valuation	Rationale for change
Pre-retirement discount rate	Bank of England gilt yield curve plus 1% p.a.	Bank of England gilt yield curve plus 1% p.a.	No change.
Post-retirement discount rate	Bank of England gilt yield curve plus 1% p.a.	Bank of England gilt yield curve plus 1% p.a.	No change.
RPI inflation	Bank of England breakeven inflation curve	Bank of England breakeven inflation curve	No change
CPI inflation	RPI inflation curve less 1.1% p.a.	RPI inflation curve less 1% p.a.	Change in line with Aon Hewitt's prevailing best estimate of the difference between RPI and CPI inflation.
Post-retirement mortality assumption – base table	SAPS S2 tables with scaling factor of 110% for all members	SAPS S1 tables with scaling factor of 110% for all members	Updated for latest Aon Hewitt Longevity Model ("AHLM") analysis and the latest SAPS table.
Post-retirement mortality assumption – future improvements	CMI 2016 Proposed 2015 core projections with long-term improvement rate of 1.5% p.a. for men and women	CMI 2013 core projections with long-term improvement rate of 1.5% p.a. for men and women	Updated to reflect the latest research

The technical provisions have been calculated using the **projected unit method**.

Technical provisions

The Scheme's technical provisions are shown below. They have been calculated using the assumptions in the previous section.

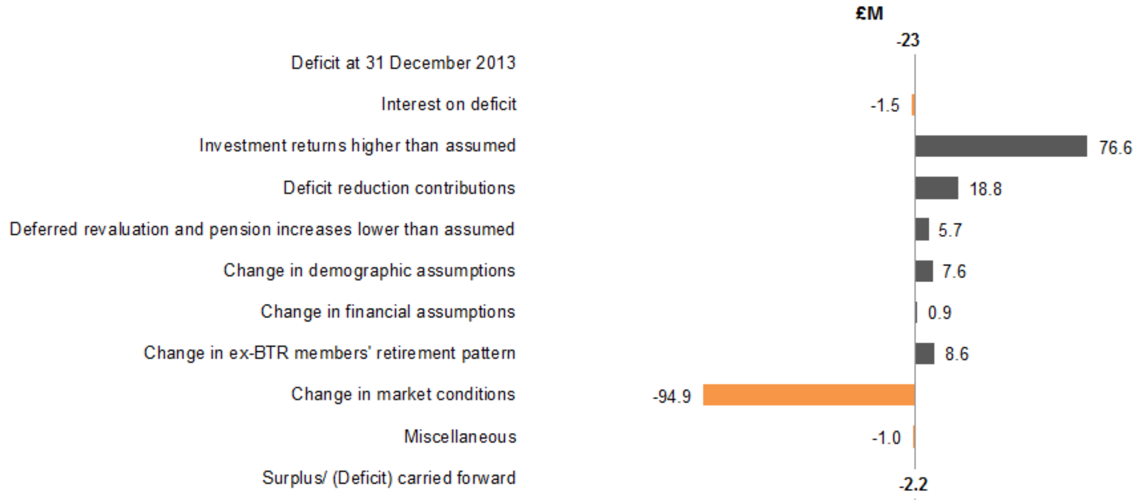
	£M
Value of past service benefits for	
Deferreds	193.9
Pensioners	56.2
Ex-Woolwich members' AVC conversion reserve	0.5
Expenses	5.0
Total i.e. technical provisions	255.6
Value of assets	253.4
Past service surplus (deficit)	(2.2)
Funding ratio	99%

My statutory certification of the Scheme's technical provisions is attached as Appendix 6.

Reasons for change in past service position

At the previous valuation, the Scheme had a deficit of £23.0M. The funding position has therefore improved by £20.8M over the period.

The chart below shows the key reasons for the change in funding position.



The improvement in the past service position is mainly attributed to:

- Favourable asset performance;
- Contributions made by the Company.

However, these were partially offset by worsening market conditions.

Update since the valuation date

Since the valuation date, the funding position is estimated to have improved.

This is based on assumptions consistent with those used to calculate the **technical provisions**, with financial assumptions updated to reflect changes in market conditions. The main reason for the improvement is the better than expected investment returns although this has been offset to some extent by the fall in gilt yields.

The chart below illustrates how the position has changed. It is approximate, for example investment returns have been assumed to be in line with index returns for the period since 30 September 2017.

Recovery plan

Following discussions, the Trustees and Company have agreed a recovery plan.

The **recovery plan** is designed to eliminate the **deficit** at the valuation date by the end of the recovery period.

The assumptions underlying the Recovery Plan are the same as those used to calculate the technical provisions apart from the expected return on the Scheme's assets. The assets have been assumed to increase at 1.2% p.a. in excess of the discount rate used to calculate the technical provisions.

No deficit reduction contributions are required to eliminate the shortfall. This is because it is anticipated that the investment return over the period of the Recovery Plan will be sufficient to remove the shortfall. Under this Recovery Plan, if the assumptions are borne out in practice the funding shortfall will be eliminated in 10 months from the valuation date, which is by 31 October 2017.

Terminology

Recovery plan

A plan for making good any **deficit** relative to the **technical provisions**.

Solvency

The solvency estimate below represents the cost of purchasing annuities at the valuation date from an insurance company to meet the Scheme's benefits.

The assumptions include an allowance for the expenses of winding-up the Scheme. Further details and the assumptions used in the solvency estimate are summarised in Appendix 5.

	£M
Value of past service benefits for	
▪ Deferreds	360.2
▪ Pensioners	68.8
Ex-Woolwich members' AVC conversion reserve	0.9
Expenses	7.6
Value of liabilities (solvency estimate)	437.5
Value of assets	253.4
Surplus/(Deficit) (statutory estimate of solvency)	(184.1)
Solvency ratio	58%

In practice, if the Scheme were to be discontinued with no solvent employer then the assets are unlikely to be sufficient to provide the benefits in full. If this were the case then:

- Benefits corresponding to those covered by the **PPF** would be met first (either through the **PPF** or, if there were sufficient funds, by securing these benefits with an insurance company).
- Any remaining assets would be used to secure part of the remaining benefits with an insurance company.

The proportion of full benefits provided will vary from member to member and may be higher or lower than the solvency ratio quoted above.

Risks and uncertainties

The Scheme faces a number of key risks which could affect its funding position.

These risks include:

- Funding risk – the risk that the **technical provisions** are set too low and prove insufficient to meet the liabilities (e.g. in the event of discontinuance).
- Sponsor covenant risk – the risk that the Company is no longer willing or able to support the Scheme, if things go wrong.
- Investment risks – the risk that investment returns are lower than assumed in the valuation, and also that the assets are volatile and move out of line with the liabilities, so the funding position is not stable.
- Longevity risk – the risk that Scheme members live for longer than assumed and that pensions would therefore need to be paid for longer.
- Inflation risk – the risk that inflation is higher than assumed, increasing the pensions that need to be paid.

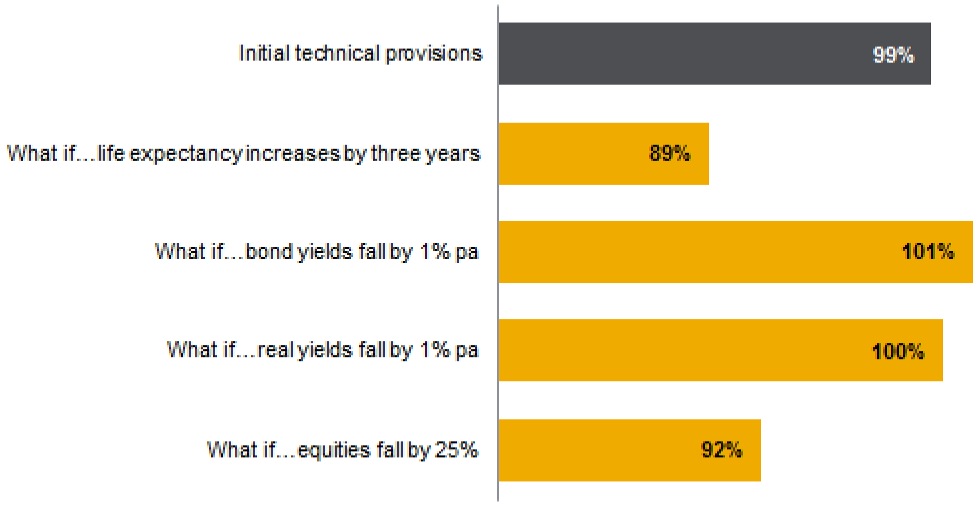
Other risks:

- Options for members – the risk that members exercise options resulting in unanticipated extra costs.
- Concentration risk – if a small number of members have a significant effect on the liabilities.

To quantify some of these risks, the chart on the following page shows the approximate impact of the following one-off step changes on the Scheme's funding position on the **technical provisions** basis:

- Life expectancy at age 65 is three years longer than anticipated (with corresponding increases at other ages).
- Yields on both gilts and corporate bonds decrease by 1% pa (with no change in other asset values).
- Real yields on index-linked gilts decrease by 1% pa (with no change in other assets)—this is equivalent to a 1% pa increase in the assumed rate of inflation (measured by both RPI and CPI).
- The market value of equities falls by 25% (with no change in other assets).

Risks and uncertainties



The analysis emphasises that the Scheme is highly susceptible to:

- Equity markets falling;
- Members living longer than expected.

There is currently a mis-match between the Scheme's assets and liabilities as the liability benchmark for the LDI solution has not been updated following completion of the 2016 valuation. We understand the Trustees are discussing this with their investment consultant.

The scenarios considered are not 'worst case' scenarios, and could occur in combination (rather than in isolation).

The Solvency measure is also highly sensitive to these factors.

To mitigate these risks the Trustees monitor the funding position of the Scheme on a regular basis and will take action if they deem necessary upon the advice of the Scheme Actuary.

Agreed contributions

The Trustees and Company have agreed that no deficit reduction contributions will be paid to the Scheme.

This is because it is anticipated that the investment return over the period of the Recovery Plan will be sufficient to remove the shortfall. This return is assumed to be the discount rate plus 1.2% p.a.

The expenses of administering the Scheme (including the Pension Protection Fund levy) are met directly by the Company, with the Scheme then reimbursing the Company. The additional investment returns are also expected to be sufficient to meet the expenses over the period of the Recovery Plan.

A full review of the Company's contributions will be completed no later than following the next valuation, which is due to take place at 31 December 2019.

The contributions and expenses are set out in the schedule of contributions. As agreed, my certification of the schedule has been based on the position at the valuation date.

I estimate that, by the next valuation, these contributions will have:

- Increased the technical provisions funding ratio to about 103%; and
- Increased the solvency level to about 62%.

These estimates assume that:

- The experience of the Scheme between the two valuation dates is in line with the assumptions underlying the technical provisions and recovery plan (including that the return on the Scheme's assets is 1.2% p.a. above the discount rate);
- The assumptions underlying the technical provisions and solvency bases remain unchanged.

Terminology

Schedule of contributions

Specifies the amounts and dates of contributions payable by the Company and the members over the next five years or the recovery period, if longer. I am required to certify that the contributions in the schedule are expected to remove the deficit over the period stated based on the agreed assumptions.

Next steps

As part of the valuation, the Trustees and the Company have agreed and signed the statement of funding principles together with the recovery plan and schedule of contributions.

The next steps are:

- For the Trustees to provide a copy of this report to the Company within 7 days.
- To submit the valuation summary and supporting documentation to the recovery plan to the Pensions Regulator via Exchange. We will do this on your behalf.
- To provide a summary funding statement to members by 30 June 2018, i.e. 18 months from valuation date.

Checklist

The valuation process is complete when all of the following have been agreed and are in place:

- Statement of funding principles
- This scheme funding report
- Recovery plan
- Schedule of contributions
- Actuarial certification of the schedule of contributions

The statutory deadline for completing the valuation process is 31 March 2018, i.e. 15 months after the valuation date.

Appendix 1: Legal framework and actuarial framework

It is a legal requirement to carry out a full valuation at least once every three years.

This report is produced in compliance with:

- Clause 18.1 of the Scheme's Trust Deed and Rules.
- Section 224 of the Pensions Act 2004.
- The terms of the Scheme Actuary Agreement between the Trustees and me, on the understanding that it is solely for the benefit of the addressees.

Alternative presentation including defined contribution benefits

Defined contribution (DC) AVC benefits amounted to £1.7M at the valuation date. If these benefits are included in the valuation:

- The value of the assets is £255.1M.
- The technical provisions are £257.3M (funding ratio 99%).
- The value of the solvency liabilities is £439.2M (solvency ratio 58%).

Appendix 2: Membership data

Deferred pensioners		**Number**	**Average age**	**Total pension (£000 pa)**	**Average pension (£ pa)**
Men	2016	1,134	54	4,944	4,360
	2013	1,444	53	6,932	4,801
Women	2016	106	52	199	1,878
	2013	119	50	224	1,884
Total	2016	1,240	54	5,143	4,148
	2013	1,563	53	7,156	4,579

Note: The deferred pension amounts shown above are at date of exit from the Scheme.

Average ages shown above are unweighted.

Pensioners		**Number**	**Average age**	**Total pension (£000 pa)**	**Average pension (£ pa)**
Men	2016	295	64	1,892	6,414
	2013	49	62	259	5,287
Women	2016	3	63	14	4,815
	2013	*2*	*61*	*2*	*833*
Dependents	2016	5	42	18	3,519
	2013	1	56	7	6,981
Total	2016	303	64	1,924	6,351
	2013	52	62	268	5,148

Note: Average ages shown above are unweighted.

Appendix 3: Benefits

A summary of the main Scheme benefits is shown below.

Introduction

This Scheme is divided into the following main categories:

- Category A – Ordinary Members
- Category B – Ex-Babcock Staff Members
- Category C – Ex-Babcock Works Members
- Category D – Ex-BTR Blue
- Category E – Ex-BTR Green

There are more than five categories of member but the additional categories relate to a small number of members. Further details may be found in the legal documentation of the Scheme.

Normal Retirement Date

65th birthday for all members.

Pensionable Salary

- Category A – Basic annual salary at 31 December less the Lower Earnings Limit.
- Category B – Basic annual salary.
- Category C – All taxable earnings, excluding maternity pay and any payments which do not form a regular addition to pay.
- Category D – Gross pay less the Lower Earnings Limit.
- Category E – Basic annual pay at 1 April.

Final Pensionable Salary

- Category A – The highest average Pensionable Salaries over three consecutive years in the last 10 years.
- Categories B and C – The higher of (i) the average Pensionable Salary over the previous three years, and (ii) the highest average Pensionable Salary over any three complete tax years out of the previous 10 years.
- Category D – The highest Pensionable Salary in the last five tax years.
- Category E – Higher of best Pensionable Salary on 1 April in last three years or best average of three consecutive years in last 10 years.

Pensionable Service

- Categories A and C – The number of years of contributory membership measured in complete months.
- Category B, D and E – The number of years of contributory membership measured in complete days.

Pension Benefits at Normal Retirement Date – pre 1 March 2004 service

- Categories A, B, and D – Pension of 1/60th of Final Pensionable Salary for each year of Pensionable Service.
- Category C – Pension of 1/80th of Final Pensionable Salary for each

	year of Pensionable Service. ▪ Category E – Pension of 1/90th of Final Pensionable Salary up to the Upper Earnings Limit and 1/75th above for each year of Pensionable Service.
Pension Benefits at Normal Retirement Date – post 1 March 2004 service	On 1 March 2004 members made a one-off choice of their accrual rate and corresponding contribution rate. ▪ Categories A, B, and D – Pension of 1/60th (or 1/80th) of Final Pensionable Salary for each year of Pensionable Service. ▪ Category C - Pension of 1/80th (1/105th) of Final Pensionable Salary for each year of Pensionable Service. ▪ Category E – Pension of 1/90th (1/120th) of Final Pensionable Salary up to the Upper Earnings Limit and 1/75th (1/100th) above for each year of Pensionable Service.
Normal Retirement Lump Sum	On retirement, a member may exchange part of the pension for a tax free lump sum, subject to statutory limits and requirements.
Benefits on Death After Retirement	A spouse's pension is payable of one half of the member's pension ignoring any reduction if part of the pension has been commuted for cash at retirement. In addition, a cash sum is payable on death within five years of retirement equal to the balance of the outstanding pension payments due within that period.
Early Retirement due to Incapacity	▪ Category A - An immediate pension calculated by reference to Pensionable Service completed to date of employment termination. ▪ Categories B and C – Subject to the completion of 5 years' Pensionable Service, an immediate pension calculated by reference to Pensionable Service completed to the date of termination of employment plus one-half of the service that would have been completed from the date of retirement to Normal Retirement Date. ▪ Categories D and E – An immediate pension based on potential Pensionable Service.
Early Retirement not due to Incapacity	▪ Categories A, B and C – An immediate pension subject to a reviewable actuarial reduction scale. ▪ Category D and E – An immediate pension subject to reduction if before age 60 (or age 65, depending on the member contribution rate paid post March 2004).
Pension Payments	All pensions are payable monthly, commencing on the member's retirement, or death in the case of a spouse's pension.
Pension Increases	▪ Categories A – Increases are discretionary. ▪ Categories B and C – An annual increase of 3% on the pension in excess of the GMP. All pensions accrued after April 1997 have pension increases guaranteed to increase at the rate of RPI with a maximum of 5% pa (LPI). This maximum was reduced to 2.5% p.a. for pensions accrued after 1 January 2010.

- Categories D and E – LPI with a minimum of 3% pa.

Revaluation of Guaranteed Minimum Pensions

Guaranteed Minimum Pension (GMP) is revalued at the relevant fixed rate (which depends on date of leaving) from the 6 April immediately following the date of leaving until the 5 April immediately preceding State Pension Age.

Revaluation of pension in excess of GMP

A pension payable at Normal Retirement Date calculated in the same manner as the Normal Retirement Pension but based on Final Pensionable Salary at and Pensionable Service to the date of exit plus the revaluation element on the member's accrued GMP plus the revaluation element on the member's accrued pension in excess of the GMP as follows:

- For service accrued prior to 1 January 2010:
  - For the BTR section; CPI inflation over the period from date of exit to retirement subject to an overall cap of 5% p.a. over the period.
  - For all other sections; RPI inflation over the period from date of exit to retirement subject to an overall cap of 5% p.a. over the period.
- For service accrued from 1 January 2010:
  - For the BTR section; CPI inflation over the period from date of exit to retirement subject to an overall cap of 2.5% p.a. over the period.
  - For all other sections; RPI inflation over the period from date of exit to retirement subject to an overall cap of 2.5% p.a. over the period.

Appendix 4: Assumptions for technical provisions

The assumptions used for calculating the technical provisions are summarised below. Different assumptions are used for the solvency estimate, as set out in Appendix 5.

Pre-retirement discount rate	The Aon Hewitt fixed interest gilt yield curve at the valuation date plus 1.0% pa, rounded to the nearest 0.01% pa
Post-retirement discount rate	The Aon Hewitt fixed interest gilt yield curve at the valuation date plus 1.0% pa, rounded to the nearest 0.01% pa
Rate of (RPI) price inflation	The assumption is derived directly from the difference between the market yields on fixed-interest and index-linked gilts at the valuation date at all durations (rounded to the nearest 0.01% p.a.)
Rate of (CPI) price inflation	The RPI price inflation curve with a deduction at each duration equal to Aon Hewitt's prevailing best estimate of the difference between RPI and CPI inflation. As at 31 December 2016, this difference was 1.1% p.a.
Increases to pensions in payment	Derived from the RPI or CPI price inflation assumption allowing for the maximum and minimum annual increases using term dependent Aon Hewitt best estimates of future inflation volatility.
Revaluations of deferred pensions in excess of GMP	Derived from the RPI or CPI price inflation assumption.

The table below shows the forward rates for the next 50 years for the financial assumptions used as at the valuation date.

Term	Discount Rate	RPI Inflation	CPI Inflation	Inflation Linked Pension Increases			
				RPI subject to a maximum of 5% p.a.	RPI subject to a minimum of 3% p.a. and maximum of 5% p.a.	RPI subject to a maximum of 2.5% p.a.	CPI subject to a maximum of 3% p.a.
0	0.97%	2.98%	1.88%	2.98%	3.07%	2.50%	1.86%
1	1.12%	3.04%	1.94%	3.04%	3.27%	2.45%	1.90%
2	1.48%	3.04%	1.94%	3.03%	3.39%	2.34%	1.89%
3	1.91%	3.04%	1.94%	3.01%	3.47%	2.25%	1.87%
4	2.29%	3.17%	2.07%	3.11%	3.58%	2.23%	1.95%
5	2.61%	3.30%	2.20%	3.21%	3.66%	2.22%	2.02%
6	2.88%	3.44%	2.34%	3.31%	3.74%	2.23%	2.09%
7	3.11%	3.58%	2.48%	3.41%	3.81%	2.25%	2.15%
8	3.29%	3.71%	2.61%	3.49%	3.87%	2.27%	2.20%
9	3.43%	3.82%	2.72%	3.57%	3.92%	2.29%	2.23%
10	3.53%	3.91%	2.81%	3.62%	3.95%	2.30%	2.26%
11	3.60%	3.98%	2.88%	3.66%	3.97%	2.32%	2.28%
12	3.64%	4.02%	2.92%	3.69%	3.98%	2.33%	2.30%
13	3.67%	4.06%	2.96%	3.71%	3.98%	2.34%	2.31%
14	3.67%	4.07%	2.97%	3.71%	3.98%	2.35%	2.31%
15	3.66%	4.07%	2.97%	3.71%	3.97%	2.36%	2.31%
16	3.63%	4.05%	2.95%	3.69%	3.94%	2.36%	2.30%
17	3.59%	4.02%	2.92%	3.66%	3.92%	2.36%	2.28%
18	3.53%	3.97%	2.87%	3.62%	3.88%	2.36%	2.25%
19	3.46%	3.91%	2.81%	3.56%	3.84%	2.36%	2.22%
20	3.38%	3.83%	2.73%	3.49%	3.79%	2.35%	2.17%
21	3.28%	3.73%	2.63%	3.41%	3.75%	2.34%	2.12%
22	3.17%	3.62%	2.52%	3.32%	3.70%	2.31%	2.05%
23	3.06%	3.51%	2.41%	3.21%	3.66%	2.28%	1.98%
24	2.93%	3.38%	2.28%	3.10%	3.62%	2.24%	1.90%
25	2.79%	2.94%	1.84%	2.73%	3.51%	2.02%	1.64%
26	2.66%	2.91%	1.81%	2.69%	3.50%	1.99%	1.61%
27	2.52%	2.89%	1.79%	2.66%	3.49%	1.97%	1.59%
28	2.39%	2.88%	1.78%	2.64%	3.49%	1.95%	1.57%
29	2.26%	2.88%	1.78%	2.63%	3.49%	1.95%	1.57%
30	2.15%	2.85%	1.75%	2.59%	3.49%	1.92%	1.54%
31	2.05%	2.71%	1.61%	2.47%	3.46%	1.83%	1.46%
32	1.97%	2.71%	1.61%	2.45%	3.46%	1.81%	1.44%
33	1.91%	2.62%	1.52%	2.36%	3.45%	1.75%	1.39%
34	1.88%	2.60%	1.50%	2.34%	3.45%	1.72%	1.37%
35	1.86%	2.52%	1.42%	2.26%	3.43%	1.66%	1.32%
36	1.89%	2.50%	1.40%	2.22%	3.43%	1.63%	1.29%
37	1.93%	2.63%	1.40%	2.21%	3.44%	1.61%	1.29%
38	1.99%	3.29%	1.53%	2.31%	3.46%	1.68%	1.34%
39	1.88%	3.28%	2.19%	2.83%	3.57%	2.06%	1.68%
40	1.88%	3.28%	2.18%	2.81%	3.57%	2.04%	1.66%
41	1.88%	3.28%	2.18%	2.80%	3.57%	2.03%	1.65%
42	2.77%	3.29%	2.18%	2.78%	3.57%	2.02%	1.64%

Term	Discount Rate	RPI Inflation	CPI Inflation	Inflation Linked Pension Increases			
				RPI subject to a maximum of 5% p.a.	RPI subject to a minimum of 3% p.a. and maximum of 5% p.a.	RPI subject to a maximum of 2.5% p.a.	CPI subject to a maximum of 3% p.a.
43	2.83%	3.28%	2.19%	2.78%	3.57%	2.01%	1.63%
44	2.83%	3.84%	2.18%	2.76%	3.57%	1.99%	1.61%
45	2.83%	3.96%	2.74%	3.17%	3.66%	2.29%	1.90%
46	2.83%	3.97%	2.86%	3.25%	3.68%	2.34%	1.95%
47	2.83%	3.96%	2.87%	3.24%	3.68%	2.33%	1.95%
48	2.83%	3.96%	2.86%	3.22%	3.68%	2.31%	1.94%
49	2.83%	3.96%	2.86%	3.20%	3.68%	2.30%	1.93%
50	2.83%	3.96%	2.86%	3.19%	3.68%	2.29%	1.92%

Appendix 4: Assumptions for technical provisions

Demographic Assumptions

Pre-retirement mortality	▪ Males: 100% of standard table AMC00 ▪ Females: 100% of standard table AFC00
Post-retirement mortality	Base mortality table: ▪ Males: 110% of standard table S2PMA ▪ Females: 110% of standard stable S2PFA An allowance for improvements between 2007 and 2015 and an allowance for future improvements has been made in line with the CMI_2016_Proposed_2015 Core Projections assuming a long-term annual rate of improvement in mortality rates of 1.5% for men and women.
Early retirements	All members are assumed to retire at their Normal Retirement Date, except BTR members who can draw their benefits accrued before 1 March 2004 from age 60 with no early retirement reduction (and some of these members can also draw their benefits accrued since 1 March 2004 from age 60 with no early retirement reduction, depending on the level of contributions they paid whilst in active service). For this valuation, ex-BTR members are assumed to retire according to the following retirement pattern – 20% at age 60, 50% at age 62 and 30% at age 65, with no early retirement reduction.
Commutation	Each member is assumed to commute 25% of their pension on retirement, based on the commutation factor of 11 at age 65 (with consistent factors at other ages).
Family details	A man is assumed to be three years older than his wife/partner. 80% (Males) / 70% (Females) of non-pensioners are assumed to be married or have a dependant at retirement or earlier death. 74% of pensioners are assumed to be married or have a dependant at the valuation date.
Expenses	The Scheme's technical provisions will include a past service expense reserve of 2.0% of the Scheme's liabilities using the assumption set out above. In addition, in determining the employer contributions, an allowance will be made for ongoing annual expenses.
Woolwich AVC conversion terms	The ex-Woolwich members have the right to convert Additional Voluntary Contributions ("AVCs") held in the Scheme into pension at the rate of 9 (single life) and 10.6 (joint life). These special terms mean that a reserve has been held within the Scheme for when these members come to "cash in" their AVCs.

Appendix 5: Assumptions for solvency estimate

The solvency estimate has been calculated in line with statutory requirements. I have taken into account the investment strategies that a life assurance company is likely to use to back its annuity business and the resulting pricing we would expect to see under the market conditions at the valuation date, taking into account the size of the Scheme.

However, this estimate is only a guide. The true position can only be established by conducting a competitive buy-out auction and fully defining the scope and likely cost of a wind-up process for the Scheme.

The basis used is described on the next page.

Solvency estimate

This considers the position if:

- The Scheme were discontinued on the valuation date.
- Discretionary benefits were suspended permanently.
- The assets were used to buy immediate and deferred annuities from an insurance company, with an extra margin needed to cover the expenses of shutting down the Scheme.

The solvency estimate is a regulatory requirement and also provides a useful benchmark against which the Trustees and others can assess the prudence of other funding measures.

Appendix 5: Assumptions for solvency estimate

The table below shows the main assumptions used in calculating the solvency estimate, where these are different from those used for the **technical provisions**.

Pensioner discount rate	Aon Hewitt Bulk Annuity Market Monitor yield curve for pensioners, which is constructed from swap and UK corporate bond market curves
Non-pensioner discount rate (before and after retirement)	Aon Hewitt Bulk Annuity Market Monitor yield curve for non-pensioners, which is constructed from swap and UK corporate bond market curves
Increase in RPI	Term-dependent rates derived from the RPI swap markets
Increase in CPI	Equal to the RPI assumption less 0.45% pa
Pension increases	Derived from the price inflation assumptions with allowance for caps and floors and with the aim of approximately reflecting the cost of hedging these increases using LPI-linked swaps
Commutation	No allowance
Discretionary benefits	No allowance
Post-retirement mortality	As for the technical provisions basis except subject to a long-term rate of improvement of 1.75% p.a. for both men and women.
Expenses	The reserve for expenses allows for the deductions to allow for the cost of forced sales of assets, an allowance for the management expenses associated with winding up and an estimate of the per member charges expected to be levied by an insurance company on buy-out. All of these allowances for expenses are presented as additions to the liabilities as the regulations require the assets to be shown at audited market value.

Appendix 6: Certificate of technical provisions

Actuarial certificate given for the purposes of Regulation 7(4)(a) of the Occupational Pension Schemes (Scheme Funding) Regulations 2005

Brush Group (2013) Pension Scheme

Calculation of technical provisions

I certify that, in my opinion, the calculation of the Scheme's technical provisions as at 31 December 2016 is made in accordance with regulations under section 222 of the Pensions Act 2004. The calculation uses a method and assumptions determined by the Trustees of the Scheme and set out in the statement of funding principles dated 18 December 2017.

Signature	Alka Shah	Date	16 January 2018
Name	Alka Shah	Qualification	Fellow of the Institute and Faculty of Actuaries
Address	Colmore Gate 2 Colmore Row Birmingham B3 2QD	Name of Employer	Aon Hewitt Limited

Appendix 7: Glossary

Attained age method

This is one of the methods used by actuaries to calculate a contribution rate to the scheme. This method calculates the present value of the benefits expected to accrue to members over their expected remaining membership of the scheme expressed as a percentage of their expected future pensionable pay. It allows for projected future increases to pay through to retirement or date of leaving service. The method is based on the current membership and takes no account of the possibility of further members joining the scheme. If there are no new members, this method would be expected to result in a stable contribution rate, once surpluses or shortfalls are taken into account, and if all the other assumptions are borne out. However, if more members join the scheme to replace older leavers, the contribution rate can be expected to fall.

Cash transfer sum

This is a benefit available to early leavers who have between three months and two years of pensionable service. It is calculated in the same way as the cash equivalent transfer value payable to longer serving early leavers, and is calculated at the date of leaving pensionable service.

Deficit

This is the funding target less the value of assets. If the value of assets is greater than the funding target, then the difference is called the surplus.

Discount rate

This is used to place a present value on a future payment. A 'risk-free' discount rate is usually derived from the investment return achievable by investing in government gilt-edged stock. A discount rate higher than the 'risk-free' rate is often used to allow for some of the extra investment return that is expected by investing in assets other than gilts.

Funding ratio

This is the ratio of the value of assets to the funding target.

Funding target

An assessment of the present value of the benefits that will be paid from the scheme in the future, normally based on pensionable service prior to the valuation date. Often, the funding target is equal to the technical provisions.

Guaranteed Minimum Pensions (GMPs)

Most schemes that were contracted out of the State Earnings Related Pension Scheme (SERPS) before April 1997 have to provide a pension for service before that date at least equal to the Guaranteed Minimum Pension (GMP). This is approximately equal to the SERPS pension that the member would have earned had the scheme not been contracted out. GMPs ceased to build up on 6 April 1997 when the legislation changed.

Limited Price Indexation (LPI)

The Pensions Act 1995 required schemes to provide a minimum level of annual increase to pensions in payment. The minimum level is the smaller of 5% and the increase in inflation* and applies to the pension earned from 6 April 1997 to 5 April 2005. With effect from 6 April 2005, the cap for statutorily required LPI for future service was reduced from 5% to 2.5%.

*Until 2010, inflation for the purpose of this minimum was defined with reference to changes in the Retail Prices Index. From 2011, inflation was defined with reference to changes in the Consumer Prices Index.

Appendix 7: Glossary (continued)

Pension Protection Fund (PPF)

The PPF was established with effect from 6 April 2005. The PPF will normally take over the assets of a pension scheme in the event of its employer becoming insolvent and the scheme having insufficient assets to provide the PPF benefits. The PPF will not provide the scheme benefits in full. The PPF is financed by a levy on most defined benefit pension schemes.

The PPF benefits are broadly 100% of benefits for pensioners over normal retirement age and 90% of benefits up to a cap for all other members. Pension increases granted on benefits are at lower levels than apply in many schemes, in particular, benefits earned before 6 April 1997 would not be given any pension increases within the PPF.

Present value

Actuarial valuations involve projections of pay, pensions and other benefits into the future. To express the value of the projected benefits in terms of a cash amount at the valuation date, the projected amounts are discounted back to the valuation date by a discount rate. This value is known as the present value. For example, if the discount rate was 6% a year and if we had to pay a lump sum of £1,060 in one year's time the present value would be £1,000.

Projected Unit Method

One of the common methods used by actuaries to calculate a contribution rate to a scheme.

This method calculates the present value of the benefits expected to accrue to members over a control period (often one year) following the valuation date. The present value is usually expressed as a percentage of the members' pensionable pay. It allows for projected future increases to pay through to retirement or date of leaving service. Provided that the distribution of members remains stable with new members joining to take the place of older leavers, the contribution rate calculated can be expected to remain stable, if all the other assumptions are borne out. If there are no new members however, the average age will increase and the contribution rate can be expected to rise.

Protected Rights

Prior to April 2012, schemes could contract out of SERPS/S2P on a protected rights basis. The accumulated National Insurance rebates in respect of each member as a result of being contracted out (known as protected rights) must be applied as an underpin to the member's benefits. Schemes that were contracted out on this basis before 6 April 1997 provided this underpin instead of GMPs.

Prudent

Prudent assumptions are assumptions that, if a scheme continues on an ongoing basis, are more likely to overstate than understate the amount of money actually required to meet the cost of the benefits.

Recovery plan

Where a valuation shows a funding shortfall against the technical provisions, trustees must prepare a recovery plan setting out how they plan to meet the statutory funding objective.

Appendix 7: Glossary (continued)

Schedule of contributions

Trustees of pension schemes must prepare and maintain a schedule of contributions. This shows the dates and amounts of contributions due from the employer and members. Under the Pensions Act 2004 the schedule must be put in place within 15 months of the valuation date.

Solvency ratio

This is the ratio of the market value of a scheme's assets to the estimated cost of securing a scheme's liabilities in the event of the discontinuance of the scheme.

The Statement of Funding Principles

The Pensions Act 2004 requires trustees to prepare (and from time to time review and if necessary revise) a written statement of their policy for securing that the statutory funding objective is met. This is referred to as a statement of funding principles.

Statutory estimate of solvency

This is the difference between the market value of a scheme's assets and the estimated cost of securing a scheme's liabilities in the event of the discontinuance of the scheme.

Statutory funding objective

Under the Pensions Act 2004, every scheme is subject to the statutory funding objective, which is to have sufficient and appropriate assets to cover its technical provisions.

Surplus

This is the value of assets less the funding target. If the funding target is greater than the value of assets, then the difference is called a deficit.

Technical provisions

This is the present value of the benefits members are entitled to based on pensionable service to the valuation date, assessed using the assumptions agreed between a scheme's trustees and the company. It generally allows for projected future increases to pay through to retirement or date of leaving service.

Transfer value

Members generally have a legal right to transfer their benefits to another pension arrangement before they retire. In taking a transfer, members give up their benefits in a scheme, and a sum of money (called the transfer value) is paid into another approved pension scheme; this is used to provide pension benefits on the terms offered in that scheme.

Report Framework

This report has been prepared in accordance with the framework below.

TAS compliant

This report, and the work relating to it, complies with 'Technical Actuarial Standard 100: Principles for Technical Actuarial Work' ('TAS 100') and 'Technical Actuarial Standard 300: Pensions' ('TAS 300').

The compliance is on the basis that the Trustees of the Brush Group (2013) Pension Scheme are the addressees and the only users and that the report is only to be used to document the outcome of the 2016 actuarial valuation. If you intend to make any other decisions after reviewing this report, please let me know and I will consider what further information I need to provide to help you make those decisions.

The report has been prepared under the terms of the Scheme Actuary Agreement between the Trustees and me on the understanding that it is solely for the benefit of the addressees.

This report should be read in conjunction with:

- My terms of reference paper dated 30 November 2016;
- My report "Initial assumptions advice at 31 December 2016" dated 7 March 2017;
- My report "Summary of actuarial assumptions advice at 31 December 2016" dated 9 June 2017;
- My report "Actuarial valuation at 31 December 2016 – initial results" dated 20 June 2017;
- My report "Actuarial valuation at 31 December 2016 – additional results" dated 12 July 2017.
- My report "Actuarial valuation at 31 December 2016 – results discussed on 21 June 2017" dated 7 September 2017;
- My report "Actuarial valuation at 31 December 2016 – revised results to include special terms for AVC conversion" dated 21 September 2017;

If you require further copies of these documents, please let me know.