STATES OF JERSEY

PUBLIC EMPLOYEES' PENSION FUND: ACTUARIAL VALUATION AS AT 31ST DECEMBER 2016

Presented to the States on 16th March 2018
by the Chief Minister

STATES GREFFE

INTRODUCTORY REPORT

1. Background

1.1 The Public Employees' Pension Fund ("PEPF") is "the Fund" as defined under Article 5 of the Public Employees (Pensions) (Jersey) Law 2014 ("the Law"). The Fund covers the final salary pension benefits provided by the Public Employees Contributory Retirement Scheme ("PECRS") and the CARE benefits provided by the Public Employees Pension Scheme ("PEPS").

1.2 The Fund has 15,000 scheme members, with around 7,000 of these members being active members employed by the States of Jersey and 26 Admitted Bodies. The PEPF is a statutory scheme with its governance, benefits and funding arrangements defined in Regulations. It is a funded scheme requiring regular actuarial valuations to assess whether Fund assets are sufficient to cover long-term liabilities.

1.3 This is the first actuarial valuation to be undertaken since the pension benefits of public servants, excluding teachers, were reviewed, and changes were implemented to introduce a CARE scheme. Since 1st January 2016, all new employees have been admitted to the CARE scheme. Existing employees will transfer to the CARE scheme for future accrual on 1st January 2019, with the exception of members who are within 7 years of their normal retirement age on 31st December 2018, who will have the option to remain in the final-salary scheme.

1.4 Under Regulation 3(1) of the Public Employees (Pension Scheme) (Funding and Valuation) (Jersey) Regulations 2015 ("the 2015 Regulations"), the Committee of Management shall instruct the Scheme Actuary to prepare –

(a) a valuation of the Fund as at 31st December 2016, 31st December 2018 and 31st December 2021, and thereafter at intervals of not more than 3 years;

(b) a report in respect of the valuation; and

(c) a rates and adjustments certificate, and

those documents shall collectively be referred to as the "valuation".

1.5 Under Regulation 3(2) of the 2015 Regulations, in preparing the actuarial valuation the Scheme Actuary must have regard to –

(a) the existing and prospective liabilities of the Fund in relation to the respective schemes; and

(b) the funding strategy statement (as revised from time to time).

1.6 Under Regulation 3(3) of the 2015 Regulations, the valuation must be presented to the (Chief) Minister by the Committee before the expiry of 15 months after the valuation date, and the Minister shall lay a copy of the valuation before the States as soon as practicable thereafter.

1.7 The Funding Strategy Statement which sets out the funding strategy in respect of PECRS and PEPS has been prepared by the Scheme Actuary. Following review by the Employer's Actuary, the Funding Strategy Statement was agreed by the Minister for Treasury and Resources and finalised in October 2017. The Funding Strategy Statement sets out the high-level principles to be used when undertaking an actuarial valuation, and has been used by the Scheme Actuary to undertake this valuation.

1.8 The attached actuarial valuation report outlines the results of the 2016 actuarial valuation conducted by the Scheme Actuary, together with the assumptions used. As required by Regulation 3(4)(a) of the 2015 Regulations, the valuation report separately identifies the assets and liabilities of PECRS and PEPS.

2. PECRS Actuarial Valuation Results

2.1 The main conclusions from the PECRS actuarial valuation as at 31st December 2016 are –

- there was a deficit of £68.5 million based on the assumptions adopted for the valuation, which is equivalent to a funding ratio of 97.0% (compared to 105% at the 2013 actuarial valuation);

- in accordance with the Funding Strategy Statement and with the agreement of the Chief Minister, the Committee of Management will not make any adjustments to benefits, as the past service funding ratio is within the "funding corridor" of 95% to 105%;

- since the valuation date, the funding position of PECRS has improved and at the date of signing the actuarial valuation in February 2018 the Scheme Actuary estimated the funding level was around 100%.

2.2 The actuarial valuation of PECRS is undertaken using best estimate assumptions. In the period since the last actuarial valuation as at 31st December 2013, the past service funding position has worsened. This has been due to changes in the assumed future investment returns relative to inflation, partially offset by lower actual pension and salary increases than assumed in previous valuation, higher investment returns than expected, and favourable demographic experience.

2.3 During the period since the last actuarial valuation, 31st December 2013 to 31st December 2016, the investment strategy adopted by the Committee of Management has achieved returns that have exceeded the long-term investment assumption assumed at the previous valuation. The investment strategy has exceeded the investment return assumed at the 2013 valuation by £68 million over the 3-year period.

2.4 Market expectations are that investment returns will be lower, relative to inflation in the future. In line with the approach taken at previous valuations, the Scheme Actuary has adopted a market-led approach to setting financial assumptions. The reduction in expected investment returns relative to inflation has worsened the past service funding position of PECRS.

2.5 Regulation 17(4) of the 2015 Regulations states –

(4) If the Actuary certifies that either or both of the respective schemes are operating within their maximum and minimum funding levels, and the Committee determines either that –

(a) no adjustments are required in respect of any of the rates specified in the rates and adjustments certificate; or

(b) adjustments are required in respect of some or all of the rates,

the Committee shall within 15 months of the valuation date, seek the Minister's agreement to that determination.

The Scheme Actuary has certified that the valuation of PECRS as at 31st December 2016 is within the "funding corridor" of 95% to 105% specified in the regulations and the Committee determined that no adjustments to benefits are required. The Employers Actuary has confirmed that this is reasonable given the funding position is estimated to have since improved to around 100%.

3. PEPS Actuarial Valuation Results

3.1 The main conclusions from the PEPS actuarial valuation as at 31st December 2016 are –

- there was a deficit of £0.44 million based on the assumptions adopted for the valuation, which is equivalent to a funding ratio of 73.5%;

- that the small deficit has arisen due to the initial administration costs of setting up the scheme and that, in accordance with the transitional arrangements set out in the Funding and Valuation Regulations, this valuation will have no impact on the benefits payable or the contributions payable, and the deficit will be carried forward;

- since the valuation date, the funding position of PEPS has improved and the funding ratio is estimated to be above 100%.

3.2 Regulation 2(2)(iv) of the 2015 Regulations requires that the actuarial valuation of PEPS is undertaken using prudent assumptions. The prudent assumptions have been agreed by Committee of Management and the Minister for Treasury and Resources, following consultation with the Treasurer and review by the Employer's Actuary.

3.3 On the valuation date at the end of 2016, the PEPS scheme had been admitting new starters for just one year and had not accumulated significant assets. This was anticipated, and the 2015 Regulations were drafted to include provisions requiring the 2016 valuation to have no impact on scheme benefits.

4. Summary

4.1 The PECRS had a deficit of £68.5 million based on the assumptions adopted for the valuation, which is equivalent to a funding ratio of 97.0%. The PEPS had a deficit of £0.44 million based on the assumptions adopted for the valuation, which is equivalent to a funding ratio of 73.5%. Since the valuation date the funding position of both PECRS and PEPS has improved, and the Scheme Actuary has estimated that at the date of signing the valuation report, the funding ratio of PECRS was around 100% and the funding ratio of PEPS above 100%. It is recommended that –

- the PECRS deficit as at 31st December 2016 will be carried forward, as it is within the funding corridor prescribed in Regulations;
- the small PEPS deficit, in accordance with the transitional arrangements set out in the 2015 Regulations, will be carried forward.

Public Employees Pension Fund

Actuarial valuation at 31 December 2016

Prepared for	Committee of Management
Prepared by	Jonathan Teasdale
Date	23 February 2018
Signed	

Jonathan F. Teasdale

Jonathan Teasdale FIA
jonathan.teasdale@aon.com

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Executive Summary

The key conclusions from the actuarial valuation at 31 December 2016 are set out below.

We have carried out a valuation of the Public Employees Pension Fund ("the Fund") as at 31 December 2016 under Regulation 3 of the Public Employees (Pension Scheme) (Funding and Valuation) (Jersey) Regulations 2015 (the "Funding and Valuation Regulations").

The purpose of the valuation is to review the operation of the Fund since the previous valuation, and to report on the financial condition of the Fund and the adequacy or otherwise of the contributions to support the benefits of the Fund.

The assets of the Fund are used to provide pensions and other benefits under both the Public Employees Contributory Retirement Scheme (PECRS) and the Public Employees Pension Scheme (PEPS). As required by legislation, this valuation separately considers the funding positions of PECRS and PEPS.

The Funding Strategy Statement dated 31 October 2017 sets out the framework for the action to be taken at a valuation.

Public Employees Contributory Retirement Scheme

As required by the Funding and Valuation Regulations, the assumptions adopted for the PECRS valuation have been determined by the Actuary. The Actuary has determined the assumptions following consultation with the Treasurer, and having reached agreement with the Committee of Management and the Minister for Treasury and Resources. It has been confirmed that the assumptions adopted to determine the funding target for PECRS should be best-estimate assumptions.

Under best-estimate assumptions the future outcome is just as likely to be better or worse than assumed. The rationale for using best-estimate assumptions is discussed in Appendix 4.

In PECRS, there was a deficit of £68.5M based on the assumptions adopted for the valuation, which is equivalent to a **funding ratio** of 97.0%.

In accordance with the Funding Strategy Statement, subject to the agreement of the Chief Minister, the Committee of Management may determine that no adjustments to benefits are required to be made in PECRS if the past service funding ratio is within the "funding corridor" of 95% to 105%. The Committee of Management and Chief Minister have agreed that no adjustments to benefits are required following this valuation.

Public Employees Pension Scheme

PEPS was introduced on 1 January 2016 and new employees are now admitted into PEPS.

As required by the Funding and Valuation Regulations, the assumptions adopted for the PEPS valuation are prudent assumptions. The assumptions have been agreed by the Committee of Management and the Minister for Treasury and Resources, following consultation with the Treasurer.

In PEPS, there was a deficit of £0.44M based on the assumptions adopted for the valuation, which is equivalent to a **funding ratio** of 73.5%.

The small deficit in PEPS has arisen due to the initial administration costs of setting up the scheme.

In accordance with the transitional arrangements set out in the Funding and Valuation Regulations, this valuation will have no impact on the benefits payable from PEPS or the contributions payable to the Fund and the deficit will be carried forward.

Developments since the valuation date

Since the valuation date, the funding position of both PECRS and PEPS has improved. The **funding ratio** of PECRS is currently estimated to be around 100% and the **funding ratio** of PEPS is currently estimated to be above 100%.

The funding position of PECRS has improved primarily because investment returns since the valuation date have been above those assumed in the valuation. In addition, for PEPS, the contributions being paid are higher than the cost of accrual for the current membership and the excess contributions have removed the small deficit in cash terms at the valuation date.

Public Employees Pension Fund

Actuarial valuation at 31 December 2016

Contents

Introduction

This report has been prepared for the Committee of Management. It considers the financial position of the Fund as at 31 December 2016.

Legislation

The valuation has been carried out under Regulation 3 of the Public Employees (Pension Scheme) (Funding and Valuation) (Jersey) Regulations 2015 (the "Funding and Valuation Regulations").

The Funding and Valuation Regulations require:

- the overarching principles for the setting of assumptions for the valuation to be set out in the Funding Strategy Statement;
- the assumptions for PEPS to be prudent and to be agreed by the Committee of Management and the Minister for Treasury and Resources, following consultation with the Treasurer; and
- following consultation with the Treasurer, the assumptions for PECRS shall be determined by the Actuary, who will aim to have firstly reached agreement with the Committee of Management and the Minister for Treasury and Resources.

Under the legislation, a valuation of the Fund must be carried out as at 31 December 2016, 31 December 2018 and at least once every three years thereafter.

The results of the valuation are based on the Regulations of the Fund in force at the date of signature of this report.

Purpose

The purpose of the valuation is to report on the financial condition of the Fund. In accordance with the Funding and Valuation Regulations, this report:

- separately identifies the assets and liabilities of PECRS and PEPS;
- includes an assessment of whether any change in the funding levels is due to long-term trends of a demographic, investment or other nature; and
- includes an assessment of whether the accrual of future benefits under PECRS and PEPS is affordable within the cost cap of 24.75% of pensionable earnings.

Previous valuation

Our previous valuation report dated 31 October 2014 considered the financial position of PECRS as at 31 December 2013.

PEPS was introduced on 1 January 2016 and so this is the first valuation that includes PEPS.

Contributions since the previous valuation

Since the previous valuation contributions have continued to be paid at the rates specified in the Fund's Regulations from time to time.

Next valuation

The next valuation is due to be carried out as at 31 December 2018.

Scope of advice

The report is prepared for the Committee of Management. Please see Appendix 1 for further details of the scope of advice.

Words used

Our report includes some technical pension terms. The words shown in **bold print** are explained further in the glossary.

For brevity, we have also used the following shorthand:

Shorthand	What it means
Jersey RPI	All Items Retail Prices Index for Jersey
Regulations	See Appendix 2
Salaries, Service	As defined in the Regulations
Fund	Public Employees Pension Fund
PECRS	Public Employees Contributory Retirement Scheme (referred to within the Funding and Valuation Regulations as the “1967 Scheme”)
PEPS	Public Employees Pension Scheme (referred to within the Funding and Valuation Regulations as the "Scheme")
Valuation date	31 December 2016

Snapshot view

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

Developments since the previous valuation

This section summarises the key developments since the previous valuation.

The financial health of the Fund depends fundamentally on how much cash is paid in, how well the assets perform, and on what benefits are paid out. The key developments since the previous valuation therefore include:

- The amount of contributions paid to the Fund.
- The actual returns on the Fund's investments.
- Whether there are changes to future expectations of benefit payments or investment returns.

These items are discussed later in this report. As well as these high level points, please note the developments below.

Dealing with the 2013 valuation surplus – pension increases fully restored

The valuation of PECRS as at 31 December 2013 revealed a surplus of £92.7M. This assumed that future increases in pensions and deferred pensions would be based on the annual increase in the Jersey RPI minus 0.15% p.a..

Under the Regulations in force at the 2013 valuation, the Committee of Management were required to restore any previous reduction or cancellation of increase in pension or deferred pension which had taken effect in the previous six years.

The surplus remaining after the restoration of pension increases was £54.6M (excluding the assets and liabilities in relation to the Jersey Post and Jersey Telecom ring-fenced funds). The remaining surplus was retained as a buffer against future adverse experience.

Amendments to Regulations

Significant changes were made to the Regulations governing the Fund with effect from 1 January 2016. The key changes included:

- Introduction of PEPS for new employees;
- Changes to valuation requirements, contributions and risk-sharing provisions;
- Confirmation of changes to the pre-1987 debt repayments which meant that the end date of the repayments by the States was brought forward from 31 December 2083 to 29 September 2053;
- An increase in the maximum amount of PECRS pension which can be commuted by members under the New Members or Existing Members Regulations, from 25% to 30% of pension.

A number of other minor amendments have been made to the Regulations but none of these changes have had a material impact on the funding position of the Fund.

Andium Homes

Andium Homes Limited as was admitted as a participating employer in June 2014. At that time, a lump sum payment of £1.9M was paid into the Fund in respect of Andium Homes' share of the pre-1987 debt.

Ports of Jersey

Ports of Jersey Limited was admitted as a participating employer in September 2015. At that time, a lump sum payment of £20.8M was paid into the Fund in respect of Ports of Jersey's share of the pre-1987 debt.

Cessation of JTL and JPL ring-fenced funds

The ring-fenced fund arrangements in respect of Jersey Post and Jersey Telecom ceased with effect from 1 October 2015 and the assets and liabilities were added to the PECRS assets and liabilities at that date.

Information used

The information used for the valuation is summarised below.

To carry out the valuation, we have obtained information separately for PECRS and PEPS on:

- The assets held by the Fund.
- How benefit entitlements are calculated.
- Member data.

This section sets out a high level summary of the information used. Further details are included in Appendices 2 and 3.

Assets

The Fund's assets had an audited market value of £1,935.1M at the valuation date.

The asset value for PECRS was £1,933.9M and the asset value for PEPS was £1.2M.

For further details, please see the Asset Data section.

Benefits valued

Members are entitled to benefits defined in the Regulations. We are not aware of any established practice of granting additional discretionary benefits and no allowance for such benefits has been made in this valuation. A summary of the benefits valued is set out in Appendix 2.

Pre-1987 debt

In 2003, agreement was reached between the Policy & Resources Committee (Act of Committee dated 20 November 2003) and the Committee of Management for dealing with the pre-1987 debt. By "pre-1987 debt" we mean the shortfall transferred to the PECRS arising from the changes made to the PECRS in 1987.

The contribution framework agreed between the Policy & Resources Committee and the Committee of Management for dealing with the pre-1987 debt was as follows:

- The employers' overall contributions were increased with effect from 1 January 2002, from 15.16% to the equivalent of 15.60% of members' salaries.
- Of this sum, the equivalent of 2.0% of members' salaries was converted into a cash sum increasing each year in line with the average pay increase of PECRS members employed by the States, payable for 82 years (this stream of payments being earmarked to pay off the pre-1987 debt). On this basis, the employers' contribution rate was re-expressed with effect from 1 January 2002 as 13.60% of members' salaries, plus an appropriately defined indexed cash sum paid over a finite period.
- The employers' contribution rate was due to revert to 15.16% of members' salaries from 1 January 2084.

The provisions of the agreement were reflected in changes to the PECRS Regulations approved by the States of Jersey on 27 September 2005. Full details of the agreement are included in Appendix 10.

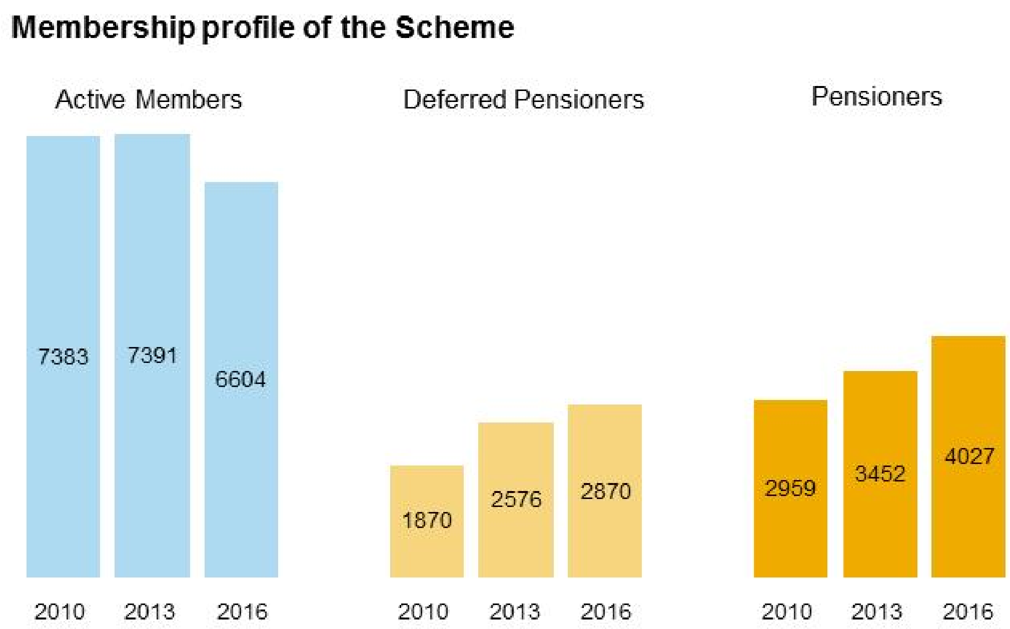
The Regulations were amended with effect from 1 January 2016 to reflect additional repayments of £3M p.a. from 2016 and a revised end date for the repayments by the States of 29 September 2053.

Membership data

The valuation calculations use membership data supplied by the Dedicated Pensions Unit of the States Treasury Department at 31 December 2016.

The following chart illustrates the membership profile of PECRS.

PECRS



Note: The number of pensioners shown above excludes spouses and dependants.

The illustration shows that there has been an increase in the number of pensioners and deferred pensioners since the last valuation, but a reduction in the number of actives.

PEPS

As at 31 December 2016, there were 558 active members and 20 deferred pensioners in PEPS.

Please see Appendix 3 for a comprehensive summary of the membership data.

Reliability of information

We have carried out general checks to satisfy ourselves that:

- The information used for this valuation is sensible compared with the information used for the previous valuation.
- The results of this valuation can be traced from the results of the previous valuation.

However, the results in our report rely entirely on the accuracy of the information supplied.

Valuation approach

This section describes the approach taken for the valuation calculations.

Adequacy of contributions

The contributions to the Fund are specified in the Regulations governing the Fund and are paid so as to provide the benefits which will become payable to members when they retire or otherwise leave the Fund.

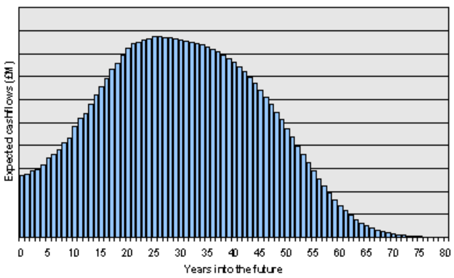
The factors affecting the Fund's finances are open to changing circumstances. Consequently it is necessary to review the operation of the Fund from time to time, by means of an actuarial valuation, to determine the adequacy or otherwise of the contributions to support the benefits payable under the Fund and to determine the affordability of future pension increases from the Fund.

Funding target and funding objective

In our review we start with the known facts about the Fund at the valuation date, i.e. the benefit and contribution structure, the membership and the assets. We then must make assumptions about the factors affecting the Fund's future finances such as investment returns, pay increases and rates of mortality, leaving service and retirement.

In order to calculate the value placed on the benefits, the benefits paid out by the Fund are estimated for each year into the future. The estimated benefit payments are then 'discounted back' to the valuation date using an assumed investment return known as the discount rate.

The benefit payments from the Fund are expected to be made for a very long period and Fund cashflows are linked to future levels of inflation – the chart below shows the cashflow pattern for a typical pension scheme.



For the purpose of assessing whether the contributions are adequate to support the current benefits, it is appropriate to set a "**funding target**" and "funding objective".

In line with the Funding Strategy Statement:

- The **funding target** is that the assets should be sufficient over the long term to support the benefits payable from the schemes in respect of service up to the valuation date.
- The funding objective is that the **funding target** should be met and that any variations in outcome should be dealt with following each valuation in accordance with the Regulations and the Funding Strategy Statement, by adjustments to contributions and/or

benefits or by carrying forward surpluses and deficits where appropriate.

At the previous valuation, the funding target also included an adjustment to reflect the anticipated difference between contributions and liabilities in respect of service after the valuation date. In line with the Funding Strategy Statement, this adjustment is no longer included within the funding target and the adequacy of contributions to cover future benefit accrual is now considered separately.

Valuation methods

A description of the methods used for the main valuation calculations is set out in Appendix 5.

Valuation assumptions

The results of a valuation are very sensitive to the assumptions made. The financial assumptions have a significant effect on the results of a valuation. However, the other assumptions, particularly the mortality assumptions, are also very important.

Use of market-led financial assumptions

In both this valuation, and the previous valuation of PECRS, we have adopted a market-led approach, which involves:

- market-led financial assumptions for valuing the liabilities, future contributions and future pre-1987 debt repayments for PECRS; and
- valuing the assets at market value.

Prudent assumptions for PEPS

To ensure there is prudence (caution) within the assumptions, the Funding Strategy Statement provides for the discount rate for PEPS to be determined such that the probability of the actual investment return on the PEPS assets being higher than the discount rate over the 30 year period from the valuation date is at least 60%.

For this valuation it has been agreed that the discount rate should be set such that the probability of the actual investment return being higher than the discount rate is equal to 60%.

All assumptions for PEPS other than the discount rate are intended to be best-estimate assumptions i.e. for all assumptions other than the discount rate, the future outcome is just as likely to be better or worse than assumed. The caution within the assumptions for PEPS is therefore captured entirely within the choice of discount rate.

Best-estimate assumptions for PECRS

It has been agreed that the assumptions adopted to determine the funding target for PECRS should be best-estimate assumptions. The rationale for using best-estimate assumptions for PECRS is summarised in Appendix 4.

In contrast to the previous valuation, where different discount rates were assumed in the period before and after retirement, we have structured the discount rate as follows:

- The initial discount rate is equal to the best-estimate investment return based on the actual assets held at the valuation date.
- This discount rate applies until the date when PECRS is anticipated to start to reduce risk in the investment strategy, at which point it is assumed the discount rate will reduce gradually until the point in time at which the long-term investment strategy is reached.
- The long-term discount rate is based on the best-estimate return on the assumed long-term investment strategy.

Key financial assumptions

The following tables show the key financial assumptions used at this valuation and the assumptions used at the previous valuation of PECRS for comparison. Important points to bear in mind are:

- The differences between the rates have a bigger impact on the results of the valuation than the absolute levels of each assumption.
- The assumptions were derived from market yields at the valuation date to ensure compatibility with the market value of the assets.

The derivation of the financial assumptions is compatible with taking assets at market value.

	2016	2013
Discount rate for PECRS	For the period to 31 December 2021: 5.0% p.a. then gradually declining over the following 20 years to 3.8% p.a.	7.3% p.a. in the period before retirement 5.6% p.a. in the period after retirement
Discount rate for PEPS	5.0% p.a.	-
Jersey RPI	2.85% p.a.	3.4% p.a.
Increases to pensions in payment and deferred pensions	2.85% p.a.	3.25% p.a.
General salary increases (in addition to promotional increases)	3.85% p.a.	4.4% p.a.

Full details of the financial assumptions used for this valuation, and the reasons for the changes compared to the previous valuation, are set out in Appendix 6 to this report.

Comparison of financial assumptions with 2013 valuation

Overall (ignoring any changes to the demographic assumptions), the financial assumptions we have used for PECRS result in a higher deficit than if the assumptions used for the 2013 valuation had been retained. The main reason for this is the reduction in the discount rate relative to inflation.

Demographic assumptions

Other important assumptions used to value the liabilities include:

- the assumed future rates of mortality;
- the allowance made for the extent to which members will choose to exchange pension for a cash lump sum at retirement (at the rate of £13.50 cash lump sum for each £1 annual pension given up);
- the allowance for additional increases to salaries due to promotion, service or seniority; and
- the allowance made for the range of ages at which members in each membership category will retire in future.

Comparison of demographic assumptions with 2013 valuation

We have reviewed the extent to which the demographic assumptions adopted for the 2013 valuation of the Fund remain appropriate for the current valuation as at 31 December 2016 after analysing recent Fund experience and taking account of other relevant data. Full details of the demographic assumptions used for this valuation, and the reasons for any changes compared to the previous valuation, are set out in Appendix 7 to this report.

In the light of this review we have made a number of changes to the demographic assumptions. The overall net effect of these changes is to reduce the deficit.

Regulatory framework

The Regulations specify the broad framework for the action to be taken at a valuation. A summary of the framework is set out below, subject to transitional arrangements for the 2016 and 2018 valuations:

- Subject to the agreement of the Chief Minister, the Committee of Management may determine that no adjustments to benefits or contributions are required to be made in the PECRS and/or PEPS if the funding level of the relevant scheme is within the "funding corridor" of 95% to 105%;
- If the funding level of either or both the respective schemes is outside the "funding corridor" then the Actuary shall determine the adjustments required to benefits and contributions to restore either or both of the respective schemes to a 100% funding level, unless the Committee of Management and Chief Minister agree that no adjustments are required. The current policy agreed between the Committee of Management and the Chief Minister is that if the funding level is over 100% based on the maximum annual benefit increases, no adjustment will be made; surpluses will be retained as a cushion against later adverse experience or to reduce investment risk.
- Employer contributions may be adjusted subject to a cap of 16.5% of total pensionable

earnings;

- Member contributions may be adjusted subject to the weighted average contribution rate for the membership as a whole being not greater than the cap of 8.25% of pensionable earnings (unless an increase in this cap is agreed following consultation with relevant trade unions, as defined in the Funding and Valuation Regulations);
- The PEPS accrual rate may be adjusted provided it is not greater than 1/66th;
- The revaluation rate in service for the PEPS may be adjusted subject to a minimum of 50% of (Jersey RPI increase + 1%) and a maximum of 100% of (Jersey RPI increase + 1%)
- The annual pension increase for the PEPS may be adjusted subject to a minimum of 50% of Jersey RPI increase and a maximum of 100% of Jersey RPI increase; and
- The annual pension increase for the PECRS may be adjusted subject to a minimum of 0% of Jersey RPI increase and a maximum of 100% of Jersey RPI increase.
- If the change in Jersey RPI is negative, the Jersey RPI increase will be taken to be 0% for the purpose of calculating pension increases and revaluations in service. In this situation, pension increases will therefore be 0% and the revaluation rate will be between 0.5% and 1%.

For this valuation, the transitional arrangements set out in the Regulations provide that there will be no impact on the contributions payable to the Fund and no changes to the benefits payable from PEPS, but the future pension increases payable from PECRS could be amended.

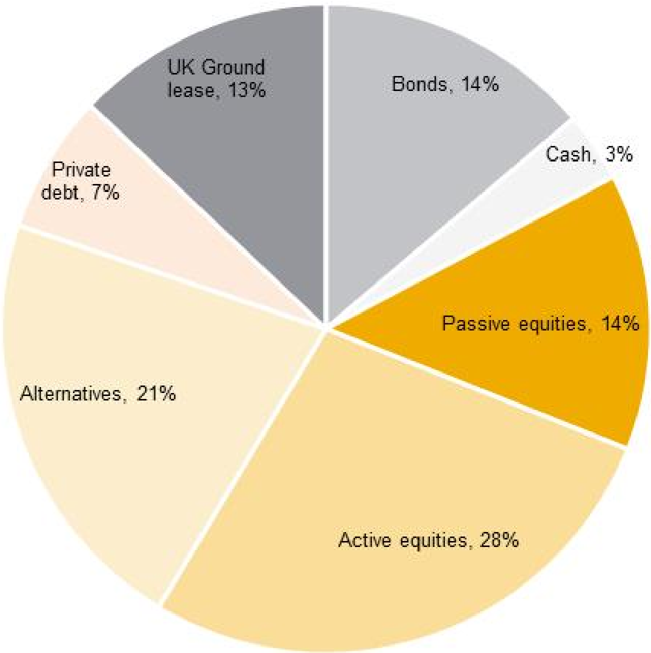
The detail of how it has been agreed the framework will apply in practice is documented in the Funding Strategy Statement.

Asset data

The audited accounts for the Fund for the year ended 31 December 2016 show the assets were £1,935.1M.

The Fund's assets are held separately from those of the States of Jersey. The audited Fund accounts for the year ended 31 December 2016 show its assets as £1,935.1M.

The assets can be categorised as follows:



PECRS

The value of assets allocated to PECRS at the valuation date (before addition of the pre-1987 debt) was £1,933.9M.

In addition, the value placed on the pre-1987 debt at the valuation date was £288.0M.

PEPS

The value of assets allocated to PEPS at the valuation date was £1.2M.

Valuation results - PECRS

There was a past service deficit in PECRS at 31 December 2016 of £68.5M, equivalent to a past service funding ratio of 97.0%.

A detailed breakdown of the results of the main valuation calculations is given below.

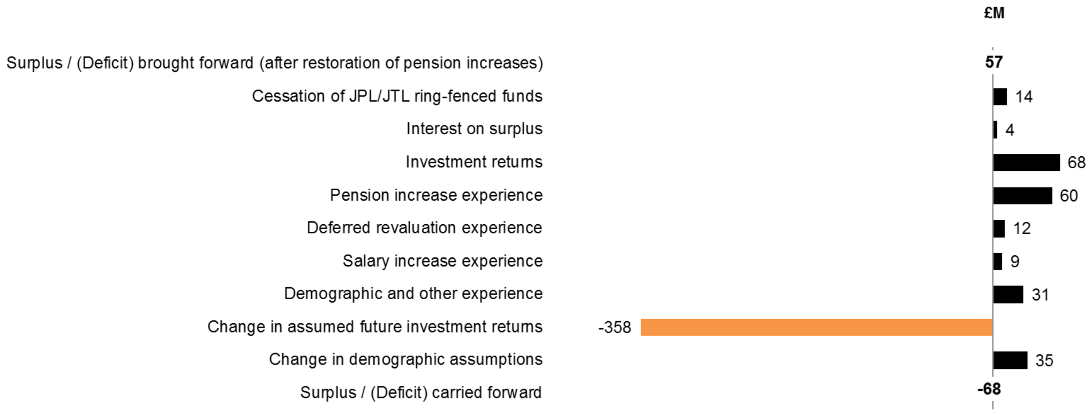
	£M
Current actives	1,011.1
Current deferred pensioners	249.2
Current pensioners	1,030.0
Value of past service benefits	**2,290.4**
Value of assets	1,933.9
Value of future pre-1987 debt repayments	288.0
Total value of assets	**2,221.9**
Past service surplus / (deficit)	**(68.5)**
Past service funding ratio	**97.0%**

The above table shows there is a past service deficit of £68.5M at 31 December 2016, equivalent to a **funding ratio** of 97.0%.

Reasons for change in funding position

The past service surplus brought out at the 31 December 2013 valuation after restoration of pension increases at that valuation, and disregarding the assets and liabilities of the JPL and JTL ring-fenced funds which were at that point being tracked separately, was £57M.

The chart below shows the key reasons for the change in past service funding position between 31 December 2013 and 31 December 2016.



The analysis shows that the past service funding position has worsened since the previous valuation due to changes in assumed future investment returns relative to inflation, partially offset by other items, especially:

- lower actual pension and salary increases than assumed at the previous valuation;
- higher investment returns than assumed at the previous valuation;
- favourable demographic and other experience; and
- changes to the demographic assumptions.

We do not see the worsening in funding level since 31 December 2013 as being indicative of a long-term trend. The key change in the financial assumptions has been to make reduced allowance for future investment returns relative to inflation but in contrast the actual performance of the investments since the previous valuation has been better than assumed and the other experience affecting PECRS has also been favourable. There has also been further investment outperformance since the valuation date and we estimate that the past service funding ratio is now around 100%. The allowance for investment returns will be reviewed at future PECRS valuations.

Valuation results - PEPS

Based on the assumptions set out in the Valuation Approach section, the PEPS deficit at 31 December 2016 is £0.44M, equivalent to a funding ratio of 73.5%.

A detailed breakdown of the results of the main valuation calculations is given below.

	£M
Current actives	1.61
Current deferred pensioners	0.05
Value of past service benefits	**1.66**
Total value of assets	**1.22**
PEPS surplus / (deficit)	**(0.44)**
Funding ratio	**73.5%**

The above table shows there is a past service deficit of £0.44M at 31 December 2016, equivalent to a **funding ratio** of 73.5%.

The small deficit in PEPS has arisen due to the initial administration costs of setting up the scheme.

The funding position of PEPS has improved since the valuation date such that the **funding ratio** is currently estimated to be above 100%. This is primarily because the contributions being paid are higher than the cost of accrual for the current membership and the excess contributions have removed the small deficit in cash terms at the valuation date.

Risks and sensitivity analysis

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

This section comments on some of the key risks faced by the Fund. It concentrates on the deterioration to the Fund's finances that may arise in various hypothetical downside scenarios (where the actual experience is less favourable than the assumptions made at this valuation).

For PECRS, as the assumptions used to determine the **funding target** are best-estimate assumptions, it needs to be recognised that upside scenarios (where the experience is more favourable than the assumptions) are just as likely as downside scenarios. For PEPS, as the assumptions used to determine the **funding target** are prudent assumptions, upside scenarios are more likely than downside scenarios.

Key risks

Here is a recap of some of the key factors that could lead to deficiencies in future:

- Investment performance—the return achieved on the Fund's assets may be lower than allowed for in the valuation.
- Investment volatility—the assets may not move in line with the value of benefits. The Fund invests in assets (e.g. equities) that are expected to achieve a greater return than the assets (i.e. index-linked gilts and investment grade derivatives) that most closely match the expected benefit payments. The less matched the investment strategy is, the greater the risk that the assets may not move in line with the value of benefits.
- Mortality—members could live longer than foreseen, for example, as a result of a medical breakthrough. This would mean that benefits are paid for longer than assumed, resulting in a higher cost of providing the benefits.
- Options for Members—members may exercise options resulting in unanticipated extra costs. For example, members could swap less of their pension for cash at retirement than is assumed.

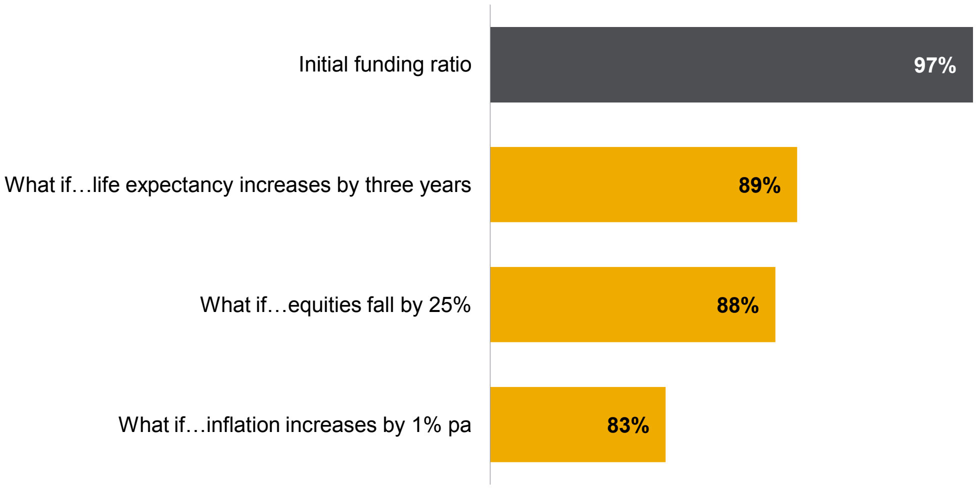
Quantifying the risks

To help the Committee of Management understand the susceptibility of the funding position on the valuation assumptions, we have considered the hypothetical impact on the liabilities of the following one-off step changes.

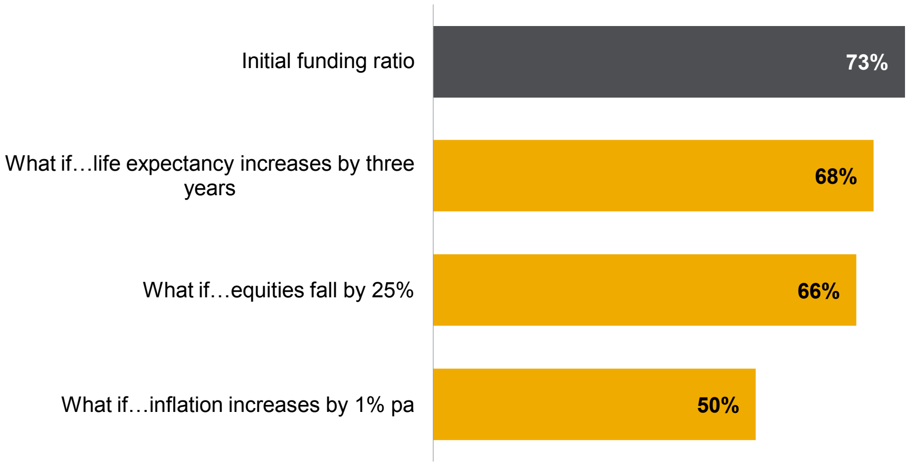
- Life expectancy at age 60 is three years greater than anticipated (with corresponding increases at other ages).
- The market value of equities falls by 25% (with no change in bond markets).
- Inflation is 1% p.a. higher than assumed (with nominal expected returns on the Fund's assets unchanged).

Please see the charts below for the PECRS and PEPS results.

PECRS



PEPS



The accrued benefits position is similarly sensitive to these factors.

The scenarios considered are not "worst case" scenarios, and could occur in combination (rather than in isolation). Opposite step changes, such as what happens if inflation reduces by 1% p.a. for example, would improve the funding position by broadly similar amounts to the reductions identified above.

Investment strategy

The Fund's liabilities are influenced by Jersey inflation either directly via pension increases or indirectly via pay increases. The assets that most closely match the Fund's liabilities are index-linked gilts and investment grade derivatives. However, a large proportion of the Fund's assets are invested in asset classes such as equities which are expected to produce higher returns over the long term than those more closely matching assets.

The Committee of Management recognises the degree of risks, as well as the potential rewards, that this holds for the Fund. In particular the financial position of the Fund can be affected by sudden (or gradual) changes in market values of return seeking assets, changes in expected future returns and/or changes in inflation.

The investment strategy of the Fund is set by the Committee of Management and is kept under regular review.

Pre-1987 debt repayments for PECRS

The PECRS valuation results rely on the pre-1987 debt repayments being repaid over an appropriate period.

Implications

The analysis in this section emphasises that the Fund is highly susceptible to:

- Equity markets falling or inflation expectations rising. This risk arises because the Fund is not invested in the assets that most closely match the expected future cashflows (i.e. index-linked gilts and investment grade derivatives); and
- Members living longer than expected.

Summary and conclusions

PECRS has a deficit of £68.5M at the valuation date.

PEPS has a deficit of £0.44M at the valuation date.

The headlines at the valuation date are:

- In PECRS there is a past service deficit of £68.5M, corresponding to a funding ratio of 97.0%.
- In PEPS there is a past service deficit of £0.44M, corresponding to a funding ratio of 73.5%.

Developments since the valuation date

Since the valuation date, the funding position of both PECRS and PEPS has improved. The **funding ratio** of PECRS is currently estimated to be around 100% and the **funding ratio** of PEPS is currently estimated to be above 100%.

The funding position of PECRS has improved primarily because investment returns since the valuation date have been above those assumed in the valuation. In addition, for PEPS, the contributions being paid are higher than the cost of accrual for the current membership and the excess contributions have removed the small deficit in cash terms at the valuation date.

Actions arising from the valuation

PECRS

In accordance with the Funding Strategy Statement, subject to the agreement of the Chief Minister, the Committee of Management may determine that no adjustments to benefits are required to be made in PECRS if the past service funding ratio is within the "funding corridor" of 95% to 105%.

Given the improvement in funding position since the valuation date, our view is that no adjustments to benefits are required. The Committee of Management and Chief Minister have agreed that no adjustments to benefits are required following this valuation.

PEPS

In accordance with the transitional arrangements set out in the Funding and Valuation Regulations, this valuation will have no impact on the benefits payable from PEPS or the contributions payable to the Fund. The deficit will be carried forward.

Affordability of future benefits

Under the Funding and Valuation Regulations, we are required to include an assessment of whether the accrual of future benefits under PECRS and PEPS is affordable within the overall long-term cost cap set out within the Regulations.

As the significant majority of current active members continue to accrue benefits in PECRS, the combined cost of accrual in PECRS and PEPS is currently greater than the overall cost cap. However, the contributions actually being paid do not exceed the cost cap and, under the transitional provisions in the Regulations that govern this valuation, no action is required at this valuation. Most PEPS members will start to accrue benefits in PEPS with effect from 1 January 2019, which will reduce the cost of benefit accrual across the membership as a whole from that point on.

We will reassess whether the accrual of future benefits under PECRS and PEPS is affordable within the overall cost cap as part of the valuation as at 31 December 2018.

Rates and adjustments certificate

The rates and adjustments certificate required under the Funding and Valuation Regulations is attached as Appendix 11. To the extent that the relevant rates are not prescribed within the Regulations, the rates have been calculated based on the actuarial assumptions set out in this valuation.

Appendix 1: Scope of advice

This report is prepared under the terms of the Actuary Agreement dated 14 July 2016 between Aon Hewitt Limited and the Committee of Management, on the understanding that it is solely for the benefit of the addressee.

Unless prior written consent has been given by Aon Hewitt Limited, this report should not be disclosed to or discussed with anyone else unless they have a legal right to see it.

Notwithstanding such consent, Aon Hewitt Limited does not accept or assume any responsibility to anyone other than the addressee of this report.

Appendix 2: Provisions of scheme

Regulations

This valuation has been carried out under Regulation 3 of the Public Employees (Pension Scheme) (Funding and Valuation) (Jersey) Regulations 2015 (the "Funding and Valuation Regulations").

The Regulations require each valuation of the Fund to separately identify the assets and liabilities of the Public Employees Contributory Retirement Scheme ("PECRS") and the Public Employees Pension Scheme ("PEPS").

The Funding and Valuation Regulations require:

- the overarching principles for the setting of assumptions for the valuation to be set out in the Funding Strategy Statement (the "FSS");
- the assumptions for PEPS to be prudent and to be agreed by the Committee of Management and the Minister for Treasury and Resources, following consultation with the Treasurer; and
- following consultation with the Treasurer, the assumptions for PECRS shall be determined by the Actuary, who will aim to have firstly reached agreement with the Committee of Management and the Minister for Treasury and Resources.

PECRS is governed by Regulations made under the Public Employees (Retirement) (Jersey) Law, 1967 (as amended). At the valuation date, the provisions of the PECRS were specified in the following Regulations, namely:

- The Public Employees (Contributory Retirement Scheme) (Former Hospital Scheme) (Jersey) Regulations, 1992 (as amended) - known as the FHS Regulations
- The Public Employees (Contributory Retirement Scheme) (Jersey) Regulations, 1967 (as amended) - known as the 1967 Regulations
- The Public Employees (Contributory Retirement Scheme) (Existing Members) (Jersey) Regulations, 1989 (as amended) - known as the Existing Members Regulations
- The Public Employees (Contributory Retirement Scheme) (New Members) (Jersey) Regulations, 1989 (as amended) - known as the New Members Regulations.

In addition, the provisions of PECRS which are common to each of the above Regulations are specified in the Public Employees (Contributory Retirement Scheme) (General) (Jersey) Regulations, 1989 (as amended) - known as the General Regulations.

PEPS is governed by Regulations made under the Public Employees (Pensions) (Jersey) Law 2014 (as amended). At the valuation date, the provisions of PEPS were specified in the:

- Public Employees (Pension Scheme) (Membership and Benefits) (Jersey) Regulations 2015

The following Regulations apply to both PECRS and PEPS:

- Public Employees (Pension Scheme) (Administration) (Jersey) Regulations 2015

History of PECRS

All members joining PECRS after 30 August 1989 (1 January 1990 for former members of the Former Hospital Scheme) are subject to the New Members Regulations. However, members joining PECRS on or before that date were given the following options:

a) Members who joined the Scheme prior to 1 January 1988 (1 January 1990 for former members of the Former Hospital Scheme) were given the option either to elect for benefits under the Existing Members Regulations or the New Members Regulations, or to remain subject to the 1967 Regulations (FHS Regulations for former members of the Former Hospital Scheme).

b) New entrants to the Scheme between 1 January 1988 and 30 August 1989 inclusive had the choice of benefits under the Existing Members Regulations or the New Members Regulations.

c) Special arrangements were made for employees who were not previously eligible for membership of either the Scheme or the Former Hospital Scheme (e.g. part-timers).

Main features

The main features of the Fund in force at the valuation date are summarised on the following pages where the term "uniformed" members includes members of the Police, Fire, Prison, Airport Fire Service, Port Control Unit, Air Traffic Control and Emergency Ambulance Services.

Main features of the Fund - PECRS

	1967 or FHS Regulations	**Existing Members or New Members Regulations**
Normal Retiring Age		
"Uniformed" Members	55 or 60 as appropriate	55 or 60 as appropriate
"Ordinary" Members	65 (males) 60 (females)	65 (males and females)
Average Salary	Average salary received during the 3 years prior to retirement	Salary received in best successive 365 days during the 3 years prior to retirement

Note: Normal Retiring Age was increased to age 60 for prison officers with effect from 1 February 2013. The existing early retirement options were retained for those prison officers employed before 1 February 2013.

	1967 or FHS Regulations	Existing Members or New Members Regulations
Normal Retirement Pension		
"Uniformed" Members	1/45th of average salary for each year of reckonable service Note: "Uniformed" members cannot be subject to the FHS Regulations	Existing Members Regulations 1/45th of average salary for each year of pensionable service New Members Regulations 1/60th (or 1/70th for category C prison officers) of average salary for each year of pensionable service
"Ordinary" Members	FHS Regulations (females) 1/80th of average salary for each year of reckonable service 1967 & FHS Regulations (males) 1/60th of average salary for each year of reckonable service	Existing Members Regulations 1/60th of average salary for each year of pensionable service New Members Regulations 1/80th of average salary for each year of pensionable service
Cash at retirement	FHS Regulations (females) A tax free cash sum of 3/80ths of average salary for each year of reckonable service 1967 & FHS Regulations (males) Not available	Option to exchange up to 30% of commencing pension for a tax free cash sum of £13.50 for each £1 of pension given up.
Optional Retirement	Any time up to 5 years before normal retiring age subject to 10 years' reckonable service Note: Under the FHS Regulations, the prior approval of the employer is required	Generally any time up to 5 years before normal retiring age subject to 10 years' pensionable service, but in certain circumstances special provisions apply Non-uniformed members can retire after age 60 if they have completed 2 years' qualifying service. Members who became Category A members on or after 1 March 2009 may not retire before age 55. Members first employed on or after 1 January 2006 who opt to retire before normal retiring age will have their pension reduced by 2.4% for each year the pension is being taken early.

	1967 or FHS Regulations	Existing Members or New Members Regulations
Ill-Health Retirement	Subject to 10 years' reckonable service, immediate benefits on ground of serious ill health or incapacity. Benefits based on reckonable service up to date of retirement only	Subject to 2 years' qualifying service, immediate benefits on grounds of serious ill health or incapacity. Benefits based on enhanced pensionable service in most cases
Death in Service	1. Cash sum – paid to spouse, child, dependant or estate according to circumstances: a) Less than 5 years' reckonable service: a refund of contributions with 3% p.a. interest** b) At least 5 years' reckonable service: one year's current salary or a refund of contributions with 3% p.a. interest**, whichever gives the greater amount	1. Cash sum – paid to spouse, child, dependant or estate according to circumstances: a) Less than 5 years' qualifying service: a cash sum of 2/5ths of current salary for each year of service b) At least 5 years' qualifying service: a cash sum of twice current salary
Death in Service (continued)	2. Widow's Pension Subject to 10 years' reckonable service: 50% of member's pension, based on salary at death and reckonable service to normal retiring age 3. Dependant's Pension None	2. Spouse's Pension (widow/widower/civil partner) Subject to 2 years' qualifying service: 50% of member's pension, based on salary at death and pensionable service to normal retiring age 3. Dependant's Pension Subject to 2 years' qualifying service: an amount equal to a spouse's pension may be paid to an adult dependant (male or female) – except that no dependant's pension can be awarded where a spouse's pension is payable

	1967 or FHS Regulations	Existing Members or New Members Regulations
	4. Children's Pension Subject to 10 years' reckonable service: a flat rate allowance of £100 p.a. (1967 Regulations) or £80 p.a. (FHS Regulations) per child, if there is a widow. If the spouse is also deceased, or on the subsequent death of the spouse, the allowance is £150 p.a. (1967 Regulations) or £110 p.a. (FHS Regulations) per child ** less 10%, being the tax levied by the Comptroller of Income Tax in regard to tax relief which may have been enjoyed when the contributions were paid	4. Children's Pension Subject to 2 years' qualifying service: a pension is payable to each eligible child. The total payable is restricted to the equivalent of the spouse's pension, but no one child may receive more than half of that sum. The child's pension is doubled if a spouse's or dependant's pension is not payable.
Death after Retirement	1. Widow's Pension From date of death, 50% of member's pension	1. Spouse's Pension (widow/widower/civil partner) From date of death, 50% of member's pension, ignoring any reduction for lump sum taken at retirement.
Death after Retirement (continued)	2. Dependant's Pension None	2. Dependant's Pension An amount equal to a spouse's pension may be paid to an adult dependant (male and female) – except that no dependant's pension can be awarded where a spouse's pension is payable
	3. Children's Pension Provided retirement is due to ill health: a flat rate allowance of £100 p.a. (1967 Regulations) or £80 p.a. (FHS Regulations) per child, if there is a widow. If the spouse is also deceased, or on the subsequent death of the spouse, the allowance is £150 p.a. (1967 Regulations) or £110 p.a. (FHS Regulations) per child	3. Children's Pension A pension is payable to each eligible child. The total payable is restricted to the equivalent of the spouse's pension, but no one child may receive more than half that sum. The child's pension is doubled if a spouse's or dependant's pension is not payable

	1967 or FHS Regulations	Existing Members or New Members Regulations
Leaving Service	Refund of contributions with 3% p.a. interest** or subject to 10 years' reckonable service and over age 50 (45 in the case of women and "uniformed" members) a deferred pension (and, for women under FHS Regulations, a deferred cash sum) payable at normal retiring age or a transfer value payable to a new employer's pension scheme or to a personal pension scheme	Refund of contributions with 3% p.a. interest** (not available if joined after 1 August 2000 and left with 2 or more years' qualifying service) or subject to 2 years' qualifying service at any age: a deferred pension payable at age 60 or normal retiring age, if earlier or a transfer value payable to a new employer's pension scheme or to a personal pension scheme
	** less 10%, being the tax levied by the Comptroller of Income Tax in regard to tax relief which may have been enjoyed when the contributions were paid	
Voluntary Early Retirement	Subject to being over age 55 (or 50 in special circumstances) and not being entitled to an immediate pension from the Scheme: the employer may offer a supplementary pension, equal to the member's deferred pension entitlement (which may be enhanced), payable until the date the deferred pension is due, provided that: a) the member has volunteered to retire in consequence of abolition of office, or to make possible the continued employment of another member of staff, or in the interests of efficiency; and b) the employer pays the capital cost of the supplementary pension to the Scheme	
Additional Voluntary Contributions	Not available (except under the FHS Regulations by certain special arrangements made prior to 1 January 1990)	May be paid to purchase extra years of pensionable service
Increases to Pensions	Annual increases in line with the Jersey RPI guaranteed by the States (or the member's former employer). The first increase will be proportionate to the period of retirement in the first year	Annual increases in line with the Jersey RPI, but not guaranteed where actuarial review has disclosed the financial condition of the Scheme is no longer satisfactory. The first increase will be proportionate to the period of retirement in the first year.

	1967 or FHS Regulations	Existing Members or New Members Regulations
Contributions by members	6% of salary less a fixed sum of 61 pence per week (women 58 pence per week)	<u>Existing Members Regulations</u> 6.25% of salary <u>New Members Regulations</u> 5% of salary
Contributions by Employers	13.6% of salary*** *** *Except for Admitted Bodies, where the contributions payable are those certified by the Actuary. Additional Contributions are payable to cover the cost of Emergency Ambulance Service benefit improvements, as certified by the Actuary.*	13.6% of salary***
Note:	▪ Category A member means a front line officer of the uniformed services such as the States of Jersey Police Force, the States of Jersey Fire and Rescue Service, the States of Jersey Prison Service, the States of Jersey Airport Rescue and Firefighting Service and the States of Jersey Ambulance Service. ▪ Category B member means a Chief Officer of the States of Jersey Police Force, the Prison Governor, the Chief Fire Officer, the Chief and Deputy Chief of the Airport Fire Service or the Chief or Assistant Chief Ambulance Officer or an Air Traffic Control Officer. ▪ Category C member means a prison officer whose employment in the prison service commenced on or after 1 February 2013.	

Main features of the Fund – PEPS

Normal Pension Age	
“Uniformed” Members	60
“Ordinary” Members	Jersey State Pension Age
Pensionable earnings	Salary paid in a scheme year
Retirement benefits	
“Uniformed” and "Ordinary" Members	1/66th of pensionable earnings in a scheme year Pension earned each year is revalued in service in line with Jersey RPI plus 1%. The accrual rate and rate of revaluation in service are subject to adjustment depending on the financial condition of the Scheme.
Cash at retirement	Option to exchange up to 30% of commencing pension for a tax free cash sum of £13.50 for each £1 of pension given up.
Optional Retirement	
“Uniformed” Members	Any time up to 5 years before normal pension age provided the member has left scheme employment. Benefits at retirement are actuarially reduced by a cost neutral amount.
“Ordinary” Members	Any time up to 10 years before normal pension age provided the member has left scheme employment. Benefits at retirement are actuarially reduced by a cost neutral amount.
Ill-Health Retirement	Subject to 2 years’ pensionable service, immediate benefits without reduction on ground of ill-health or mental or physical impairment. An enhanced level of ill-health pension is provided to members unable to work in any other capacity.
Death in scheme employment	1. Lump sum 3 times the member’s notional pensionable earnings paid to the dependant, relative or nominated person 2. Partner’s / Dependant's Pension 50% of prospective member pension, including CARE pension deemed to accrue over period to NPA

Death in deferment or retirement	1. Partner's / Dependant's Pension 50% of member's pension benefits, ignoring any adjustment for lump sum benefits taken 2. Children's Pension A pension is payable to each eligible child. The total pension is restricted to the amount of the partner / dependant pension, but no one child may receive more than half that sum. The children's pension is doubled if a partner's or dependant's pension is not payable.
Leaving Service	▪ Refund of contributions (for members with less than 5 years service) ▪ deferred pension payable without reduction from normal pension age ▪ a transfer value payable to a new employer's pension scheme or to a personal pension scheme
Additional Voluntary Contributions	Members may apply to enter into additional voluntary contribution arrangements to increase their normal retirement benefits
Increases to Pensions	Annual increases in line with RPI, subject to adjustment depending on the financial condition of the Scheme.
Contributions by members	<u>Ordinary members</u> 7.75% of pensionable earnings <u>Uniformed members</u> 10.10% of pensionable earnings Member contributions are subject to transitional arrangements and subject to adjustment depending on the financial condition of the Scheme.
Contributions by Employers	16% of pensionable earnings

Appendix 3: Membership data

Membership data: PECRS

Active members at 31 December 2016 *(31 December 2013)*

Active members		Number	Average age	Total salaries (£000 p.a.) (see note 1)	Average salaries (£ p.a.) (see note 2 for median)	Average service (years)
Men	**2016**	**2,733**	**47.0**	**125,879**	**46,059**	**14.2**
	2013	*3,072*	*46.1*	*135,168*	*44,000*	*13.1*
Women	**2016**	**3,871**	**46.9**	**125,603**	**32,447**	**9.9**
	2013	*4,319*	*45.7*	*131,791*	*30,514*	*8.4*
Total	**2016**	**6,604**	**46.9**	**251,482**	**38,080**	**11.7**
	2013	*7,391*	*45.9*	*266,959*	*36,119*	*10.3*

Notes:

1) Figures shown include actual salaries (not full-time equivalent salaries) for part-timers. Additional data relating to the pensionable allowances which give rise to added years of pensionable service is not included in the salaries shown in this table.

2) The average salaries shown in the summary above are mean salaries. The median salary for active members at 31 December 2016 is £33,531 p.a. (£40,937 p.a. for males and £29,092 p.a. for females).

3) Average service includes service credits from transfers-in (but excludes added years arising from additional voluntary contributions).

Deferred pensioners at 31 December 2016 *(31 December 2013)*

Deferred pensioners		Number	Average age	Total pensions (£000 p.a.)	Average pension (£ p.a.)
Men	**2016**	**995**	**47.7**	**6,523**	**6,555**
	2013	*848*	*45.9*	*5,821*	*6,865*
Women	**2016**	**1,875**	**47.8**	**6,947**	**3,705**
	2013	*1,728*	*46.0*	*5,700*	*3,298*
Total	**2016**	**2,870**	**47.7**	**13,469**	**4,693**
	2013	*2,576*	*46.0*	*11,521*	*4,472*

Note: The pension amounts quoted include pension increases up to and including the following 1 January.

Pensioners at 31 December 2016 *(31 December 2013)*

Pensioners		Number	Average age	Total pensions (£000 p.a.)	Average pension (£ p.a.)
Men	**2016**	**2,090**	**70.5**	**41,648**	**19,927**
	2013	*1,887*	*70.2*	*37,128*	*19,675*
Women	**2016**	**1,937**	**69.7**	**15,712**	**8,112**
	2013	*1,565*	*69.4*	*12,527*	*8,004*
Dependants	**2016**	**708**	**72.5**	**7,048**	**9,954**
	2013	*647*	*71.3*	*6,124*	*9,465*
Total	**2016**	**4,735**	**70.5**	**64,408**	**13,603**
	2013	*4,099*	*70.1*	*55,778*	*13,608*

Notes:

1) The pension amounts quoted include pension increases up to and including the following 1 January.
2) "Dependants" consists of spouses, civil partners, children and adult dependants in receipt of a pension.

Breakdown of active members at 31 December 2016 *(31 December 2013)*

1967 Regulations		Number	Average age	Total salaries (£000 p.a.)	Average salaries (£ p.a.)	Average service (years)
Men	**2016**	**43**	**56.9**	**1,564**	**36,364**	**32.5**
	2013	*76*	*55.8*	*2,777*	*36,543*	*30.4*
Women	**2016**	**4**	**58.3**	**182**	**45,472**	**34.1**
	2013	*5*	*55.4*	*216*	*43,182*	*33.6*
Total	**2016**	**47**	**57.0**	**1,746**	**37,140**	**32.7**
	2013	*81*	*55.8*	*2,993*	*36,953*	*30.6*

Notes:

1) The 1967 Regulations do not have provisions for pensionable allowances giving rise to added years.
2) All the remaining active members under the 1967 Regulations are non-uniformed, except for 1 male member who is entitled to Category A benefits.
3) Average service includes service credits from transfers-in.

FHS Regulations		Number	Average age	Total salaries (£000 p.a.) (see note 2)	Average salaries (£ p.a.) (see note 2)	Average service (years)
Total	**2016**	**7**	**53.4**	**257**	**36,709**	**28.4**
	2013	*9*	*52.6*	*324*	*36,035*	*28.7*

Notes:

1) All members of the Former Hospital Scheme Regulations are non-uniformed, and are female members.
2) Additional data relating to the pensionable allowances which give rise to added years of pensionable service is not included in the salaries shown in this table.
3) Average service includes service credits from transfers-in.

Breakdown of active members at 31 December 2016 *(31 December 2013) (continued)*

Existing Members Regulations		Number	Average age	Total salaries (£000 p.a.) (see note 1)	Average salaries (£ p.a.) (see note 1)	Average service (years)
Category A	**2016**	***18***	***51.7***	***1,125***	***62,491***	***28.8***
Category B	**2016**	***8***	***51.0***	***606***	***75,787***	***28.7***
Non-uniformed						
- Men	**2016**	265	56.5	13,224	49,901	28.9
- Women	**2016**	150	55.4	5,532	36,878	24.9
- Total	**2016**	***415***	***56.1***	***18,755***	***45,194***	***27.5***
Overall						
- Men	**2016**	***288***	***56.1***	***14,788***	***51,347***	***28.9***
	2013	*405*	*54.7*	*20,335*	*50,211*	*27.3*
- Women	**2016**	**153**	**55.3**	**5,699**	**37,247**	**24.9**
	2013	222	54.6	8,109	36,525	23.3
- Total	**2016**	**441**	**55.8**	**20,487**	**46,455**	**27.5**
	2013	627	54.6	28,444	45,365	25.8

Notes:

1) Additional data relating to the pensionable allowances which give rise to added years of pensionable service is not included in the salaries shown in this table.
2) Average service includes service credits from transfers-in.
3) See Appendix 2 for definition of Category A and Category B members.

Breakdown of active members at 31 December 2016 *(31 December 2013) (continued)*

New Members Regulations (Pre-2006 joiners)		Number	Average age	Total salaries (£000 p.a.) (see note 1)	Average salaries (£ p.a.) (see note 1)	Average service (years)
Category A						
- Men	**2016**	143	45.7	7,741	54,133	18.0
- Women	**2016**	38	43.9	1,938	50,995	14.7
- Total	**2016**	***181***	***45.3***	***9,679***	***53,474***	***17.4***
Category B						
- Men	**2016**	33	46.8	2,021	61,235	16.9
- Women	**2016**	12	48.1	678,438	56,537	14.8
- Total	**2016**	***45***	***47.1***	***2,699***	***59,982***	***16.3***
Non-uniformed						
- Men	**2016**	1,083	50.0	49,292	45,514	17.3
- Women	**2016**	1,914	50.7	60,913	31,825	12.7
- Total	**2016**	***2,997***	***50.4***	***110,205***	***36,772***	***14.3***
Overall						
- Men	**2016**	***1,259***	***49.4***	***59,054***	***46,905***	***17.3***
	2013	*1,527*	*47.6*	*67,381*	*44,126*	*14.6*
- Women	**2016**	**1,964**	**50.5**	**63,529**	**32,347**	**12.7**
	2013	2,400	48.9	73,222	30,509	10.5
- Total	**2016**	**3,223**	**50.1**	**122,583**	**38,034**	**14.5**
	2013	3,927	48.4	140,603	35,804	12.1

Notes:

1) Additional data relating to the pensionable allowances which give rise to added years of pensionable service is not included in the salaries shown in this table.
2) Average service includes service credits from transfers-in.
3) See Appendix 2 for definition of Category A and Category B members.

Breakdown of active members at 31 December 2016 *(31 December 2013) (continued)*

New Members Regulations (Post-2006 joiners)		Number	Average age	Total salaries (£000 p.a.) (see note 1)	Average salaries (£ p.a.) (see note 1)	Average service (years)
Category A						
- Men	2016	100	35.6	4,748	47,476	6.9
- Women	2016	31	34.1	1,462	47,160	6.7
- Total	2016	***131***	***35.2***	***6,210***	***47,401***	***6.8***
Category B						
- Men	2016	14	41.4	1,127	80,467	8.7
- Women	2016	1	31.0	74,430	74,430	5.0
- Total	2016	***15***	***40.7***	***1,201***	***80,064***	***8.4***
Category C						
- Men	2016	29	41.2	1,312	45,238	8.7
- Women	2016	5	36.4	226,899	45,380	6.7
- Total	2016	***34***	***40.5***	***1,539***	***45,259***	***8.4***
Non-uniformed						
- Men	2016	1,000	42.3	43,287	43,287	6.2
- Women	2016	1,706	42.1	54,173	31,755	5.2
- Total	2016	***2,706***	***42.2***	***97,460***	***36,016***	***5.5***
Overall						
- Men	2016	***1,143***	***41.7***	***50,473***	***44,159***	***6.3***
	2013	*1,063*	*39.9*	*44,619*	*41,975*	*4.2*
- Women	2016	**1,743**	**42.0**	**55,936**	**32,092**	**5.2**
	2013	1,684	40.0	49,976	29,677	3.3
- Total	2016	**2,886**	**41.9**	**106,410**	**36,871**	**5.6**
	2013	2,747	40.0	94,595	34,436	3.6

Notes:

1) Additional data relating to the pensionable allowances which give rise to added years of pensionable service in not included in the salaries shown in this table.
2) Average service includes service credits from transfers-in.
3) See Appendix 2 for definition of Category A, Category B and Category C members.

Membership data: PEPS

Active members at 31 December 2016

Active members		Number	Average age	Total salaries (£000 p.a.) (see note 1)	Average salaries (£ p.a.) (see note 2 for median)	Average service (years)
Men	2016	207	38.0	6,850	33,091	0.4
Women	2016	351	38.4	9,724	27,703	0.5
Total	2016	558	38.2	16,574	29,702	0.5

Notes:

1) Figures shown include actual salaries (not full-time equivalent salaries) for part-timers. Additional data relating to the pensionable allowances which give rise to added years of pensionable service is not included in the salaries shown in this table.
2) The average salaries shown in the summary above are mean salaries. The median salary for active members at 31 December 2016 is £27,609 p.a. (£30,532 p.a. for males and £25,815 p.a. for females).
3) Average service includes service credits from transfers-in (but excludes added years arising from additional voluntary contributions).

Deferred pensioners at 31 December 2016

Deferred pensioners		Number	Average age	Total pensions (£ p.a.)	Average pension (£ p.a.)
Men	2016	5	55.6	1,371	274
Women	2016	15	42.1	3,154	210
Total	2016	20	45.5	4,525	226

Note: The pension amounts quoted include pension increases up to and including the following 1 January.

Appendix 4: Rationale for best-estimate assumptions for PECRS

Best-estimate assumptions for PECRS

Following advice from ourselves, the Committee of Management has confirmed that the assumptions adopted to determine the **funding target** for PECRS should be best-estimate assumptions. The rationale for using best-estimate assumptions for PECRS is discussed below (note: best-estimate assumptions cannot be used to determine the **funding target** for PEPS, as the Fund Regulations provide that the assumptions used for PEPS must be prudent, i.e. cautious).

Range of assumptions

The results of a valuation are sensitive to the assumptions made and therefore the choice of appropriate assumptions is important.

There is a wide range of assumptions that could be used ranging from optimistic, through best-estimate to cautious:

- Under optimistic assumptions the future outcome is more likely to be worse than assumed;
- Under cautious assumptions the future outcome is more likely to be better than assumed;
- Under best-estimate assumptions the future outcome is just as likely to be better or worse than assumed.

The Committee of Management has a duty to protect members' benefits. Therefore it would not be appropriate to use optimistic assumptions when determining the adequacy or otherwise of the contributions to support the benefits payable under the Scheme.

This leaves a choice of assumptions in the range from best-estimate to cautious. The more cautious the valuation assumptions, the greater the valuation liabilities will be and consequently the greater the possibility of members' benefits or future pension increases having to be cut back (or members' or employers' contributions having to be increased) if there is a deficiency.

Advantages of using best-estimate assumptions (and disadvantages of using more cautious assumptions)

The advantage of using best-estimate assumptions is that it complies with the principle of only cutting back on the members' pensions where this appears genuinely necessary.

Using more cautious assumptions would lead to a larger deficiency, which may potentially trigger reductions to benefits or future pension increases (or increases to members' or employers' contributions). In the long term, given the extra returns targeted under the Scheme's investment strategy, there would be quite a high probability that experience would prove more favourable than assumed, leading to surpluses at later valuations. Therefore, using more cautious assumptions may result in cutting back benefits (or increasing contributions) in a way that with hindsight was unnecessary.

Disadvantages of using best-estimate assumptions (and advantages of using more cautious assumptions)

The disadvantage of using best-estimate assumptions is that it leads to a larger chance of actual scheme experience being worse than assumed than if more cautious assumptions are used. This increases the likelihood of deficiencies arising at later valuations which have to be dealt with through future reductions in benefits, or by increasing members' or employers' contributions. If experience is adverse, the reductions in benefits (or increases in contribution) eventually required may need to be bigger at that time than if they had been made earlier (and therefore impacting disproportionately on a later “generation” of members). Although there is no provision in the Regulations for the Fund to be discontinued, this could be particularly problematic if the Fund were discontinued. It could be equally problematic if the financial strength of the States of Jersey were to become poor. Significant benefit reductions may be required in such situations.

A further potential disadvantage of using best-estimate assumptions is that it involves anticipating a degree of outperformance from growth assets, which may limit the Committee of Management’s scope to reduce the Scheme’s investment allocation to growth assets in future.

Recommendation

Following advice from ourselves, the Committee of Management has confirmed that the assumptions used to determine the **funding target** for PECRS should be best-estimate because:

- It complies with the principle of only cutting back on members' pensions where this appears genuinely necessary, and
- The Committee of Management does not currently consider the financial strength of the States of Jersey to be poor.

Appendix 5: Valuation method

Valuation method

The valuation method for the valuation calculations is known as the "projected unit" method.

Under the projected unit method, the funding position in relation to service up to the valuation date is considered separately from the position relating to service after the valuation date. For both past and future service, allowance is made for projected future increases to pay through to retirement or date of leaving service. If there are no new members, the average age of the membership is expected to increase over time and the future service contribution rate under the projected unit method can be expected to rise.

For PECRS, the cost of future service benefits is assessed over a three year control period to take broad account of the expected ageing of the membership over the period to the next valuation. A one year control period is appropriate for PEPS as it is not closed to new entrants.

For PECRS, the value of the Scheme's existing assets includes the value of the future pre-1987 debt repayments (assumed to be paid by the States over the period up to 29 September 2053 and by the applicable Admitted Body employers over the period up to 31 December 2083). This approach involves taking credit for the future pre-1987 debt repayments anticipated over the periods set out above.

Value of liabilities and future contributions

To calculate "the value" of the benefits payable we use our assumptions to estimate the payments which will be made from the Fund throughout the future lifetimes of current members, pensioners, deferred pensioners and their dependants. We then calculate the amount of money which, if invested now, would be sufficient to make these payments in future, using our assumptions about investment returns. The same technique is adopted to value future contributions to the Fund.

Value of assets

We have taken the assets into account at their market value.

Appendix 6: Financial assumptions

Introduction

In this appendix we describe the financial assumptions. The financial assumptions that have been chosen are consistent with the **funding target.** For PECRS, each assumption is intended to represent a reasonable best-estimate of the future. For PEPS, all assumptions other than the discount rate are best-estimate assumptions.

When assessing a set of financial assumptions, greater importance should be attached to the relative differences between the assumptions, rather than to the individual assumptions in isolation. This is because the differences have a greater effect on the results of the valuation than the absolute values of each assumption.

Discount rate (investment return)

The most important individual assumption in terms of its impact on the overall valuation results is the choice of **discount rate**, i.e. assumed future investment returns. The discount rate is used to value payments due out of the Fund (benefit payments) and into the Fund (future contributions and pre-1987 debt repayment instalments).

For valuing the liabilities, an assumption which could be described as “low risk” would be to discount future benefit payments at the market yields available on index-linked gilts at the valuation date. This approach recognises that a good matching asset for the Fund's cash flows is obtained by investing in index-linked gilts of appropriate term.

It is common for UK occupational schemes to adopt a **funding target** which incorporates a higher discount rate than the returns available on gilts. The consequence of using a higher discount rate is that a lower **funding target** is adopted.

PECRS

The **funding target** adopted for PECRS requires that the assumptions chosen should be reasonable best-estimates. In principle, we need to set the discount rate at this valuation by considering the best-estimate returns available on the Fund's invested assets, over the period starting now and ending in the long-term future. The expected returns depend critically on what asset classes are assumed to be held.

In contrast to the previous valuation, where different discount rates were assumed in the period before and after retirement, we have structured the discount rate for PECRS as follows:

- The initial discount rate is equal to the best-estimate investment return over 10 years from the valuation date based on the actual assets held at the valuation date.
- This discount rate applies until the date when PECRS is anticipated to start to reduce risk in the investment strategy (a period of 5 years has been assumed for this valuation), at which point it is assumed the discount rate will reduce gradually until the point in time at which the long-term investment strategy is reached (for this valuation, it has been assumed the long-term strategy will be reached 25 years after the valuation date).

- The long-term discount rate is based on the best-estimate return on the assumed long-term investment strategy.

Based on the above approach, we have assumed a discount rate equal to 5.0% p.a. for the period to 31 December 2021, then gradually declining over the next 20 years to 3.8% p.a. for valuing the liabilities and contributions, including the pre-1987 debt repayments.

PEPS

The Funding Strategy Statement states that the discount rate for PEPS will be determined such that the probability of the actual investment return on the PEPS assets being higher than the discount rate over the 30 year period from the valuation date is at least 60%.

For this valuation it has been agreed that the discount rate should be set such that the probability of the actual investment return being higher than the discount rate is equal to 60%.

Based on our best-estimate (median) investment return over the 30 years from the valuation date and reflecting the PEPS strategic investment benchmark at the valuation date, we have assumed a discount rate of 5.0% p.a. for valuing the liabilities and contributions.

Increases to pensions in payment and deferred pensions

The Fund currently provides for annual increases to pensions in payment and deferred pensions in line with increases in the Jersey RPI.

The Bank of England produces data, based on UK fixed and index-linked gilt markets, which can be used to calculate market-implied ("break-even") UK RPI inflation. At 31 December 2016, the single break-even UK RPI inflation assumption that would give approximately the same value of liabilities as using the full Aon Hewitt UK RPI curve is 3.4% p.a..

Aon Hewitt's view is that at the valuation date, break-even inflation over the duration of the liabilities overstates likely inflation over that period, due to supply/demand distortions in the gilt market. Our best-estimate is that actual inflation over the duration of the liabilities will be around 0.3% p.a. below break-even inflation (this difference is called an "inflation risk premium"). We have allowed for this in the valuation.

We have therefore assumed increases in UK RPI inflation will be 3.1% p.a..

In deciding on an appropriate assumption for Fund increases, it is necessary to take a view on the likely relationship between Jersey RPI inflation and UK RPI inflation.

Given that the two economies have a tied currency and the same interest rates, our view is that over the medium to long term, underlying Jersey inflation can be expected to be fairly close to UK inflation. However, due to the different calculation methodologies for calculating RPI in Jersey and in the UK, assuming Jersey RPI is equal to UK RPI is consistent with assuming that underlying inflation in Jersey will be a little higher than in the UK.

Over the period since 1990 there have been periods where Jersey RPI inflation has been considerably higher than UK RPI inflation. However, the gap between UK and Jersey RPI has continued to fall and, since 2005, the 5 year average of Jersey RPI has been lower than the 5 year average of UK RPI.

Given that we would expect Jersey RPI to be lower than UK RPI due to the different calculation methodologies for calculating RPI and consistent with actual experience since 2005, we have assumed that Jersey RPI will be on average equal to UK RPI less 0.25% p.a.. This is consistent with assuming that underlying inflation in Jersey will be marginally higher than in the UK.

General salary increases

In recent years, States pay awards have generally been at or below Jersey RPI, reflecting a policy of pay restraint.

On the basis that recent experience may not be representative of the long-term future we have retained an allowance for general salary inflation of 1% p.a. above Jersey RPI, in line with the assumption adopted for the previous valuation.

Promotional salary increases

In addition to the allowance for general salary increases, an explicit age-related promotional scale was adopted at the 2013 valuation (the same scale for males as for females).

Based on our analysis of PECRS experience over the period 2014-2016 we observed that promotional increases have been lower than assumed at younger ages but higher at older ages with promotional increases continuing beyond age 40 (the point at which the allowance for promotional increases in the 2013 valuation ceased). We also observed a similar pattern over 2011-2013.

Reflecting recent experience, we have updated the allowance for promotional increases with a reduced allowance for promotional increases at younger ages and an increased allowance at older ages continuing up to age 65.

In the absence of any experience data for PEPS, we have used the assumptions adopted for PECRS.

The allowance included for promotional salary increases (in addition to general salary increases) at specimen ages is:

Age	Promotional salary increases
20	5.0% p.a.
30	3.0% p.a.
40	1.5% p.a.
50	1.0% p.a.
60	0.3% p.a.
65	0.0% p.a.

Expenses

Excluding investment-related expenses (which are taken into account in the net investment return assumption), we have analysed the expenses of administering the PECRS during 2014-2016 and compared this with the assumption of 0.6% of salaries adopted at the 2013 valuation. Our analysis confirms that the 2013 valuation assumption remains appropriate.

In the absence of any experience data for PEPS, we have used the assumptions adopted for PECRS.

Appendix 7: Demographic assumptions

Introduction

In this appendix, the demographic assumptions are described and we comment on how they compare with actual experience. The demographic assumptions that have been chosen are consistent with the **funding target** set out in the "Valuation approach" section of this report and each assumption is intended to represent a reasonable best-estimate of the future.

Mortality rates before retirement

For mortality before retirement we have compared the mortality experience of PECRS over the period 2014-2016 against expected rates of mortality based on the tables used for the 2013 valuation, which were 70% of the standard tables AMC00 for males and AFC00 for females. The experience analysis suggested that the actual number of deaths over the three year period was slightly lower than assumed.

Given the amount of data over the period is relatively small and the current assumption is consistent with experience over the previous six years we have retained the current assumption.

In the absence of any experience data for PEPS, we have used the assumptions adopted for PECRS.

Mortality rates after retirement – current mortality rates

We have analysed the mortality experience of PECRS over the nine year period from 1 January 2008 to 31 December 2016. We have set out below the ratio of actual deaths to expected deaths over the period (weighted by pension amount), with expected deaths based on the SAPS S2 standard tables (used for the 2013 valuation). We also show an approximate 90% confidence interval—this provides an indication of the result's statistical credibility.

Mortality assumption	Males	Females
100% of SAPS S2 "All lives"	109% ± 11%	104% ± 12%

The experience investigation over the nine years to 31 December 2016 indicates that there have been slightly more deaths (by pension amount) than suggested by the assumptions adopted at the previous valuation. The results are consistent with the experience investigation for the 2013 valuation (108% ± 19% for males, and 105% ± 20% for females) but we now have more confidence due to the larger volume of data.

Taking account of experience over the nine years to 31 December 2016, we have assumed current mortality rates in line with the SAPS S2 "All lives" tables (S2PXA) with 105% scaling factor.

In the absence of any experience data for PEPS, we have used the assumptions adopted for PECRS.

Mortality rates after retirement – allowance for future improvements

It is not straightforward to make an assumption about future rates of mortality improvement. In forming a best-estimate assumption, we believe it is appropriate to have regard to:

- Current trends;
- Long-term trends;
- Observed generational differences, which suggest faster improvements within certain generations of pensioner (known as the cohort effect); and
- The outlook for future medical advances.

However, the allowance made must inevitably be subjective.

In determining an allowance for future improvements in life expectancy, it makes sense to consider the near future and longer term separately:

- Recent improvements in life expectancy are likely to be the best guide for what will happen in the near future and so improvements in the near future are best modelled by continuing recent trends.
- The forces driving longer term improvements may be very different to those behind recent improvements. This means that the assumption for long-term improvements is more subjective and should take into account analysis of historic long-term rates of improvements (and what has caused them) as well as opinions on what might happen in the future.

In November 2009, the Continuous Mortality Investigation (CMI), a group set up by the UK Actuarial Profession, published its Mortality Projections Model. The model uses complex methods for taking recent rates of mortality improvements and blending these to the long-term rate of improvements. The latest annual update to the model was published in March 2017. Projections from the 2016 version of the CMI's model are known as the 'CMI_2016' projections. Apart from the long-term rate of improvements and the period smoothing parameter (S_κ), the CMI has provided default values for the model inputs which are known as the 'Core Projections'.

The responsiveness of CMI_2016 to new data can be controlled by changing the parameter Sκ. A higher value applies more smoothing of experience data. The CMI suggest a core assumption of Sκ=7.5 based on national data but encourages users to consider the appropriate value for their purpose. At Aon Hewitt we have observed from our Aon Hewitt Longevity Model dataset that recent longevity improvements have varied by socio-economic group. In particular, we note that the average Defined Benefit pension scheme membership does not appear to have seen such a large fall in recent longevity improvements as the national population. Our conclusion is that there is good reason to apply more smoothing of recent data by using Sκ=8. This results in higher assumed life expectancies at age 65 compared with the suggested core assumption.

Our analysis also suggests that future long-term improvements in mortality rates of between 1.0% p.a. and 2.0% p.a. for both men and women may be considered reasonable.

We have therefore assumed future improvements in mortality rates in line with the CMI_2016 Core Projections model with Sκ=8 and a long-term rate of improvement of 1.5% p.a..

Retirement in normal health

PECRS

We have assumed that active members will retire at the ages set out in the following table:

Membership category	Normal retiring age	Assumed age at retirement
Category A members (male & female)	55	53*
Category B and C members (male & female)	60	58
Non-uniformed male members	65	63
Non-uniformed female members:		
- Existing and New Members Regulations	65	63
- 1967 and Former Hospital Scheme regulations	60	59

* Except post 1 March 2009 entrants to category A status who are assumed to retire at age 55.

The analysis of the retirement experience over the period 2014-2016 for the uniformed membership categories shows the average retirement ages over the period 2014-2016 to be in line with the assumptions adopted for the 2013 valuation.

For non-uniformed members (excluding females who fall under the 1967 and Former Hospital Scheme Regulations) experience over the last three years shows the assumed retirement age of 63 (as adopted for the 2013 valuation) remains reasonable.

There have been only 3 retirements of non-uniformed females who fall under the 1967 and Former Hospital Scheme Regulations but the average retirement age has been in line with the assumption used for the 2013 valuation.

PEPS

We have assumed that all PEPS members retire at Normal Retirement Age.

There is not yet any experience to be able to comment on whether this assumption is a best-estimate assumption but the extent to which PEPS members take their pension early or late will only have a minimal impact on the valuation results due to the cost-neutral adjustment that is applied in determining their pension.

Retirement in ill-health

PECRS

An explicit allowance has been made for retirements in ill-health.

Over the last 6 years, the overall levels of ill-health retirement across the non-uniformed membership have been higher than those implied by the assumptions adopted for the previous valuation. We have therefore increased the 2013 valuation assumption for non-uniformed members by 25% for this valuation.

The analysis for the uniformed membership categories suggests that the assumptions adopted for the 2013 valuation remain appropriate.

PEPS

In the absence of any experience data for PEPS, we have used the assumptions adopted for PECRS.

We have also assumed that 50% of ill-health retirements will be unable to work in any other capacity (and so will receive additional CARE pension deemed to accrue over the additional period defined in the Regulations).

Specimen rates of retirement due to ill-health assumed at this valuation are set out below:

Age	Number leaving service each year per thousand members at age last birthday as shown	
	Uniformed members	Non-Uniformed members
30	2.60	0.41
35	2.96	0.46
40	4.60	0.72
45	8.28	1.29
50	15.12	2.36
55	27.00	4.22

Allowance for commutation

PECRS

The maximum proportion of pension which can be commuted was increased from 25% to 30% with effect from 1 January 2016. The assumption for the proportion of pension commuted for members covered by the Existing Members and the New Members Regulations was increased from 17.5% to 21% at the 2013 valuation in anticipation of this change (i.e. 70% of the revised maximum).

Over the last 6 years, the proportion of pension commuted has consistently been a little higher than 70% of the maximum which could be commuted (i.e. 17.5% up to 31 December 2015 and 21% thereafter).

We have therefore increased the assumption for the 2016 valuation so that members under the Existing Members Regulations and the New Members Regulations are assumed to commute 22% of their pension on retirement.

PEPS

As PEPS members may also commute up to 30% of their pension for a lump sum payment, and in the absence of any experience data for PEPS, we have assumed that PEPS members will commute 22% of their pension on retirement.

Withdrawal rates

PECRS

Over the period 2014-2016, the actual number of withdrawals of non-uniformed members was considerably higher than the expected numbers implied by the assumptions.

For both males and females, the increase in number of withdrawals is largely in relation to members over age 35. The assumed rates of withdrawal for non-uniformed members were set such that we expected withdrawal rates to be around 110% of those assumed. Setting the assumption at a slightly lower level than that likely to be experienced is intended to make implicit allowance for leavers that are subsequently re-admitted to the scheme and re-credited with their original pensionable service.

In practice, withdrawal rates have been much higher than this. However we expect that this is due to the redundancy exercises that have been carried out since the previous valuation and so we would not anticipate the higher rates of withdrawal to continue in the long-term.

We have therefore retained the current withdrawal assumptions for non-uniformed members.

We have also retained the 2013 valuation assumptions for non-uniformed members.

PEPS

In the absence of any experience data for PEPS, we have used the assumptions adopted for PECRS.

Specimen rates of withdrawal assumed at this valuation are as follows:

Age	Uniformed members		Non-Uniformed members	
	Men	Women	Men	Women
30	3.29	3.75	8.21	11.25
35	2.13	2.81	5.33	8.44
40	1.23	1.88	3.08	5.63
45	0.52	0.94	1.30	2.81
50	0.00	0.00	1.30	2.81
55	0.00	0.00	1.30	2.81
59	0.00	0.00	1.30	2.81
60	0.00	0.00	0.00	0.00

Family assumptions

PECRS

Family assumptions cover:

- the proportions of deaths of members and pensioners which give rise to a spouse's, civil partners' or dependant's pension;
- the age difference between the member and spouse/dependant at date of death; and
- the allowance for children's pensions.

There is not sufficient data to carry out a detailed analysis by age of the proportion of cases which give rise to a spouse's/dependant's pension but we have reviewed the assumptions having regard to:

- Office for National Statistics data on expected proportions of people married (or having a dependant) in the UK population, both now and in the future;
- Other UK government data on the extent to which economically active individuals are more likely to be married;
- The definition of "dependant" in the Fund Regulations, which requires dependency on the member "for the provision of all or most of the ordinary necessities of life"; and
- The provisions in the Fund's Regulations that, in determining entitlement to a spouse's pension, marriages after the member's normal retirement age are disregarded.

The data available does not suggest the assumptions adopted for the 2013 valuation are unreasonable. We have therefore retained the assumption that 80% of male members and 70% of females under the New/Existing Members Regulations are married, or have a dependant at retirement or earlier death (widowers' and dependants' pensions are not provided under the 1967 and FHS Regulations). For current pensioners, the proportion is assumed to reduce in line with the mortality assumptions.

We have assumed that husbands are aged 3 years older than their wives on average. A 10% loading is applied to death before retirement liabilities in the Existing and New Members Regulations to cover children’s pensions.

PEPS

In the absence of any experience data for PEPS, we have used the assumptions adopted for PECRS, with the exception of the proportion of members which give rise to a spouse's or dependant's pension. In PEPS, the payment of a 'spouse' or 'dependant' pension has wider scope with nominated cohabiting partners recognised for benefits purposes. Benefits are also payable for marriages and relationships commencing after normal pension age. We have therefore assumed that 90% of male members and 80% of female members are assumed to have a qualifying spouse or dependant at retirement or earlier death (with the percentage reducing in line with mortality assumptions for current pensioners).

Appendix 8: Summary of assumptions

Financial assumptions

PECRS discount rate	For the period to 31 December 2021: 5.0% p.a. (i.e. Jersey RPI inflation plus 2.15% p.a.) then gradually declining over the following 20 years to 3.8% p.a. (i.e. Jersey RPI inflation plus 0.95% p.a.)
PEPS discount rate	5.0% p.a. for the period prior to and after retirement
UK RPI inflation	3.1% p.a. (i.e. UK gilt market break-even inflation less 0.3% p.a.)
Jersey RPI inflation	2.85% p.a. (i.e. UK RPI inflation less 0.25% p.a.)
Rate of pension and deferred pension increases	2.85% p.a. (i.e. Jersey RPI inflation)
Rate of salary increases	3.85% p.a. (i.e. 1.0% p.a. above Jersey RPI Inflation) plus an allowance for promotional increases
Management expenses (other than investment related expenses)	0.6% of members' salaries

Demographic assumptions

Pre-retirement mortality	Males: 70% of standard table AMC00 Females: 70% of standard table AFC00
Post-retirement mortality	SAPS S2 "All lives" tables (S2PMA for males and S2PFA for females) with 105% scaling factor allowing for year of birth. Future improvements from 2007 in line with CMI_2016 Core Projections with Sκ=8 and a long-term rate of future improvements in mortality of 1.5% p.a.
Withdrawals	Allowance is made for withdrawals from service (see sample rates in Appendix 7)
Early retirements	Allowance has been made for active members to retire before Normal Retiring Age in normal health and in ill-health (see tables in Appendix 7) Deferred members are assumed to retire at the earliest age at which they can retire with unreduced benefits
Commutation	Members under the Existing Members and New Members Regulations are assumed to commute 22% of their pension on retirement
Family details	<u>PECRS</u> 80% of male members and 70% of female members married at retirement or earlier death (or a dependant's pension is payable), with percentage reducing in line with the mortality assumptions for current pensioners Husbands are aged 3 years older than their spouse/dependant 10% loading applied to death before retirement liabilities in the Existing and New Members regulations to cover children's pensions <u>PEPS</u> As for PECRS except: 90% of male members and 80% of female members married at retirement or earlier death (or a dependant's pension is payable), with percentage reducing in line with the mortality assumptions for current pensioners

Appendix 9: Discontinuance test

The discontinuance funding ratio at 31 December 2016 for PEPF is 94%.

Even though the Regulations governing the Fund do not envisage the Fund's discontinuance (i.e. the future accrual of benefits and payment of contributions into the Fund being discontinued), it is our practice at valuations also to review what the financial position of the Fund would have been had discontinuance occurred on the valuation date. This is done by comparing the value of the basic accrued benefits as at 31 December 2016 with the value of the Fund's existing assets at that date.

By basic accrued benefits we mean:

a) benefits in respect of current pensioners and their spouses and dependants;

b) retirement and death benefits in respect of former employees entitled to deferred pensions;

c) accrued retirement and death benefits in respect of current members based on pensionable pay at 31 December 2016, no allowance being made for pay increases after that date.

We have taken the value of the basic accrued benefits on discontinuance at the valuation date as an estimate of the terms that might be offered by insurance companies for determining the cost of immediate and deferred annuities, plus a provision to cover expenses.

In practice, if the Fund were ever to be discontinued, it is possible that the Fund would continue as a closed fund.

Derivation of assumptions

In setting the assumptions for the discontinuance test we have taken into account actual buy-out terms available in the market at the valuation date. However, we have not carried out a detailed analysis of the cost of risks that might apply specifically to the Fund and so our estimate is only a guide. Market changes to both interest rates, and demand and supply for this type of business, mean that no reliable estimate can be made, and that ultimately the actual true position can only be established by completing a buy-out.

We have set the **discount rate** for this estimate equal to:

- Current pensioners: Aon Hewitt's Bulk Annuity Market Monitor curves for pensioners.
- Future pensioners: Aon Hewitt's Bulk Annuity Market Monitor curves for non-pensioners (this applies before and after retirement).

The allowance we have made for expenses is separate.

The Regulations governing the Fund provide for annual increases in line with the Jersey RPI at present, although lower increases may be paid where an actuarial review has disclosed that the financial condition of the Fund is no longer satisfactory. We have assumed that in a discontinuance situation the pension increases provided would be equal to the minimum increases specified in the Regulations i.e. nil increases for PECRS benefits and 50% of RPI for PEPS benefits.

For PEPS benefits, we have assumed that increases based on 50% of the UK RPI would be provided. The reason we have not made allowance for increases in line with 50% of the Jersey RPI is that, based on the principles an insurer might use, these would be, at best, extremely expensive, and at worst, impossible to reserve for, as there are no available assets which match the increases in the Jersey RPI. Therefore, it is unlikely to be possible to purchase annuities based on such increases in the market.

Expenses

The reserve for expenses allows for deductions to allow for the cost of forced sales of equity, bond and property holdings, 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.

For the purposes of disclosure in the valuation, assets are taken at their audited market value. The above allowances for expenses are therefore all presented as additions to the liabilities.

Discontinuance test results

We have considered the discontinuance position on the assumption that in the event of the Fund's discontinuance the capitalised value of the outstanding pre-1987 debt contributions for PECRS would be assessed at the point of discontinuance and would be paid off in full by the States of Jersey at that point or over a period of time. This is consistent with the agreed arrangements for dealing with the pre-1987 debt, as set out in Appendix 10.

The results of the hypothetical discontinuance valuation for PEPF is as follows:

	£M
Market value of assets **Value of pre-1987 debt**	1,935.1 288.0
Total value of assets **Cost of buying-out benefits (including expenses)**	2,223.1 2,374.2
Discontinuance funding ratio **(value of assets / value of accrued benefits)**	94%

Summary of assumptions

The table below shows the main assumptions underlying the discontinuance test, where these are different from those used for the main valuation basis.

Pensioner discount rate	Aon Hewitt's Bulk Annuity Market Monitor curves for pensioners, which is constructed from swap and UK corporate bond market curves
Non-pensioner discount rate (before and after retirement)	Aon Hewitt's Bulk Annuity Market Monitor curves for non-pensioners, which is constructed from swap and UK corporate bond market curves
Increase in UK RPI	Term-dependent rates derived from the RPI swap markets
Pension increases in payment and deferred pension increases	For PECRS: Nil For PEPS: 50% of pension increases derived from the UK RPI assumption with allowance for a floor of 0% and with the aim of approximately reflecting the cost of hedging these increases using LPI-linked swaps
Withdrawals	All members assumed to immediately withdraw from service with entitlement to deferred pension
Commutation	No allowance
Post-retirement mortality	As for the main valuation basis except the long-term rate of future improvements in mortality is 1.75% p.a.

Comparison with alternative discontinuance measure used at previous valuation

The discontinuance funding ratio calculated at previous valuations has included allowance for pension increases in line with full UK RPI increases. The discontinuance funding ratio on this alternative basis at 31 December 2016 would be 38%, which compares with a corresponding ratio of 58% at the 2013 valuation.

The value of accrued benefits on this alternative discontinuance measure has increased significantly since the last valuation. This reflects an increase in the estimated costs of buying out benefits with an insurance company due to the reduction in yields since the last valuation. The effect of the increase in the value of accrued benefits on this measure has been slightly offset by the increase in the value of assets.

Appendix 10: Agreed arrangements for dealing with the pre-1987 debt

The framework agreed between the Policy and Resources Committee and the Committee of Management for dealing with the pre-1987 debt was documented in a ten-point agreement approved by Act of the Policy and Resources Committee dated 20 November 2003. The provisions of the agreement, which have subsequently been reflected in Regulations approved by the States of Jersey on 27 September 2005, enable us to treat the pre-1987 debt as an asset of PECRS for valuation purposes. The text of the agreement is reproduced below.

"1. The States confirms responsibility for the Pre-1987 Debt of £192.1 million as at 31 December 2001 and for its servicing and repayment with effect from that date on the basis that neither the existence of any part of the outstanding Debt nor the agreed method of servicing and repayment shall adversely affect the benefits or contribution rates of any person who has at any time become a member of the PECRS.

2. At the start of the servicing and repayment period, calculated to be 82 years with effect from 1 January 2002, the Employers' Contribution rate will be increased by 0.44% to the equivalent of 15.6%. These contributions will be split into 2 parts, namely a contribution rate of 13.6% of annual pensionable salary and an annual debt repayment. The Employer's Contribution rate will revert to 15.16% after repayment in full of the Debt.

3. During the repayment period the annual Debt repayment will comprise a sum initially equivalent to 2% of the Employers' total pensionable payroll, re-expressed as a cash amount and increasing each year in line with the average pay increase of PECRS members.

4. A statement of the outstanding debt as certified by the Actuary to the PECRS is to be included each year as a note in the States Accounts.

5. In the event of any proposed discontinuance of the PECRS, repayment and servicing of the outstanding Debt shall first be rescheduled by the parties on the advice of the Actuary to ensure that paragraph (1) above ("Point 1") continues to be fulfilled.

6. For each valuation the States Auditor shall confirm the ability of the States to pay off the Debt outstanding at that date.

7. If any decision or event causes the Actuary at the time of a valuation to be unable to continue acceptance of such servicing and repayment of the Debt as an asset of the PECRS, there shall be renegotiation in order to restore such acceptability.

8. In the event of a surplus being revealed by an Actuarial Valuation, negotiations for its disposal shall include consideration of using the employers' share to reduce or pay off the Debt.

9. As and when the financial position of the States improves there shall be consideration of accelerating or completing repayment of the Debt.

10. *The recent capital payment by JTL of £14.3m (plus interest) reduced the £192.1m total referred to in (1) by £14.3m and if any other capital payments are similarly made by other Admitted Bodies these shall similarly be taken into account."*

Appendix 11: Rates and adjustments certificate

In accordance with Regulation 3(1)(c) of the Funding and Valuation Regulations, this certificate specifies any adjustments required to benefits and contributions in the Public Employees Pension Scheme (PEPS) and the Public Employees Contributory Retirement Scheme (PECRS) arising from the valuation as at 31 December 2016.

In determining whether any adjustments are required, we have used the method and assumptions detailed in our actuarial valuation report dated 23 February 2018 and the Funding Strategy Statement dated 31 October 2017.

Employer and member contribution rates

The employer and member contribution rates to be paid until completion of the next valuation are as specified in the Funding and Valuation Regulations.

- For PEPS:
  - the rates payable in relation to active members (excluding transition members) until 31 December 2023 are specified in Paragraph 4 of Schedule 1;
  - the member contribution rates payable by transition members from 1 January 2019 until 31 December 2023 are specified in Schedule 2;
  - the employer contribution rates payable for transition members from 1 January 2019 until 31 December 2023 are specified in Schedule 4.
- For PECRS:
  - the rates payable in relation to active members until 31 December 2018 are specified in Paragraph 5 of Schedule 1;
  - the member contribution rates payable by continuing members from 1 January 2019 until 31 December 2023 are specified in Schedule 3;
  - the employer contribution rates payable for continuing members from 1 January 2019 until 31 December 2023 are specified in Schedule 4.

Regulation 3(7) requires a "primary rate" and "secondary rate" of employer and member contributions to be specified in this certificate. Such rates below have been calculated in accordance with this Regulation and the Funding Strategy Statement, but do not affect the contributions that should actually be paid.

For PEPS, the primary rate of employer and member contributions to fund the cost of future accrual of benefits is 23.2% of pensionable earnings. No additional contributions are required to meet the costs referred to in Regulation 3(7)(b) so the secondary rate defined in the regulations is nil.

For PECRS, the primary rate of employer and member contributions to meet the cost of future accrual of benefits is 28.1% of pensionable earnings. No additional contributions are required to meet the costs referred to in Regulation 3(7)(b) so the secondary rate defined in the regulations is nil.

Rates of annual pension increase

Both for PEPS and PECRS members, the rates of annual pension increase to be applied on each 1 January until completion of the next valuation will be equal to 100% of the rate of increase (if any) in the All Items Retail Prices Index for Jersey as recorded over the year to September of the year preceding the date of increase.

Proportionate increases will be applied where applicable, in accordance with the relevant regulations.

Accrual rate under PEPS

The accrual rate in PEPS until completion of the next valuation will be equal to 1/66th.

Revaluation rate under PEPS

The revaluation rate in PEPS until completion of the next valuation will be equal to 100% of (Jersey RPI plus 1%) where Jersey RPI is the rate of increase (if any) in the All Items Retail Prices Index for Jersey as recorded over the year to the September of the year preceding the date of increase.

For Aon Hewitt Limited

Jonathan Teasdale FIA

23 February 2018

Glossary

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 resources of the relevant scheme (its assets, plus the value of the future pre-1987 debt repayments for PECRS) to the resources that would be required to meet its funding target.

Funding target

This is that the assets should be sufficient over the long term to support the benefits payable from the Fund in respect of the current members of the Fund. The resources of the Fund required to meet the funding target are determined by assessing the present value of the benefits that will be paid from the Fund in the future, based on pensionable service prior to the valuation date.

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.