Consumer-led pension strategy – Workstream 1

Long-list of pensions strategies

Western Power Distribution

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pwc

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Introduction

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1.1 Background and context

Over the current decade the network companies face an unprecedented challenge of securing significant investment to maintain a reliable and secure network. As the regulator, Ofgem's role is to ensure that this investment is delivered at a fair price for consumers.

To help achieve this, Ofgem developed RIIO (Revenue = Incentives + Innovation + Outputs) – A performance based model for setting the network companies' price controls, which lasts for eight years. RIIO is designed to encourage network companies to:

- Put stakeholders at the heart of their decision making process;

- Invest efficiently to ensure continued safe and reliable services;

- Innovate to reduce network costs for current and future consumers; and

- Play a full role in delivering a low carbon economy and wider environmental objectives.

It is relatively early days in the new world of enhanced consumer consultation and to date a number of areas have been excluded from the consultation process by network operators. However, Ofgem have been explicit that pension costs (due to their complex nature and significant cost/risk to consumers) must now be included and the strategies adopted by network operators for running their pension schemes need to be in line with their consumer's views on efficiency.

Western Power Distribution ('WPD') instructed us in November 2015 to support them as they developed their approach to consulting with their consumers to determine the most efficient way to fund their pension schemes. The scope of our engagement included working with WPD to design and implement a methodology to seek consumers' views on how WPD should fund its pension schemes, using a combination of quantitative, qualitative and academic research based techniques. The engagement deadline was September 2016 in order to enable the results from the research to be implemented in the 2016 actuarial valuations of WPD's pension schemes.

During the early days of the engagement, Ofgem published a consultation on 16 March 2016 titled 'Second Consultation on Ofgem's policy for funding Network Operators' Pension Scheme Established Deficits.' This set-out the requirement for network operators to consult with consumers regarding their approach to funding their pension schemes. While the consultation document did not significantly alter the methodologies developed as part of our engagement, it did provide additional validation of the approach taken.

Some relevant excerpts from the consultation document are as follows:

1.6 We also outlined a marked shift from our current approach, that envisages penalties for NWOs that are outliers in the way their Pension Scheme Established Deficits are managed or valued, to **'a new approach that looks instead to NWOs to demonstrate how they are participating in the governance of pension schemes on behalf of the consumers'** (who are underwriting the risks involved).
We believe this approach more constructively recognises the substance of relationships between NWOs and pension scheme trustees who are ultimately responsible for the schemes. Respondents also broadly supported the direction of this thinking.

1.7 The aim of our proposed reforms is two-fold: (a) to underline Ofgem's commitment to consumer funding of Pension Scheme Established Deficits, which should help to minimise the cost of financing the networks themselves to the benefit of consumers, and **(b) to encourage NWOs to pursue consumer-focused strategies for managing their commitments.**

1.10 NWOs have responsibilities towards their consumers and the strength of the employer covenant is in part underpinned by our funding commitment on behalf of consumers. **This means we can reasonably look to NWOs to represent the interests of consumers when they participate in pension scheme governance**
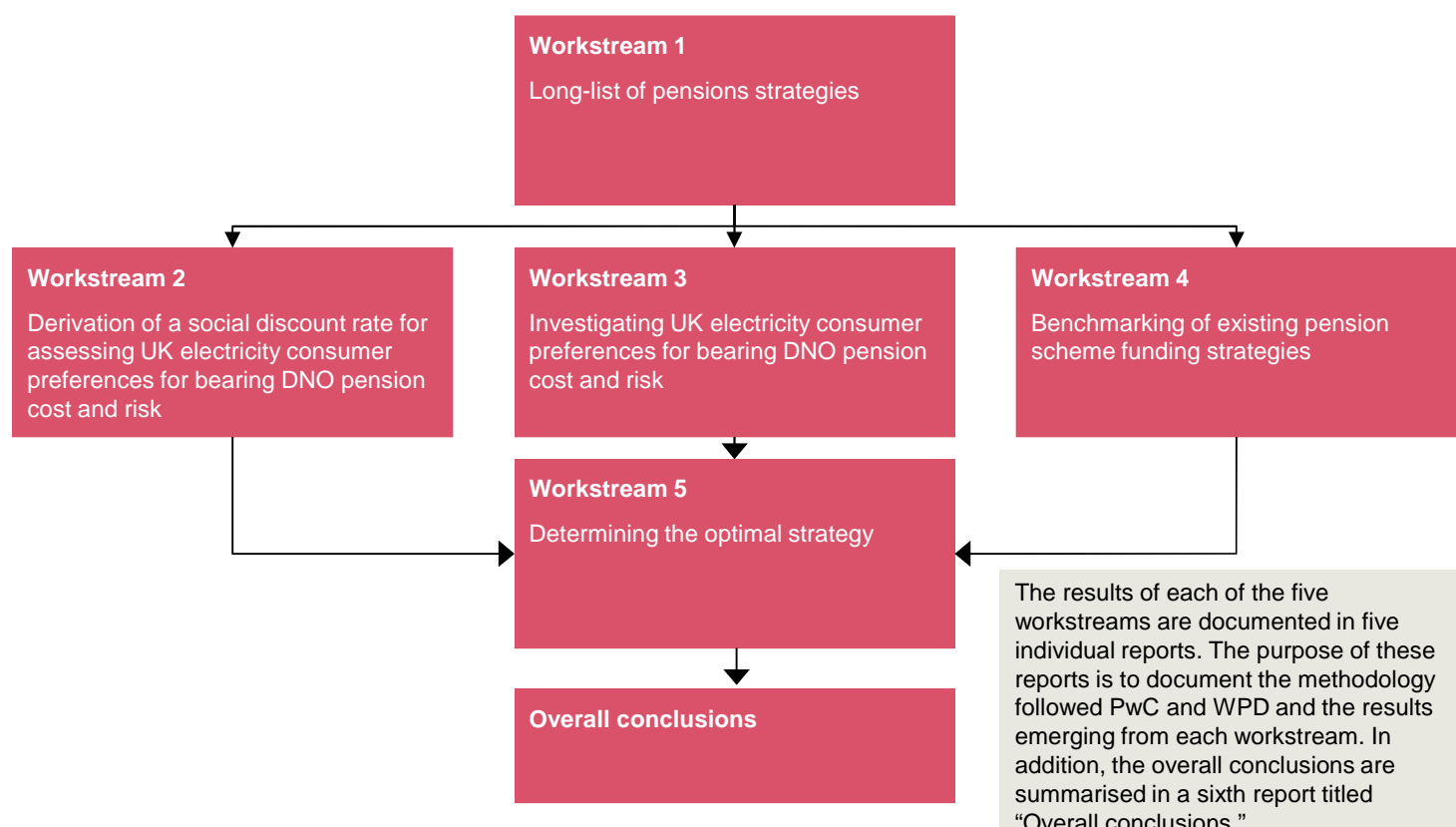
In addition the consultation document included two specific amendments to Ofgem's policy for funding network operators' pension costs (called the pension principles) as follows:

1 Consumers should not be expected to pay any excess costs that are avoidable by efficient management action

8 In light of our funding commitment, we look to employers to participate in the governance of defined benefit pension schemes with the aim of protecting the interests of the consumers who are exposed to any Established Deficit, in balance with the interest of shareholders who would be underwriting any remaining deficit. **To this end, we would look to employers to inform investment, benefit and funding strategies with objective and where possible evidence-based insights into the interests of consumers, recognising that tomorrow's consumers are as relevant as today's.** We look to employers to report transparently on their participation in the governance of these schemes.

1.2 Overview of the methodology

The methodology adopted by PwC and WPD comprised of five workstreams as follows:

Workstream	Purpose
1. Long-list of pensions strategies	• To identify the long-list of pensions strategies which could be adopted by WPD and determine their cost and risk profile for consumers.
2. Derivation of a social discount rate for assessing UK electricity consumer preferences for bearing DNO pension cost and risk	• To determine a discount rate using the academic research carried out to date for the purpose of comparing the relative cost (from a consumer and society perspective) of each of the pension strategies identified in Workstream 1 .
3. Investigating UK electricity consumer preferences for bearing DNO pension cost and risk	• Use primary research techniques to: – Validate and inform an amendment to the social discount rate determined in Workstream 2. – Determine other relevant factors for the purpose of assessing consumers' preferred pension strategy in Workstream 1.
4. Benchmarking of existing pension scheme funding strategies	• To provide relevant UK benchmarks for the funding of defined benefit pension schemes to provide additional validation that consumers' preferences are capable of practical implementation.
5. Determining the optimal strategy	• To assess the long-list of pension strategies using the results of Workstreams 2, 3 and 4 in order to arrive at a pensions strategy arrived at using evidence based insights into the interests of consumers recognising that tomorrow's consumers are as relevant as today's.

Workstream 1

Long-list of pensions strategies

Workstream 2

Derivation of a social discount rate for assessing UK electricity consumer preferences for bearing DNO pension cost and risk

Workstream 3

Investigating UK electricity consumer preferences for bearing DNO pension cost and risk

Workstream 4

Benchmarking of existing pension scheme funding strategies

Workstream 5

Determining the optimal strategy

Overall conclusions

The results of each of the five workstreams are documented in five individual reports. The purpose of these reports is to document the methodology followed PwC and WPD and the results emerging from each workstream. In addition, the overall conclusions are summarised in a sixth report titled "Overall conclusions."

1.3 Purpose of this report

The purpose of this report is to define a long-list of pension strategies that could be adopted by WPD's pension schemes and to present the outcomes of each of these strategies from a consumer perspective.

The outcome from each strategy is the pension scheme contributions (both the amount and the volatility) paid by electricity consumers as part of their electricity bills under different future economic scenarios.

The results of the analysis set-out in this report are then assessed from a consumer interest perspective in the report titled 'Determining the optimal strategy'.

What is a pensions strategy?

2

2.1 Overview

A pensions strategy is a business plan for a pension scheme. It is a pre-defined plan of action designed to achieve a specific objective which has been developed from a suitable level of analysis and using reasonable assumptions for future outcomes (e.g. economic, demographic and behavioural).

The purpose of a pension scheme is to provide the promised pension payments to every member of the pension scheme when they are due. Therefore the overarching assumption in the pensions strategies presented in this report is that the primary objective is to ensure that there is sufficient money in the schemes to pay every pension payment.

From a pension scheme perspective there are a wide-range of components that could be included within the strategies but for the purposes of this analysis the components have been categorised as primary and secondary components.

A primary component has significant and direct influence on pensions cost from both a level and cost variability perspective whereas secondary components (from a pensions perspective only) primarily influence cost only.

The reason for making this distinction is that the primary components require a sophisticated (but well defined) evaluation to determine their relative attractiveness to consumers because they involve trade-offs between pension cost and pension cost variability only. The secondary components may appear to be more straightforward (as they predominantly reduce cost without the trade-off of increased pension cost variability), however, they can also have an indirect influence on operational and capital structure issues and so their assessment from a consumer perspective requires a much wider ranging degree of analysis.

Given that the primary components have the most significant impact on the cost/risk profile of the pension costs (and more that more wide ranging information would be required by consumers to make an informed decision on their assessment of the secondary components) the assessment that will be performed (and documented in the report titled 'Determining the optimal strategy') will focus on assessing the primary components only.

2.2 Primary and secondary components of a pensions strategy

The table below lists the suite of primary and secondary components which could be included in a pensions strategy.

Primary components	Secondary components

• **Funding target.**
  - Level
  - Time period
  - Use of insurance products (e.g. insurance company annuity purchase/ longevity hedge)
• **Required asset return**
• **Portfolio to deliver the required asset return**
• **Margins within the estimated liability cash flows**
• **Actions taken to correct positive or negative out-turn experience relative to the strategy**
	• One-off cost reductions
	  - **Benefit re-design**
	    e.g. reduce pension accrual rate or increase member contributions).
	  - **Closure to future accrual**
	    e.g. all employees join a defined contribution scheme for new pension accrual).
	  - **Alternative options for pensioners**/ exchange their increasing pension for a higher non-increasing pension.
	  - **Alternative options for employees/ ex-employees**
	    e.g. for over 55 year-olds draw their accrued pension as part of the government's new pensions freedoms.
	  - **Buy-out Protected Persons status**
	    e.g. offer members the option of leaving the defined benefit scheme and joining the defined contribution scheme in exchange for a compensation payment.
	
	• **Replacing inflation index used in schemes**
	  - Adopting CPI rather than RPI as the measure for pension increases.
	
	• **General efficiency improvements**
	  - Eg. salary sacrifice for pension contributions or use of technology solutions to drive cost efficiencies.
	
	• **Cash deferral/security improvement**
	  - Asset-backed contributions.
	
	• **Monetising the covenant**
	  - Inflation funding mechanism.
	  - Interest rate contingency.
	  - Other form of security.

Long-list of strategies for consideration

3

3.1 Introduction

The following sections set-out a long-list of pensions strategies which could be adopted by WPD's defined benefit pension schemes

For each strategy, a stochastic simulation (10,000 simulations) was performed in order to identify the distribution of the pensions component of consumer bills.

The long-list of pensions strategies ranges from strategies which have a significant growth component and lower degrees of interest rate and inflation hedging through strategies with greater degrees of de-risking and ending with strategies which are fully cashflow matched or bought out with an
insurance company

3.2 Strategy 1A

3.2.1 Detail of strategy

Name of strategy	1A
Description/type	Typical growth strategy

1. Key strategic parameters

1.1 Funding target (level)	GY +0% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)	Average return of GY+2.1% p.a. over 20 years For example could be delivered by as a fixed GY+2.1% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+3.40% p.a.
5-10	GY+2.85% p.a.
10-15	GY+1.70% p.a.
15-20	GY+0.55% p.a.

1.4 Asset portfolio to deliver the desired investment return	

Time	Asset portfolio
0-5	60% equity: 40% AA rated corporate bonds
5-10	30% equity: 30% AA rated corporate bonds: 30% multi-asset credit; 10% Gilts and LDI
10-15	40% AA rated corporate bonds: 40% multi-asset credit; 20% Gilts and LDI
15-20	75% AA rated corporate bonds: 25% Gilts and LDI
20+ (i.e. funding target)	100% Gilts and LDI

3.2 Strategy 1A (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[1]

Average assumed return of GY +1.4% p.a. over 20 years. For example could be assumed to be a fixed GY+1.4% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+2.0% p.a.
5-10	GY+1.75% p.a.
10-15	GY+1.25% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

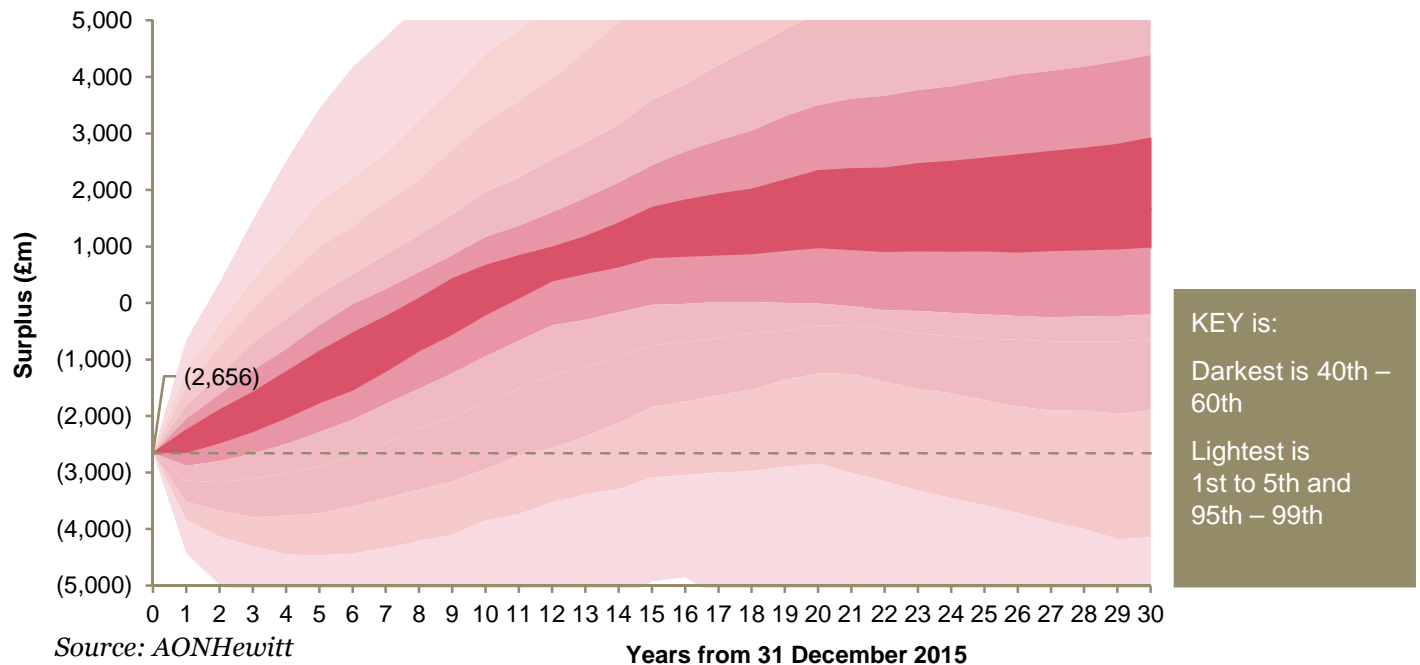|	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 60.8m p.a.	£ 79.3m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

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1. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate
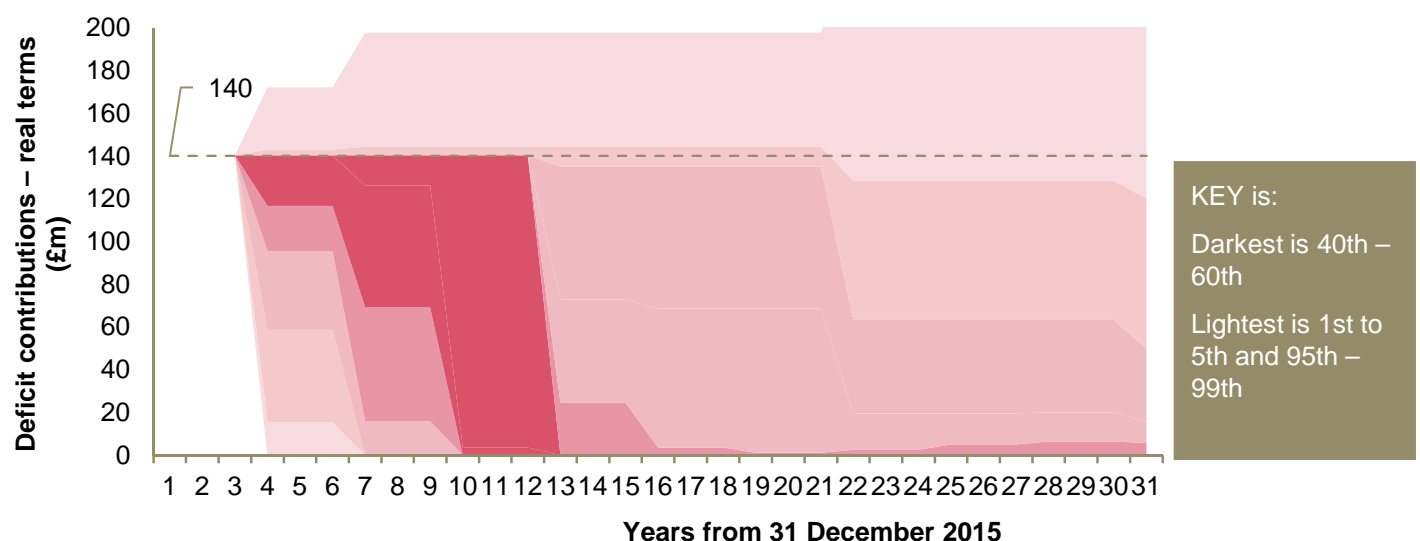
3.2 Strategy 1A (Cont'd)

3.2.2 Progression of deficit/surplus under strategy 1A

Source: AONHewitt

KEY is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th

3.2.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.2.4 Progression of deficit contributions under strategy 1A

KEY is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th

3.2 Strategy 1A (Cont'd)

3.2.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.2.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	140	140	140	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	140	140	140	140	140	140	126	126	126	4	4	4	-	-	-	-	-	-	-	-
95th percentile	140	140	140	143	143	143	144	144	144	144	144	144	144	144	144	144	144	144	144	144

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	144	144	129	129	129	129	129	129	129	129	129	120	120	120	120	120	120	120	120	120	120

3.3 Strategy 1B

Detail of strategy

Name of strategy	1B
Description/type	Typical growth strategy, higher funding target

1. Key strategic parameters

1.1 Funding target (level)	GY +0.5% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)	Average return of GY+2.1% p.a. over 20 years

For example could be delivered by as a fixed GY+2.1% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+3.4% p.a.
5-10	GY+2.85% p.a.
10-15	GY+1.7% p.a.
15-20	GY+0.55% p.a.

1.4 Asset portfolio to deliver the desired investment return	

Time	Asset portfolio
0-5	60% equity: 40% AA rated corporate bonds
5-10	30% equity: 30% AA rated corporate bonds: 30% multi-asset credit; 10% Gilts and LDI
10-15	40% AA rated corporate bonds: 40% multi-asset credit; 20% Gilts and LDI
15-20	75% AA rated corporate bonds: 25% Gilts and LDI
20+ (i.e. funding target)	30% Gilts and LDI; 70% corporate bonds

3.3 Strategy 1B (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0.5% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[2]

Average assumed return of GY +1.4% p.a. over 20 years. For example could be assumed to be a fixed GY+1.4% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+2.0% p.a.
5-10	GY+1.75% p.a.
10-15	GY+1.25% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

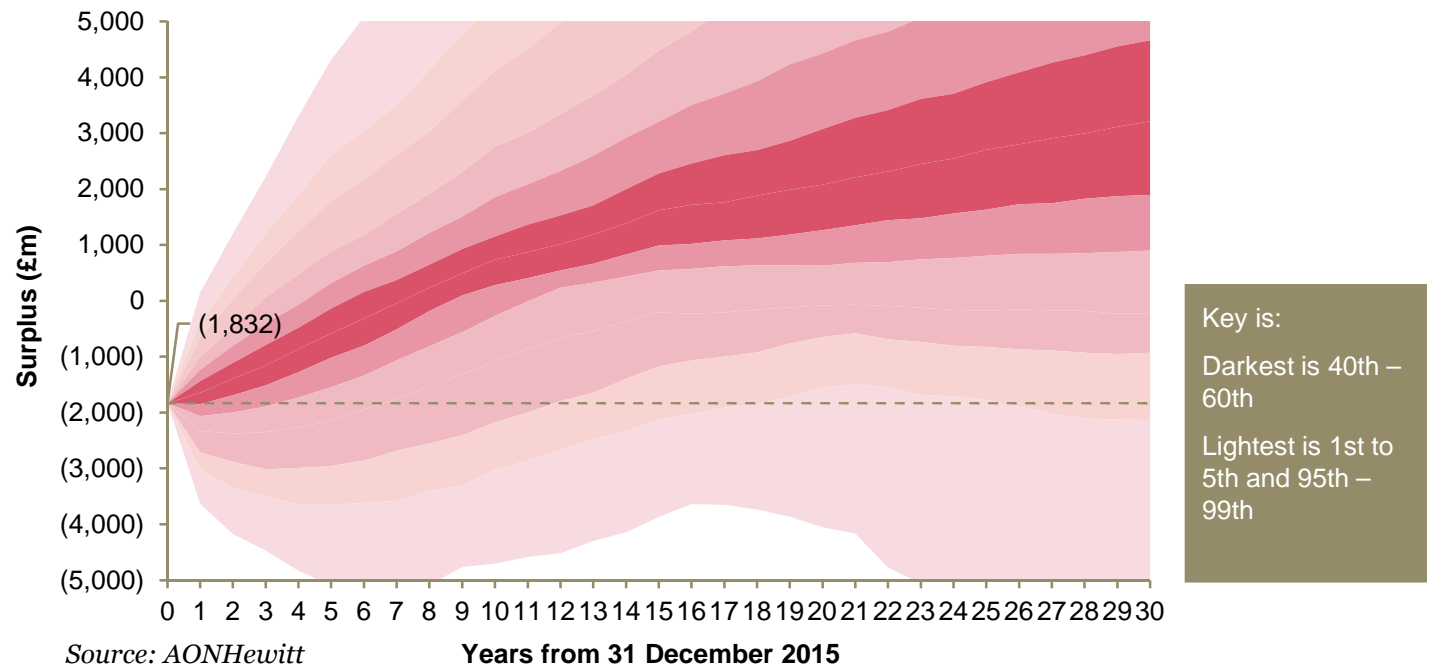|	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 46.9m p.a.	£ 65.8m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

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2 UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.
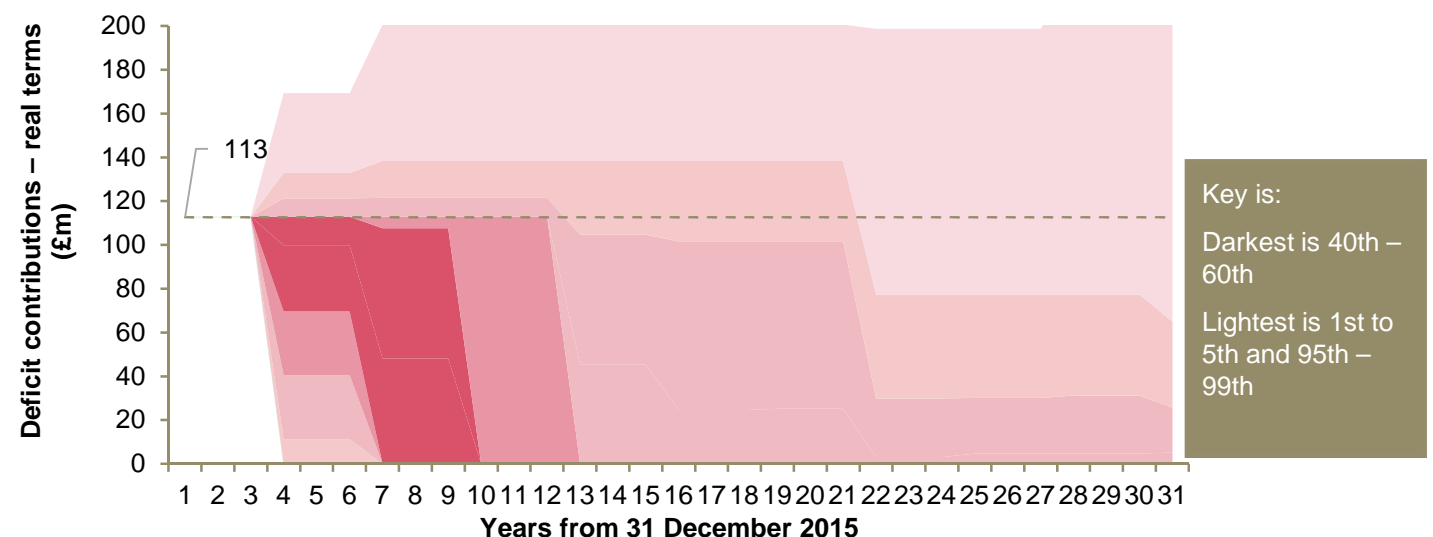
3.3 Strategy 1B (Cont'd)

3.3.2 Progression of deficit/surplus under strategy 1B

Source: AONHewitt

Years from 31 December 2015

Key is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th

3.3.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0.5% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.3.4 Progression of deficit contributions under strategy 1B

Years from 31 December 2015

Key is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th

3.3 Strategy 1B (Cont'd)

3.3.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.3.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	113	113	113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	113	113	113	100	100	100	48	48	48	-	-	-	-	-	-	-	-	-	-	-
95th percentile	113	113	113	133	133	133	138	138	138	138	138	138	138	138	138	138	138	138	138	138

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	138	138	77	77	77	77	77	77	77	77	77	65	65	65	65	65	65	65	65	65	65

3.4 Strategy 1C

3.4.1 Detail of strategy

Name of strategy	1C
Description/type	Typical growth strategy with more controlled risk
1. Key strategic parameters	
1.1 Funding target (level)	GY +0% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)

Average return of GY +1.9% p.a. over 20 years

For example could be delivered as a fixed GY+1.9% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+2.85% p.a.
5-10	GY+2.5% p.a.
10-15	GY+1.7% p.a.
15-20	GY+0.6% p.a.

1.4 Asset portfolio to deliver the desired investment return

Time	Asset portfolio
0-5	50% equity: 30% buy and maintain corporate bond portfolio; 20% Gilts and LDI
5-10	30% equity: 30% buy and maintain corporate bond portfolio: 20% multi-asset credit; 20% Gilts and LDI
10-15	40% buy and maintain corporate bond portfolio: 40% multi-asset credit; 20% Gilts and LDI
15-20	75% buy and maintain corporate bond portfolio: 25% Gilts and LDI
20+ (i.e. funding target)	100% Gilts and LDI

3.4 Strategy 1C (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[3]

Average assumed return of GY +1.4% p.a. over 20 years. For example could be assumed to be a fixed GY+1.4% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+2.0% p.a.
5-10	GY+1.75% p.a.
10-15	GY+1.25% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

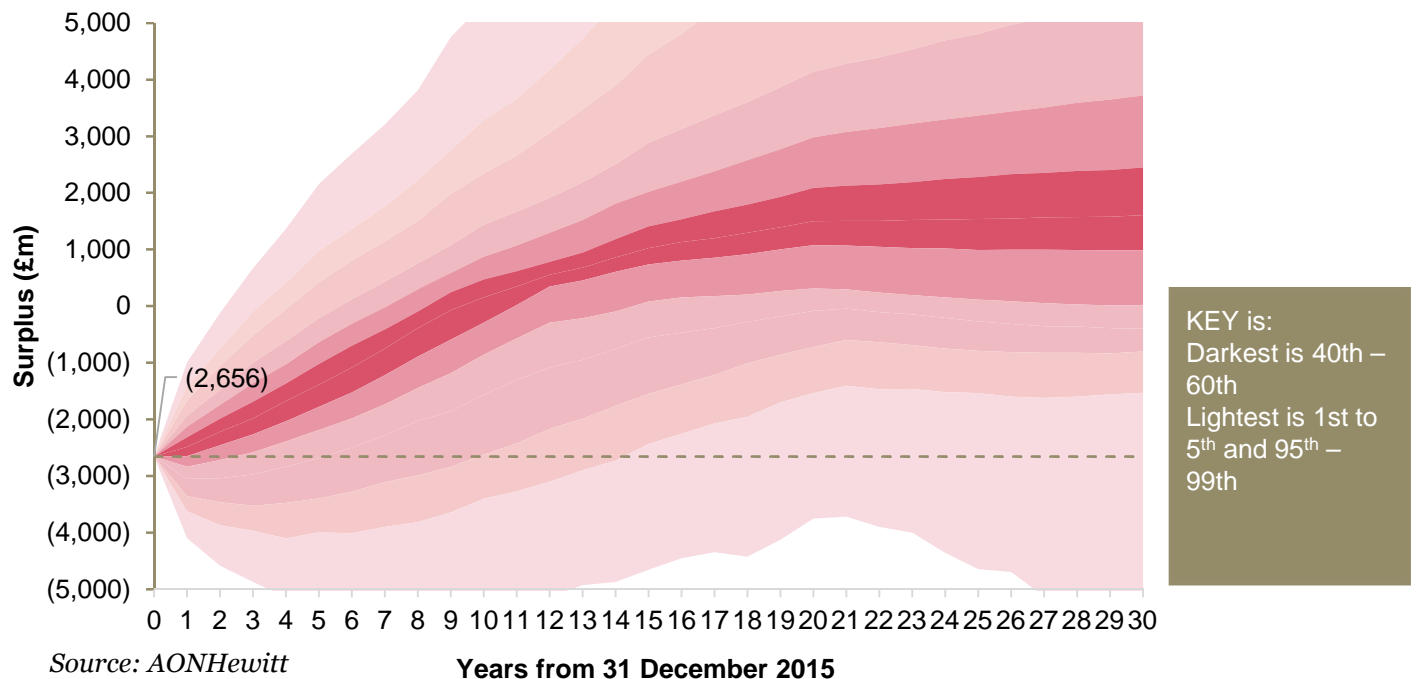|	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 60.8m p.a.	£ 79.3m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

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3. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate
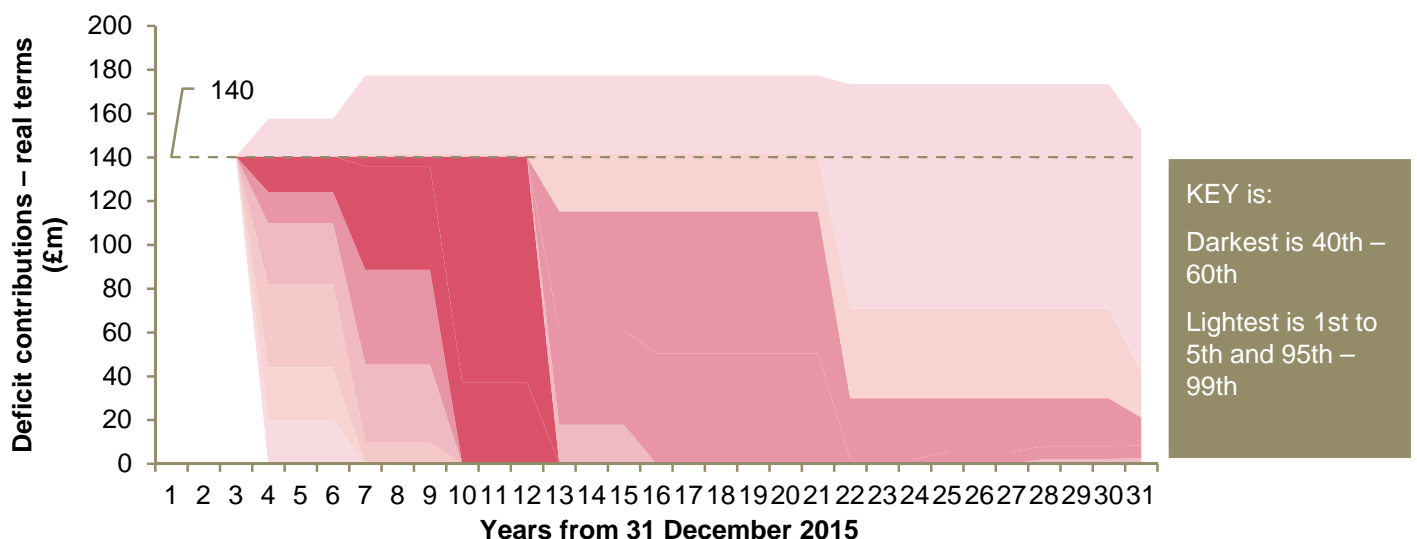
3.4 Strategy 1C (Cont'd)

3.4.2 Progression of deficit/surplus under strategy 1C

KEY is:
Darkest is 40th – 60th
Lightest is 1st to 5th and 95th – 99th

Source: AONHewitt

3.4.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.4.4 Progression of deficit contributions under strategy 1C

KEY is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th

3.4 Strategy 1C (Cont'd)

3.4.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms).

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.4.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4.

- Calculations use financial conditions at 31 December 2015.

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	140	140	140	20	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	140	140	140	140	140	140	136	136	136	37	37	37	-	-	-	-	-	-	-	-
95th percentile	140	140	140	140	140	140	142	142	142	142	142	142	142	142	142	142	142	142	142	142

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	142	142	71	71	71	71	71	71	71	71	71	42	42	42	42	42	42	42	42	42	42

3.5 Strategy 1D

3.5.1 Detail of strategy

Name of strategy	1D
Description/type	Typical growth strategy with more controlled risk, higher funding target

1. Key strategic parameters

1.1 Funding target (level)	GY +0.5% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)

Average return of GY+1.9% p.a. over 20 years

For example could be delivered by as a fixed GY+1.9% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+2.85% p.a.
5-10	GY+2.5% p.a.
10-15	GY+1.7% p.a.
15-20	GY+0.6% p.a.

1.4 Asset portfolio to deliver the desired investment return

Time	Asset portfolio
0-5	50% equity: 30% buy and maintain corporate bond portfolio; 20% Gilts and LDI
5-10	30% equity: 30% buy and maintain corporate bond portfolio: 20% multi-asset credit; 20% Gilts and LDI
10-15	40% buy and maintain corporate bond portfolio: 40% multi-asset credit; 20% Gilts and LDI
15-20	75% buy and maintain corporate bond portfolio: 25% Gilts and LDI
20+ (i.e. funding target)	70% buy and maintain corporate bond portfolio: 30% Gilts and LDI

3.5 Strategy 1D (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.2 Funding target (including margin for prudence)	GY +0.5% p.a.

2.2.3 Investment return assumption (before target met) – Including margin for prudence[4]	Average assumed return of GY +1.4% p.a. over 20 years. For example could be assumed to be a fixed GY+1.4% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+2.0% p.a.
5-10	GY+1.75% p.a.
10-15	GY+1.25% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected	• Deficit is calculated • Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) • Deficit repair contributions allow for the investment return assumption in section 2.2.2 • i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length
2.2.4 Action taken if worse than expected	• Deficit is calculated • Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) • Deficit repair contributions allow for the investment return assumption in section 2.2.2 • If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years • However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation • When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

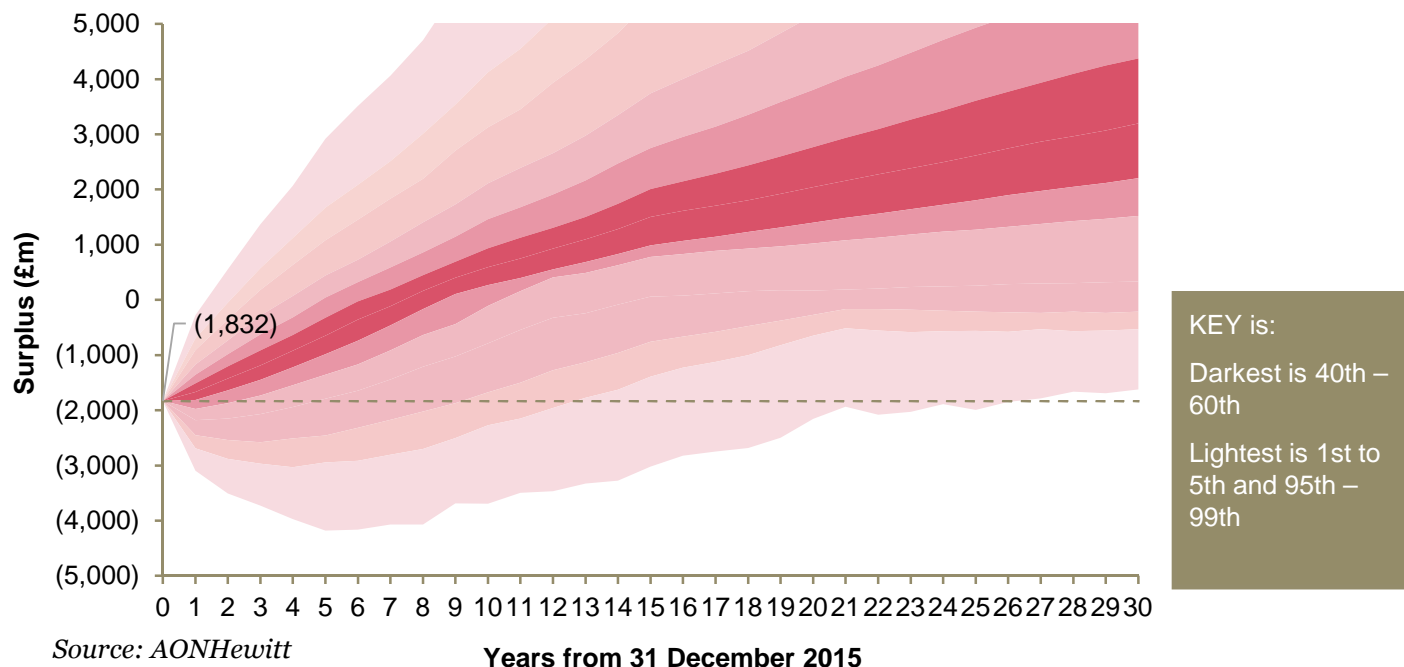| 2.2.5 Deficit contributions at 2016 actuarial valuation		CN ESPS	WPD ESPS
	Deficit contributions (10 years, RPI-linked)	£ 46.9m p.a.	£ 65.8m p.a.

3. Expected liability cashflows	• See Appendix 1 for membership summary, benefit specification and actuarial assumptions

---

4. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate

3.5 Strategy 1D (Cont'd)

3.5.2 Progression of deficit/surplus under strategy 1D

Source: AONHewitt

Years from 31 December 2015

KEY is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th

3.5.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0.5% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.5.4 Progression of deficit contributions under strategy 1D

Years from 31 December 2015

KEY is:

Dark green is 40th – 60th

Lightest is 1st to 5th and 95th – 99th
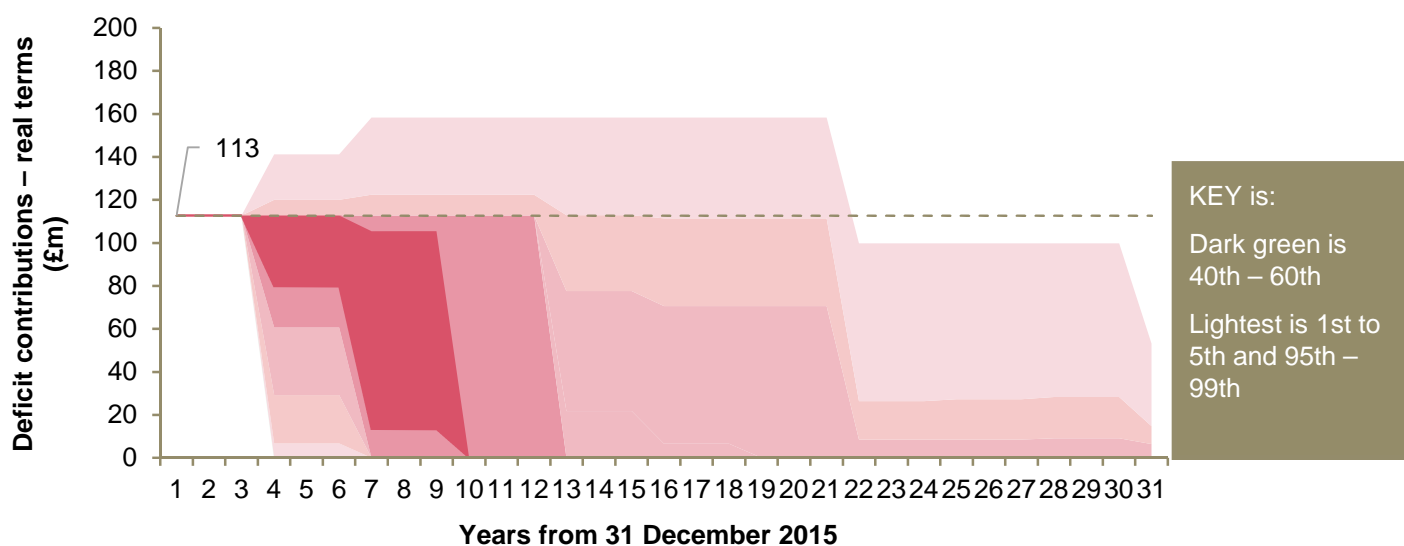
3.5 Strategy 1D (Cont'd)

3.5.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.5.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	113	113	113	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	113	113	113	103	103	103	55	55	55	-	-	-	-	-	-	-	-	-	-	-
95th percentile	113	113	113	120	120	120	122	122	122	122	122	122	113	113	113	111	111	111	111	111

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	111	111	26	26	26	27	27	27	28	28	28	15	15	15	16	16	16	16	16	16	16

3.6 Strategy 2A

3.6.1 Detail of strategy

Name of strategy	2A
Description/type	Lower risk, return-seeking strategy
1. Key strategic parameters	
1.1 Funding target (level)	GY +0% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)

Average return of GY+1.6% p.a. over 20 years

For example could be delivered by as a fixed GY+1.6% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+1.9% p.a.
5-10	GY+1.9% p.a.
10-15	GY+1.9% p.a.
15-20	GY+0.55% p.a.

1.4 Asset portfolio to deliver the desired investment return

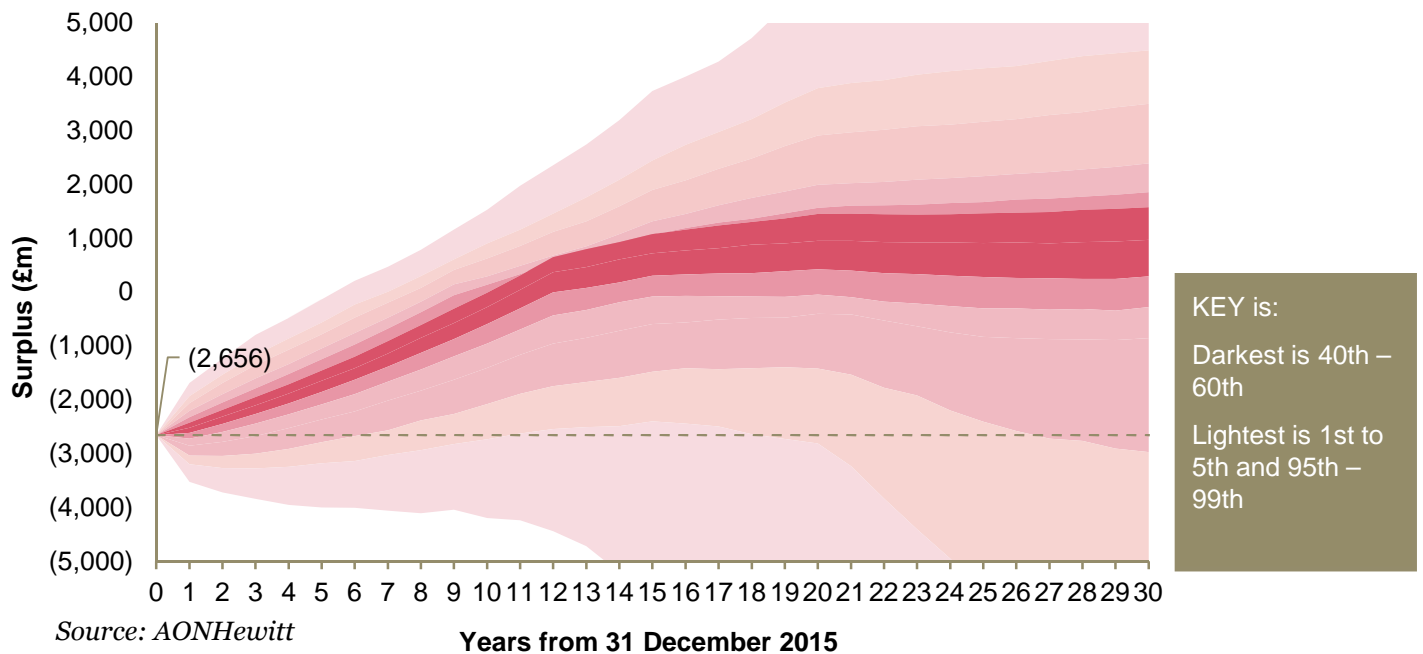| Time	Asset portfolio
0-5	40% diversified growth: 40% AA rated corporate bonds: 20% Gilts and LDI
5-10	
10-15	
15-20	75% AA rated corporate bonds: 25% Gilts and LDI
20+ (i.e. funding target)	100% Gilts and LDI

3.6 Strategy 2A (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[5]

Average assumed return of GY+1.2% p.a. over 20 years. For example could be assumed to be a fixed GY+1.2% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+1.4% p.a.
5-10	GY+1.4% p.a.
10-15	GY+1.4% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016.

2.2.5 Deficit contributions at 2016 actuarial valuation

	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 73.7m p.a.	£ 87.2m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

---

5. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate

3.6 Strategy 2A (Cont'd)

3.6.2 Progression of deficit/surplus under strategy 2A

Source: AONHewitt

Years from 31 December 2015

3.6.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.6.4 Progression of deficit contributions under strategy 2A

Years from 31 December 2015
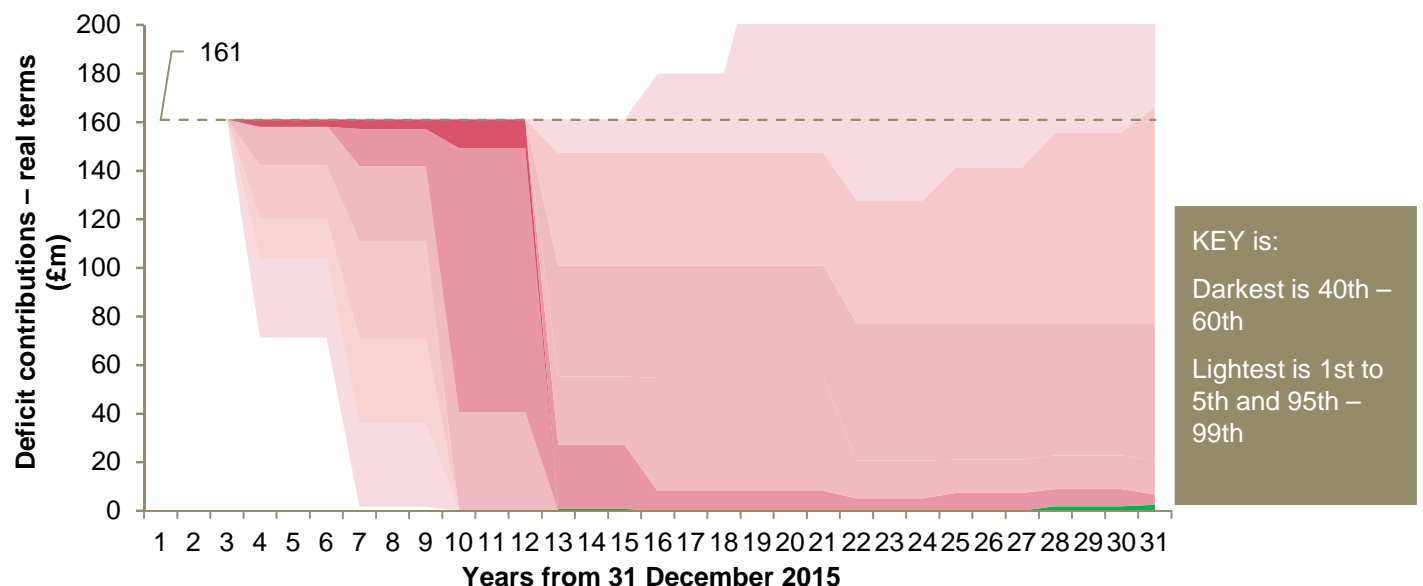
3.6 Strategy 2A (Cont'd)

3.6.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.6.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	161	161	161	104	104	104	36	36	36	-	-	-	-	-	-	-	-	-	-	-
Median	161	161	161	161	161	161	161	161	161	161	161	161	-	-	-	-	-	-	-	-
95th percentile	161	161	161	161	161	161	161	161	161	161	161	161	147	147	147	147	147	147	147	147

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	147	147	128	128	128	141	141	141	156	156	156	166	166	166	173	173	173	179	179	179	179

3.7 Strategy 2B

3.7.1 Detail of strategy

Name of strategy	2B
Description/type	Lower risk return-seeking strategy, lower funding target
1. Key strategic parameters	
1.1 Funding target (level)	GY+0.5% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)

Average return of GY +1.6% p.a. over 20 years

For example could be delivered as a fixed GY+1.6% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+1.9% p.a.
5-10	GY+1.9% p.a.
10-15	GY+1.9% p.a.
15-20	GY+0.55% p.a.

1.4 Asset portfolio to deliver the desired investment return

Time	Asset portfolio
0-5	40% diversified growth: 40% AA rated corporate bonds: 20% Gilts and LDI
5-10	
10-15	
15-20	75% AA rated corporate bonds: 25% Gilts and LDI
20+ (i.e. funding target)	70% AA rated corporate bonds: 30% Gilts and LDI

3.7 Strategy 2B (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)

2.2 Parameters at each assessment/intervention

2.2.1 Funding target (including margin for prudence)	GY +0.5% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[6]	Average assumed return of GY+1.2% p.a. over 20 years. For example could be assumed to be a fixed GY+1.2% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+1.4% p.a.
5-10	GY+1.4% p.a.
10-15	GY+1.4% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected	• Deficit is calculated • Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) • Deficit repair contributions allow for the investment return assumption in section 2.2.2 • i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length
2.2.4 Action taken if worse than expected	• Deficit is calculated • Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) • Deficit repair contributions allow for the investment return assumption in section 2.2.2 • If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years • However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation • When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation		CN ESPS	WPD ESPS
	Deficit contributions (10 years, RPI-linked)	£59.3 m p.a.	£ 73.2m p.a.

3. Expected liability cashflows	• See Appendix 1 for membership summary, benefit specification and actuarial assumptions

---

6. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.7 Strategy 2B (Cont'd)

3.7.2 Progression of deficit/surplus under strategy 2B

Source: AONHewitt

Years from 31 December 2015

3.7.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0.5% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.7.4 Progression of deficit contributions under strategy 2B

Years from 31 December 2015
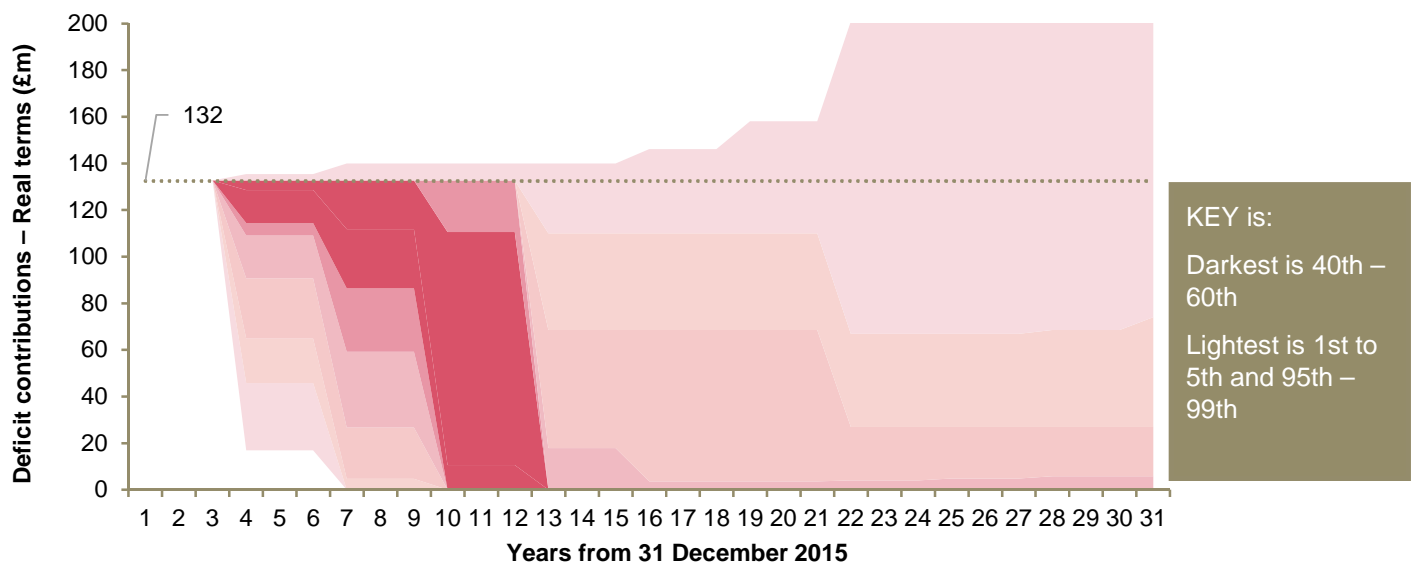
3.7 Strategy 2B (Cont'd)

3.7.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.7.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	132	132	132	46	46	46	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	132	132	132	129	129	129	112	112	112	11	11	11	-	-	-	-	-	-	-	-
95th percentile	132	132	132	132	132	132	132	132	132	132	132	132	110	110	110	110	110	110	110	110

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	110	110	67	67	67	67	67	67	69	69	69	74	74	74	81	81	81	89	89	89	105

3.8 Strategy 2C

3.8.1 Detail of strategy

Name of strategy	2A
Description/type	Lower risk, return-seeking strategy, higher hedging
1. Key strategic parameters	
1.1 Funding target (level)	GY+0% p.a.
1.2 Funding target (time period)	20 years
1.3 Desired investment return (before funding target met)	Average return of GY +1.6% p.a. over 20 years

1.3 Desired investment return (before funding target met):

For example could be delivered as a fixed GY+1.6% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+1.9% p.a.
5-10	GY+1.9% p.a.
10-15	GY+1.9% p.a.
15-20	GY+0.6% p.a.

1.4 Asset portfolio to deliver the desired investment return:

Time	Asset portfolio
0-5	40% diversified growth: 40% buy and maintain corporate bond portfolio: 20% Gilts and LDI
5-10	
10-15	
15-20	75% buy and maintain corporate bond portfolio: 25% Gilts and LDI
20+ (i.e. funding target)	100% Gilts and LDI

3.8 Strategy 2C (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY+0% p.a.
2.2.2 Investment return assumption (before target met) – Including margin for prudence[7]	Average assumed return of GY+1.2% p.a. over 20 years. For example could be assumed to be a fixed GY+1.2% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+1.4% p.a.
5-10	GY+1.4% p.a.
10-15	GY+1.4% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected	• Deficit is calculated • Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) • Deficit repair contributions allow for the investment return assumption in section 2.2.2 • i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length
2.2.4 Action taken if worse than expected	• Deficit is calculated • Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) • Deficit repair contributions allow for the investment return assumption in section 2.2.2 • If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years • However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation • When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation		CN ESPS	WPD ESPS
	Deficit contributions (10 years, RPI-linked)	£ 73.7m p.a.	£ 87.2m p.a.

3. Expected liability cashflows	• See Appendix 1 for membership summary, benefit specification and actuarial assumptions

---

7. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.8 Strategy 2C (Cont'd)

3.8.2 Progression of deficit/surplus under strategy 2C

Source: AONHewitt

3.8.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.8.4 Progression of deficit contributions under strategy 2C
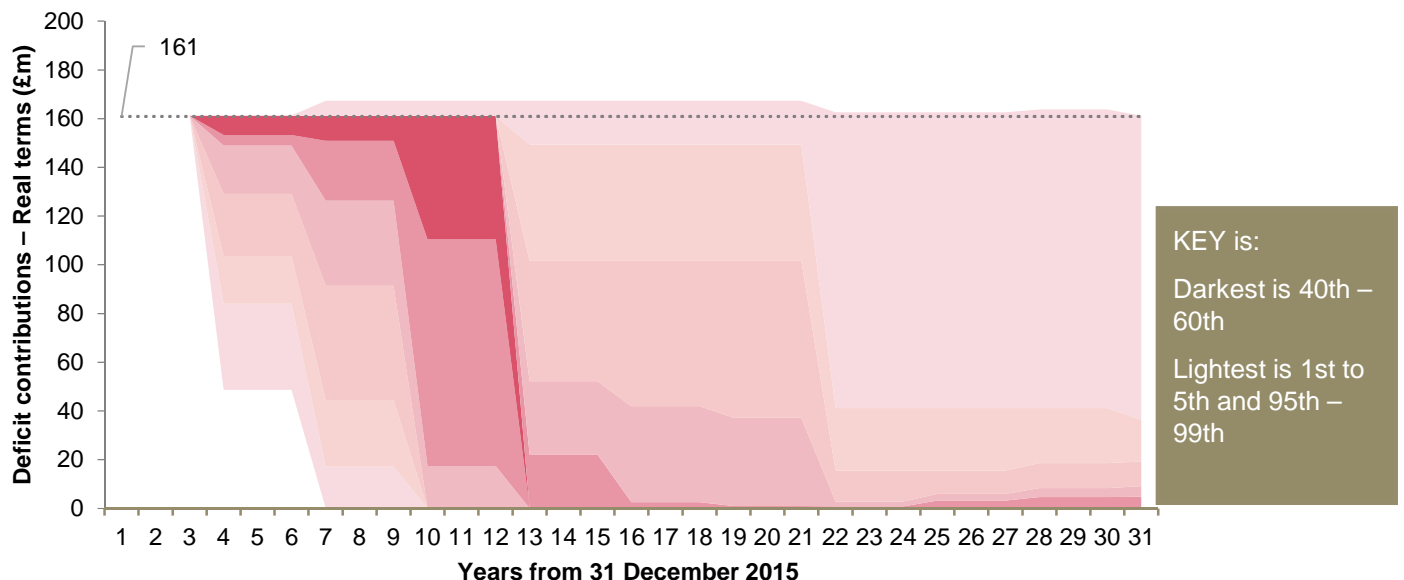
3.8 Strategy 2C (Cont'd)

3.8.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.8.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	161	161	161	84	84	84	17	17	17	-	-	-	-	-	-	-	-	-	-	-
Median	161	161	161	161	161	161	161	161	161	161	161	161	-	-	-	-	-	-	-	-
95th percentile	161	161	161	161	161	161	161	161	161	161	161	161	149	149	149	149	149	149	149	149

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	149	149	41	41	41	41	41	41	41	41	41	36	36	36	36	36	36	38	38	38	38

3.9 Strategy 2D

3.9.1 Detail of strategy

Name of strategy	2D
Description/type	Lower risk return-seeking strategy, higher hedging, lower funding target
1. Key strategic parameters	
1.1 Funding target (level)	GY+0.5% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)

Average return of GY +1.6% p.a. over 20 years

For example could be delivered as a fixed GY+1.6% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+1.9% p.a.
5-10	GY+1.9% p.a.
10-15	GY+1.9% p.a.
15-20	GY+0.6% p.a.

1.4 Asset portfolio to deliver the desired investment return

Time	Asset portfolio
0-5	40% diversified growth: 40% buy and maintain corporate bond portfolio: 20% Gilts and LDI
5-10	
10-15	
15-20	75% buy and maintain corporate bond portfolio: 25% Gilts and LDI
20+ (i.e. funding target)	70% buy and maintain corporate bond portfolio: 30% Gilts and LDI

3.9 Strategy 2D (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY+0.5% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[8]

Average assumed return of GY+1.2% p.a. over 20 years. For example could be assumed to be a fixed GY+1.2% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+1.4% p.a.
5-10	GY+1.4% p.a.
10-15	GY+1.4% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 59.3m p.a.	£ 73.2m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

8. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.9 Strategy 2D (Cont'd)

3.9.2 Progression of deficit/surplus under strategy 2D

Source: AONHewitt

Years from 31 December 2015

3.9.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0.5% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.9.4 Progression of deficit contributions under strategy 2D

Years from 31 December 2015
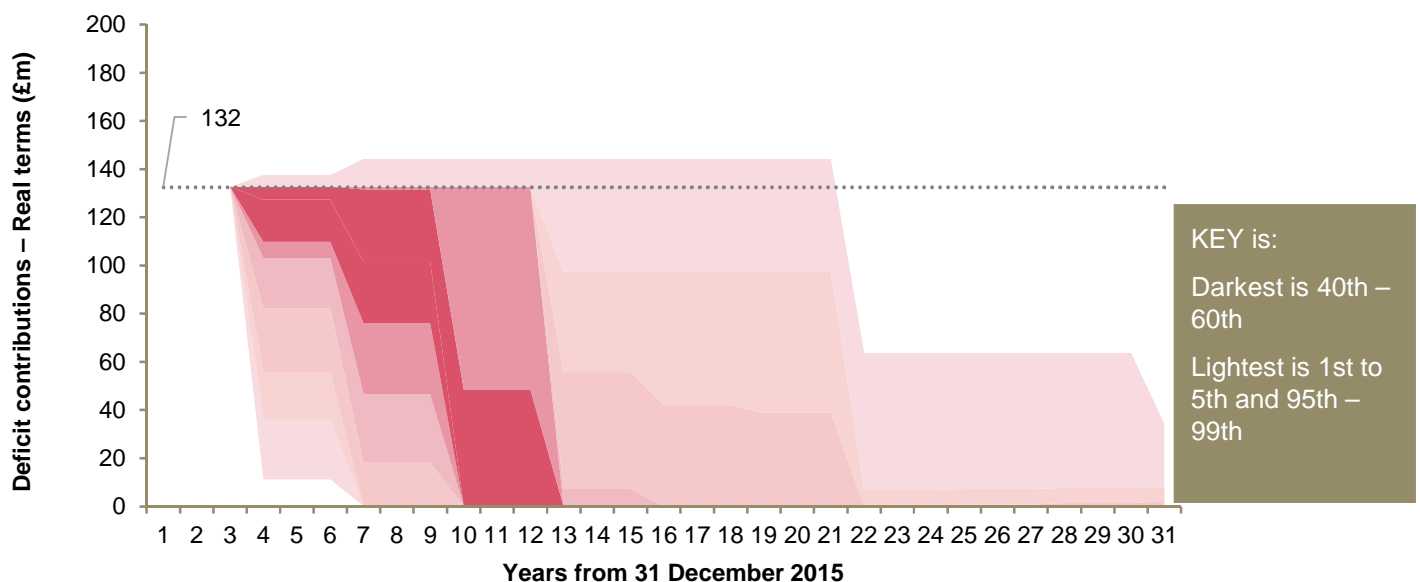
3.9 Strategy 2D (Cont'd)

3.9.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.9.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	132	132	132	36	36	36	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	132	132	132	127	127	127	101	101	101	-	-	-	-	-	-	-	-	-	-	-
95th percentile	132	132	132	132	132	132	132	132	132	132	132	132	97	97	97	97	97	97	97	97

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	97	97	7	7	7	7	7	7	8	8	8	8	8	8	9	9	9	10	10	10	11

3.10 Strategy 3A

3.10.1 Detail of strategy

Name of strategy	3A
Description/type	Typical bond based strategy
1. Key strategic parameters	
1.1 Funding target (level)	GY+0% p.a.
1.2 Funding target (time period)	20 years
1.3 Desired investment return (before funding target met)	Average return of GY +0.55% p.a. over 20 years For example could be delivered as a fixed GY+0.55% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+0.55% p.a.
5-10	GY+0.55% p.a.
10-15	GY+0.55% p.a.
15-20	GY+0.55% p.a.

1.4 Asset portfolio to deliver the desired investment return		

Time	Asset portfolio
0-5	75% AA rated corporate bonds: 25% Gilts and LDI
5-10	
10-15	
15-20	
20+ (i.e. funding target)	100% Gilts and LDI

3.10 Strategy 3A (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)

2.2 Parameters at each assessment/intervention

2.2.1 Funding target (including margin for prudence)	GY +0% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[9]

Average assumed return of GY+0.55% p.a. over 20 years, i.e. could be assumed to be:

Time	Assumed return including margins
0-5	GY+0.55% p.a.
5-10	GY+0.55% p.a.
10-15	GY+0.55% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 105.1m p.a.	£ 106.5m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

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9. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.10 Strategy 3A (Cont'd)

3.10.2 Progression of deficit/surplus under strategy 3A

Source: AONHewitt

3.10.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the02013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.10.4 Progression of deficit contributions under strategy 3A
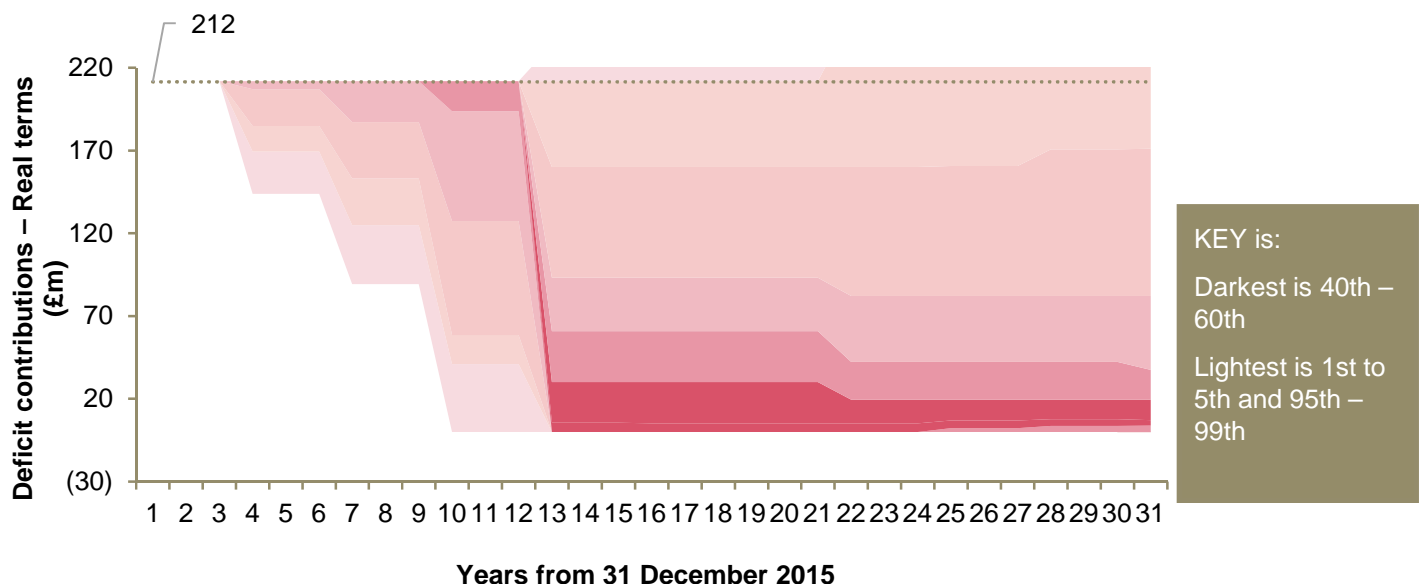
3.10 Strategy 3A (Cont'd)

3.10.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.10.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	212	212	212	169	169	169	125	125	125	41	41	41	-	-	-	-	-	-	-	-
Median	212	212	212	212	212	212	212	212	212	212	212	212	6	6	6	5	5	5	5	5
95th percentile	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212	212

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	5	5	5	5	5	7	7	7	8	8	8	7	7	7	7	7	7	7	7	7	7
95th percentile	212	212	250	250	250	280	280	280	304	304	304	316	316	316	322	322	322	341	341	341	341

3.11 Strategy 3B

3.11.1 Detail of strategy

Name of strategy	3B
Description/type	Typical bond based strategy, lower funding target
1. Key strategic parameters	
1.1 Funding target (level)	GY+0.5% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)

Average return of GY +0.55% p.a. over 20 years

For example could be delivered as a fixed GY+0.55% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+0.55% p.a.
5-10	GY+0.55% p.a.
10-15	GY+0.55% p.a.
15-20	GY+0.55% p.a.

1.4 Asset portfolio to deliver the desired investment return

Time	Asset portfolio
0-5	75% AA rated corporate bonds: 25% Gilts and LDI
5-10	
10-15	
15-20	
20+ (i.e. funding target)	70% AA rated corporate bonds: 30% Gilts and LDI

3.11 Strategy 3B (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0.5% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[10]

Average assumed return of GY 0.55% p.a. over 20 years, i.e. could be assumed to be:

Time	Assumed return including margins
0-5	GY+0.55% p.a.
5-10	GY+0.55% p.a.
10-15	GY+0.55% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected	• Deficit is calculated • Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) • Deficit repair contributions allow for the investment return assumption in section 2.2.2 • i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length
2.2.4 Action taken if worse than expected	• Deficit is calculated • Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) • Deficit repair contributions allow for the investment return assumption in section 2.2.2 • If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years • However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation • When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation		CN ESPS	WPD ESPS
	Deficit contributions (10 years, RPI-linked)	£ 89.4m p.a.	£ 91.2m p.a.

3. Expected liability cashflows	• See Appendix 1 for membership summary, benefit specification and actuarial assumptions

10. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.11 Strategy 3B (Cont'd)

3.11.2 Progression of deficit/surplus under strategy 3B

KEY is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th

Source: AONHewitt

3.11.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0.5% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.11.4 Progression of deficit contributions under strategy 3B

KEY is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th
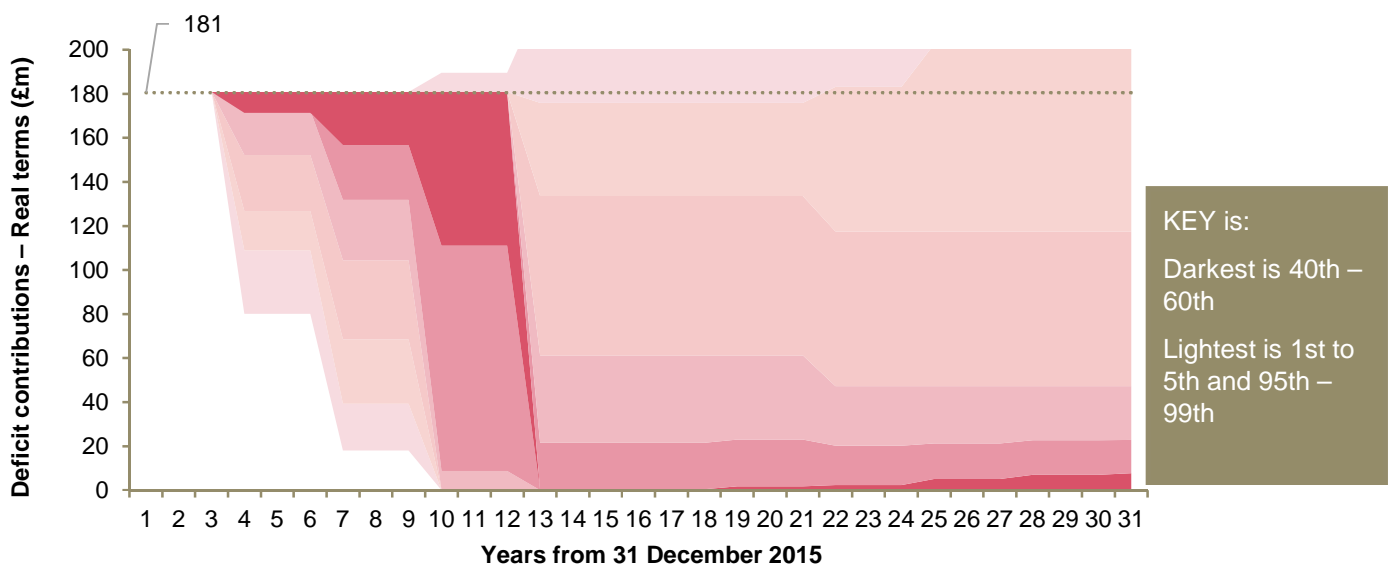
3.11 Strategy 3B (Cont'd)

3.11.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.11.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	181	181	181	109	109	109	39	39	39	-	-	-	-	-	-	-	-	-	-	-
Median	181	181	181	181	181	181	181	181	181	181	181	181	-	-	-	-	-	-	-	-
95th percentile	181	181	181	181	181	181	181	181	181	181	181	181	176	176	176	176	176	176	176	176

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	176	176	183	183	183	203	203	203	212	212	212	236	236	236	252	252	252	277	277	277	283

3.12 Strategy 3C

3.12.1 Detail of strategy

Name of strategy	3C
Description/type	Typical bond based strategy, controlled risk
1. Key strategic parameters	
1.1 Funding target (level)	GY +0% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)

Average return of GY +0.6% p.a. over 20 years

For example could be delivered as a fixed GY+0.6% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+0.6% p.a.
5-10	GY+0.6% p.a.
10-15	GY+0.6% p.a.
15-20	GY+0.6% p.a.

1.4 Asset portfolio to deliver the desired investment return

Time	Asset portfolio
0-5	75% buy and maintain corporate bond portfolio: 25% Gilts and LDI
5-10	
10-15	
15-20	
20+ (i.e. funding target)	100% Gilts and LDI

3.12 Strategy 3C (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[11]

Average assumed return of GY+0.55% p.a. over 20 years, i.e. could be assumed to be:

Time	Assumed return including margins
0-5	GY+0.55% p.a.
5-10	GY+0.55% p.a.
10-15	GY+0.55% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 105.1m p.a.	£ 106.5m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

11. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.12 Strategy 3C (Cont'd)

3.12 2 Progression of deficit/surplus under strategy 3C

Source: AONHewitt

Years from 31 December 2015

3.12.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.12.4 Progression of deficit contributions under strategy 3C

Years from 31 December 2015
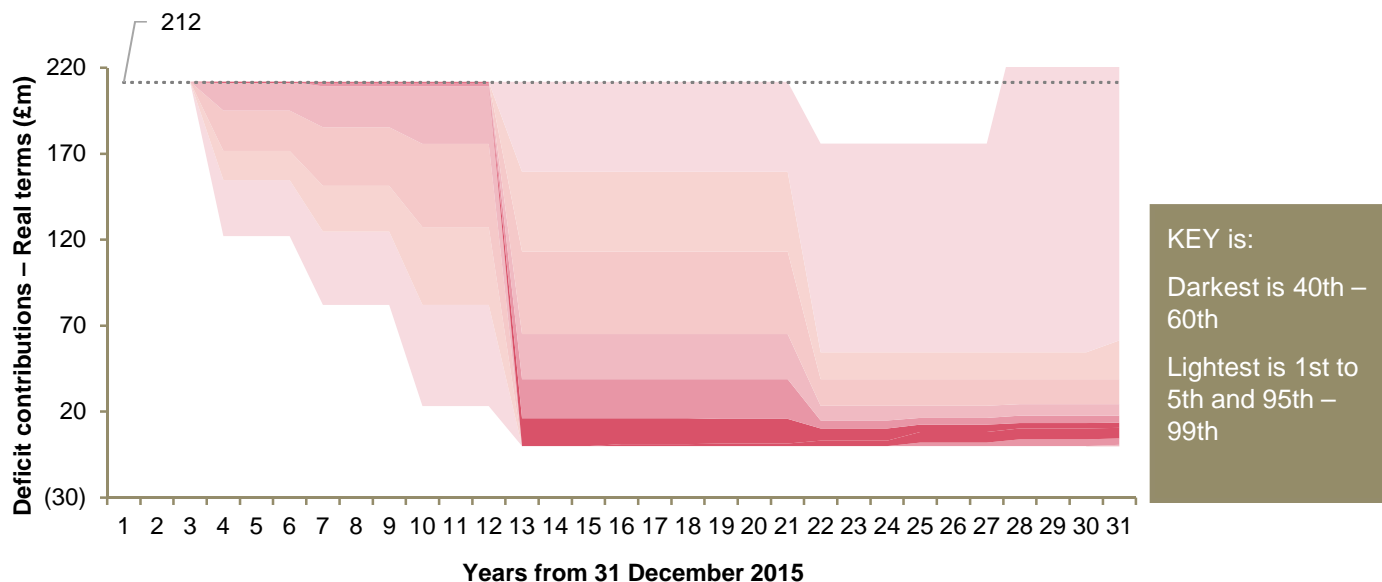
3.12 Strategy 3C (Cont'd)

3.12.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.12.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	212	212	212	155	155	155	125	125	125	82	82	82	-	-	-	-	-	-	-	-
Median	212	212	212	212	212	212	212	212	212	212	212	212	-	-	-	1	1	1	2	2
95th percentile	212	212	212	212	212	212	212	212	212	212	212	212	160	160	160	160	160	160	160	160

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	2	2	3	3	3	8	8	8	10	10	10	11	11	11	11	11	11	11	11	11	11
95th percentile	160	160	55	55	55	55	55	55	55	55	55	61	61	61	68	68	68	74	74	74	86

3.13 Strategy 3D

3.13.1 Detail of strategy

Name of strategy	3D
Description/type	Typical bond based strategy, controlled risk, lower funding target
1. Key strategic parameters	
1.1 Funding target (level)	GY +0.5% p.a.
1.2 Funding target (time period)	20 years
1.3 Desired investment return (before funding target met)	Average return of GY +0.6% p.a. over 20 years For example could be delivered as a fixed GY+0.6% p.a. for 20 years or could be delivered as:

Time	Desired return
0-5	GY+0.6% p.a.
5-10	GY+0.6% p.a.
10-15	GY+0.6% p.a.
15-20	GY+0.6% p.a.

1.4 Asset portfolio to deliver the desired investment return	

Time	Asset portfolio
0-5	75% buy and maintain corporate bond portfolio: 25% Gilts and LDI
5-10	
10-15	
15-20	
20+ (i.e. funding target)	70% buy and maintain corporate bond portfolio: 30% Gilts and LDI

3.13 Strategy 3D (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0.5% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[12]

Average assumed return of GY+0.55% p.a. over 20 years, i.e. could be assumed to be:

Time	Assumed return including margins
0-5	GY+0.55% p.a.
5-10	GY+0.55% p.a.
10-15	GY+0.55% p.a.
15-20	GY+0.55% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 89.4m p.a.	£ 91.2m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

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12. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.13 Strategy 3D (Cont'd)

3.13.2 Progression of deficit/surplus under strategy 3D

Source: AONHewitt

KEY is:

Darkest is 40th – 60th

Lightest is 1st to 5th and 95th – 99th

3.13.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0.5% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations

3.13.4 Progression of deficit contributions under strategy 3D

KEY is:

Darkest is 40–60

Lightest is 1 to 5 and 95 – 99
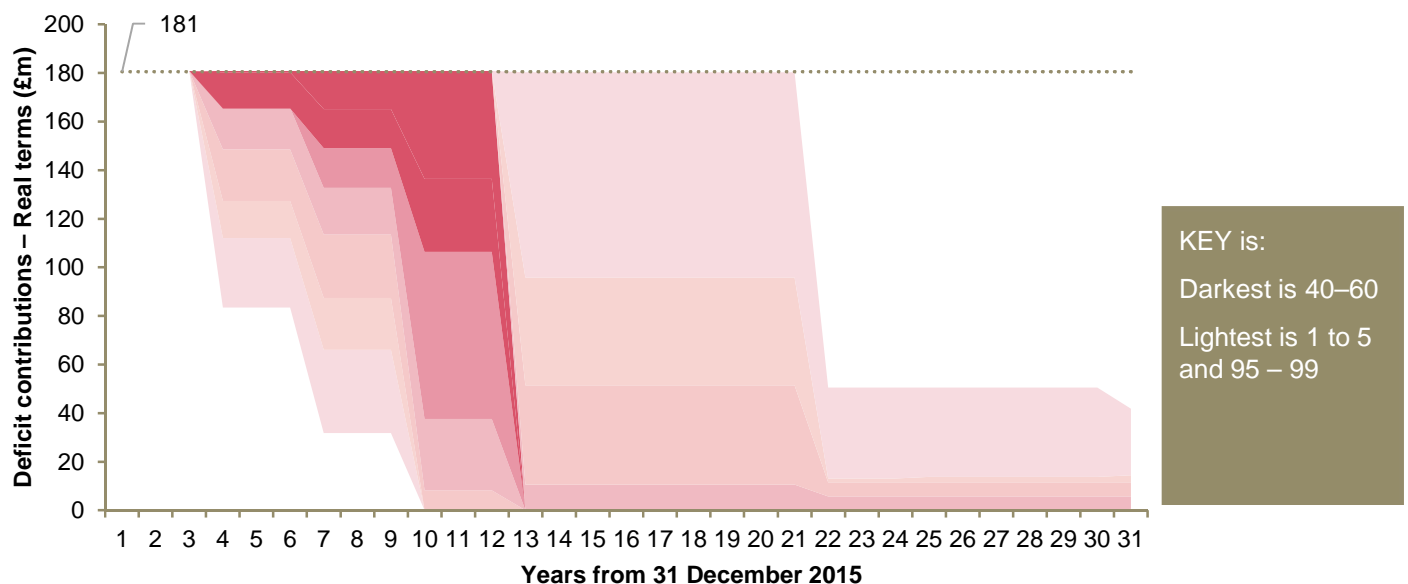
3.13 Strategy 3D (Cont'd)

3.13.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.13.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	181	181	181	112	112	112	66	66	66	-	-	-	-	-	-	-	-	-	-	-
Median	181	181	181	180	180	180	165	165	165	136	136	136	-	-	-	-	-	-	-	-
95th percentile	181	181	181	181	181	181	181	181	181	181	181	181	96	96	96	96	96	96	96	96

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	96	96	13	13	13	14	14	14	14	14	14	14	14	14	14	15	15	15	16	16	16	19

3.14 Strategy 4A

3.14.1 Detail of strategy

Name of strategy	4A
Description/type	Current strategy
1. Key strategic parameters	
1.1 Funding target (level)	GY +1.1% p.a.
1.2 Funding target (time period)	20 years

1.3 Desired investment return (before funding target met)

Average return of GY +2.3% p.a. over 20 years

For example could be delivered by:

Time	Desired return
0-5	GY+2.3% p.a.
5-10	GY+2.3% p.a.
10-15	GY+2.3% p.a.
15-20	GY+2.3% p.a.

1.4 Asset portfolio to deliver the desired investment return

Time	Asset portfolio
0-5	25% equity: 10% DGF: 15% multi-asset credit: 10% corporate bonds (50%/30%/20% A/AA/AAA-rated): 40% gilts and LDI
5-10	
10-15	
15-20	
20+ (i.e. funding target)	

3.14 Strategy 4A (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0.5% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[13]

Average assumed return of GY + 1.02% p.a. over 20 years. For example could be assumed to be a fixed GY + 1.02% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+1.23% p.a.
5-10	GY+1.23% p.a.
10-15	GY+0.80% p.a.
15-20	GY+0.80% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 7 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 7 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 10 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 105.9m p.a.	£ 87.1m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

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13. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.14 Strategy 4A (Cont'd)

3.14.2 Progression of deficit/surplus under strategy 4A

Source: AONHewitt

3.14.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0.5% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.14 4 Progression of deficit contributions under strategy 4A
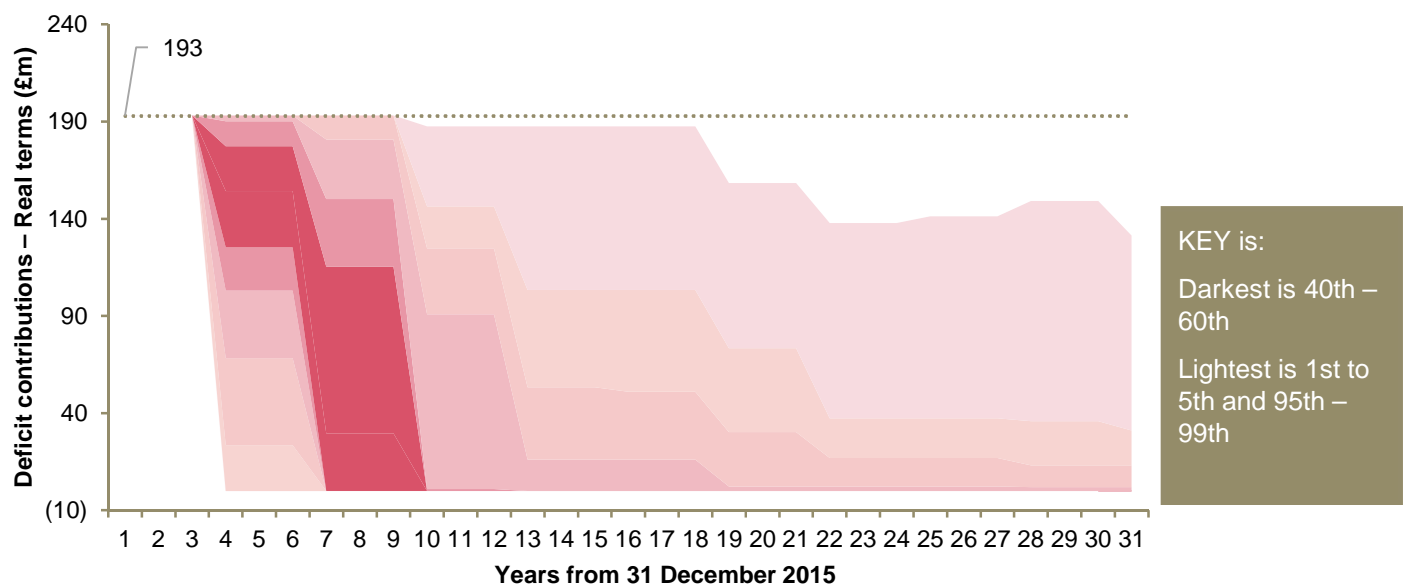
3.14 Strategy 4A (Cont'd)

3.14.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.14.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	193	193	193	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	193	193	193	154	154	154	30	30	30	-	-	-	-	-	-	-	-	-	-	-
95th percentile	193	193	193	193	193	193	193	193	193	146	146	146	104	104	104	104	104	104	73	73

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	73	73	37	37	37	37	37	37	36	36	36	31	31	31	31	31	31	30	30	30	30

3.15 Strategy 4B

3.15.1 Detail of strategy

Name of strategy	4B
Description/type	Current strategy, extended recovery plan
1. Key strategic parameters	
1.1 Funding target (level)	GY +1.1% p.a.
1.2 Funding target (time period)	20 years
1.3 Desired investment return (before funding target met)	Average return of GY +2.3% p.a. over 20 years For example could be delivered by:

Time	Desired return
0-5	GY+2.3% p.a.
5-10	GY+2.3% p.a.
10-15	GY+2.3% p.a.
15-20	GY+2.3% p.a.

1.4 Asset portfolio to deliver the desired investment return

Time	Asset portfolio
0-5	25% equity: 10% DGF: 15% multi-asset credit: 10% corporate bonds (50%/30%/20% A/AA/AAA-rated): 40% gilts and LDI
5-10	
10-15	
15-20	
20+ (i.e. funding target)	

3.15 Strategy 4B (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0.5% p.a.

2.2.2 Investment return assumption (before target met) – Including margin for prudence[14]

Average assumed return of GY + 1.02% p.a. over 20 years. For example could be assumed to be a fixed GY + 1.02% p.a. for 20 years or could be assumed to be:

Time	Assumed return including margins
0-5	GY+1.23% p.a.
5-10	GY+1.23% p.a.
10-15	GY+0.80% p.a.
15-20	GY+0.80% p.a.

2.2.3 Action taken if position is more positive than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length

2.2.4 Action taken if worse than expected

- Deficit is calculated
- Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation)
- Deficit repair contributions allow for the investment return assumption in section 2.2.2
- If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years
- However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation
- When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation

	CN ESPS	WPD ESPS
Deficit contributions (10 years, RPI-linked)	£ 75.0m p.a.	£ 87.1m p.a.

3. Expected liability cashflows

- See Appendix 1 for membership summary, benefit specification and actuarial assumptions

14. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.15 Strategy 4B (Cont'd)

3.15.2 Progression of deficit/surplus under strategy 4B

Source: AONHewitt

Years from 31 December 2015

3.15.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0.5% p.a.

- Results shown in the chart are produced from a stochastic simulation (10,000 simulations) using the assumptions and correlations set-out in Appendix 4

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.15.4 Progression of deficit contributions under strategy 4B

Years from 31 December 2015
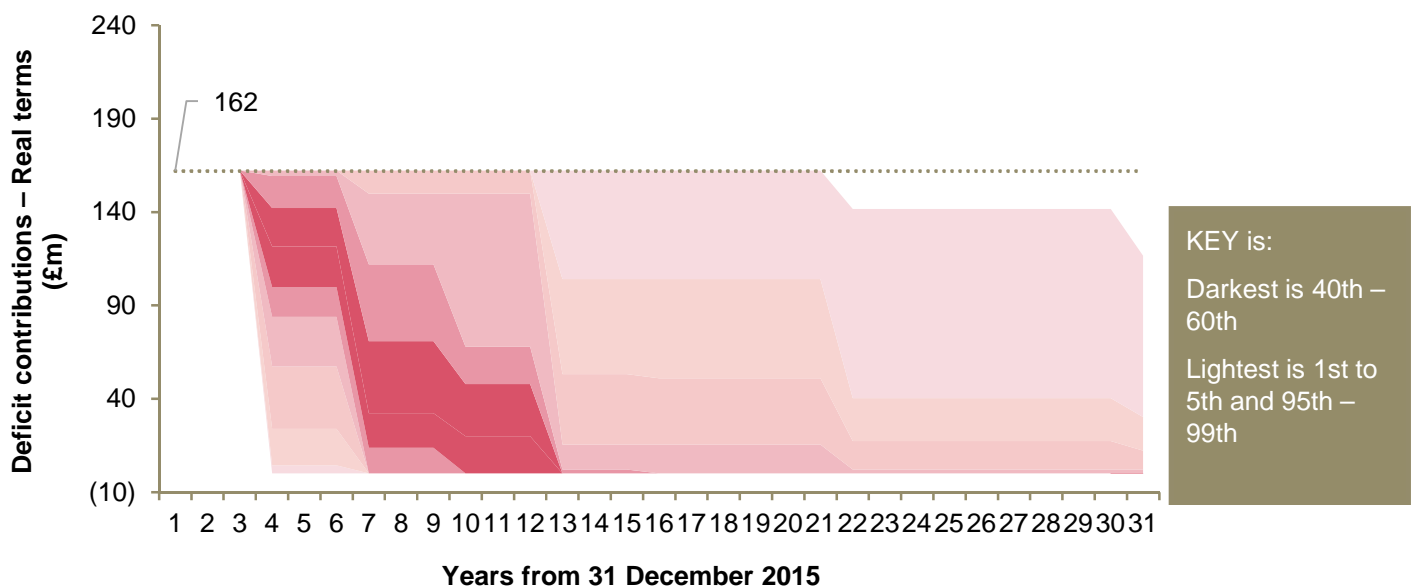
3.15 Strategy 4B (Cont'd)

3.15.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are produced from the stochastic modeling of deficits (see section 3.15.2).

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	162	162	162	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	162	162	162	122	122	122	32	32	32	20	20	20	-	-	-	-	-	-	-	-
95th percentile	162	162	162	162	162	162	162	162	162	162	162	162	104	104	104	104	104	104	104	104

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
95th percentile	104	104	40	40	40	40	40	40	40	40	40	30	30	30	30	30	30	29	29	29	29

3.16 Strategy 5A

3.16.1 Detail of strategy

Name of strategy	5A
Description/type	100% cashflow matched
1. Key strategic parameters	
1.1 Funding target (level)	GY +0.0% p.a.
1.2 Funding target (time period)	Immediate
1.3 Desired investment return (before funding target met)	Fixed return of GY +0% p.a. over 20 years

1.4 Asset portfolio to deliver the desired investment return

| Time	Asset portfolio
0-5	100% gilts and LDI
5-10	
10-15	
15-20	
20+ (i.e. funding target)	

3.16 Strategy 5A (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	Every three years (usual actuarial valuation cycle)
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	GY +0% p.a.
2.2.2 Investment return assumption (before target met) – Including margin for prudence[15]	Average assumed return of GY +0% p.a. over 20 years.
2.2.3 Action taken if position is more positive than expected	- Deficit is calculated - Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) - Deficit repair contributions allow for the investment return assumption in section 2.2.2 - i.e. positive experience will be used to reduce deficit contributions rather than recovery plan length
2.2.4 Action taken if worse than expected	- Deficit is calculated - Deficit is spread over balance of remaining recovery plan (deficit recovery plan will start at 10 years at the 2016 valuation) - Deficit repair contributions allow for the investment return assumption in section 2.2.2 - If the resulting deficit contributions are higher than previously paid then the deficit recovery period will be extended to 15 years - However, the deficit contributions paid will be no lower than those previously paid until the next actuarial valuation - When the calculated annual deficit contributions at an actuarial valuation increase by more than 50% than the prior year the funding target is increased by 5 years (and the next phase of de-risking is delayed by five years). The funding target will never be increased to more than 30 years from 2016

2.2.5 Deficit contributions at 2016 actuarial valuation		CN ESPS	WPD ESPS
	Deficit contributions (10 years, RPI-linked)	£ 136.0m p.a.	£ 125.3m p.a.

3. Expected liability cashflows	• See Appendix 1 for membership summary, benefit specification and actuarial assumptions

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16. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.16 Strategy 5A (Cont'd)

3.16.2 Progression of deficit/surplus under strategy 5A

Source: AONHewitt
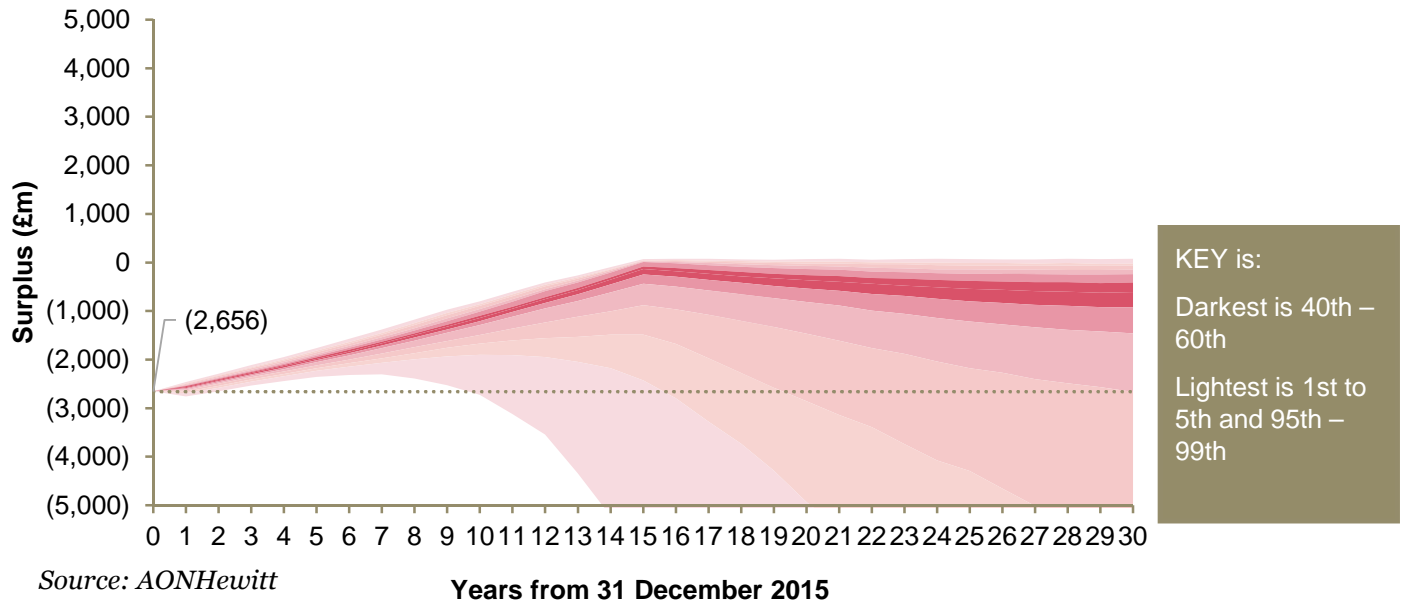
3.16.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/ surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Deficit/surplus calculated by discounting future liability cashflows at GY+0% p.a.

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.16.4 Progression of deficit contributions under strategy 5A
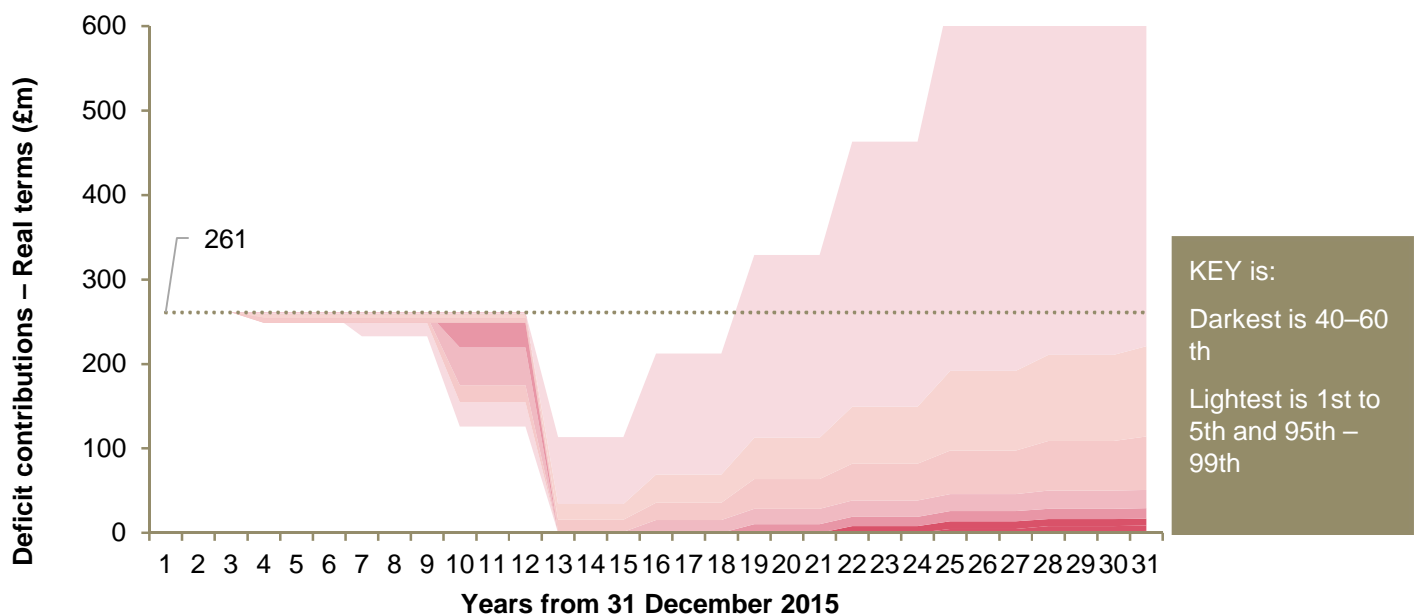
3.16 Strategy 5A (Cont'd)

3.16.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- Results shown in the chart are based on the assumption that the deficit is paid off uniformly over a period of 15 years

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action

specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	261	261	261	261	261	261	248	248	248	155	155	155	-	-	-	-	-	-	-	-
Median	261	261	261	261	261	261	261	261	261	261	261	261	-	-	-	-	-	-	-	-
95th percentile	261	261	261	261	261	261	261	261	261	261	261	261	34	34	34	69	69	69	113	113

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Median	-	-	-	-	-	5	5	5	8	8	8	9	9	9	10	10	10	10	10	10	11
95th percentile	113	113	149	149	149	192	192	192	211	211	211	221	221	221	240	240	240	255	255	255	257

3.17 Strategy 5B

3.17.1 Detail of strategy

Name of strategy	5B
Description/type	Buy-out
1. Key strategic parameters	
1.1 Funding target (level)	N/A
1.2 Funding target (time period)	N/A
1.3 Desired investment return (before funding target met)	N/A – Assets and liabilities transferred to an insurer at the valuation date
1.4 Asset portfolio to deliver the desired investment return	N/A – Assets and liabilities transferred to an insurer at the valuation date

3.17 Strategy 5B (Cont'd)

2. Corrective action when out-turn is not in line with the strategy

2.1 Frequency of assessment/intervention	N/A
2.2 Parameters at each assessment/intervention	
2.2.1 Funding target (including margin for prudence)	N/A
2.2.2 Investment return assumption (before target met) – Including margin for prudence[16]	N/A – Assets and liabilities transferred to an insurer at the valuation date
2.2.3 Action taken if position is more positive than expected	N/A – Assets and liabilities transferred to an insurer at the valuation date. Insurance premium paid over a period of 15 years
2.2.4 Action taken if worse than expected	

2.2.5 Deficit contributions at 2016 actuarial valuation		CN ESPS	WPD ESPS
	Deficit contributions (10 years, RPI-linked)	£ 143.3m p.a.	£ 132.1m p.a.

3. Expected liability cashflows	• See Appendix 1 for membership summary, benefit specification and actuarial assumptions

16. UK regulation requires actuarial valuations to contain a margin for prudence in the future asset return assumption compared to a best estimate.

3.17 Strategy 5B (Cont'd)

3.17.2 Progression of deficit/surplus under strategy 5B
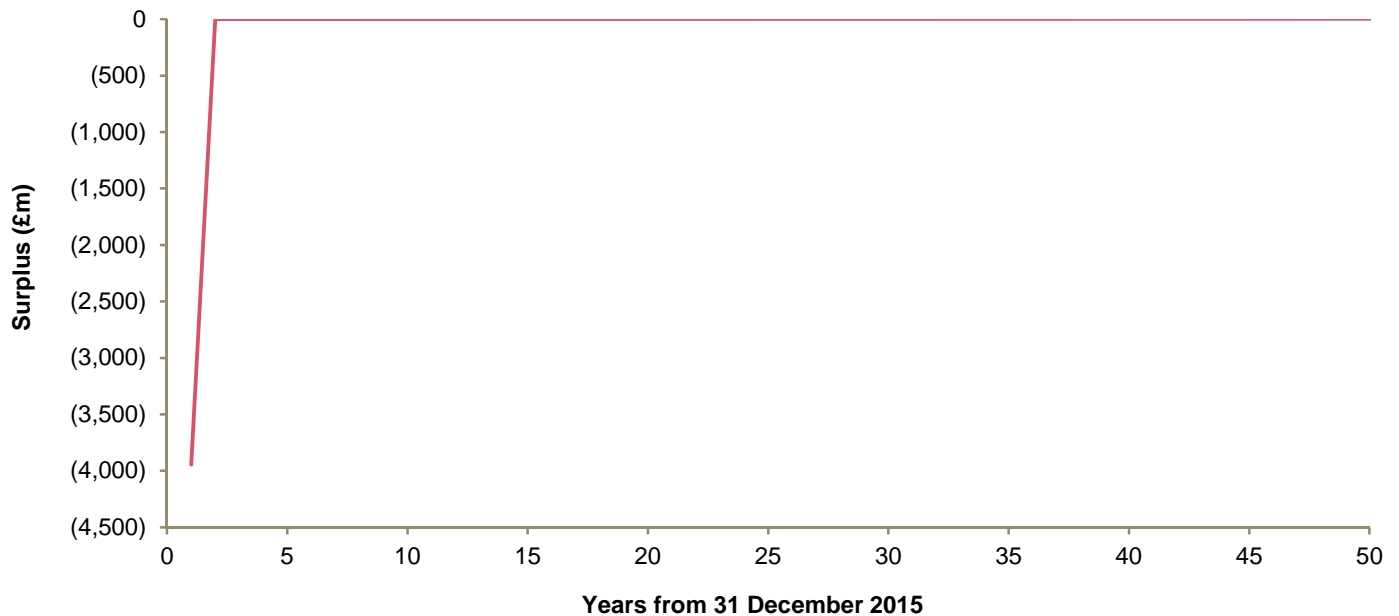
3.17.3 Notes on deficit/surplus projection

- Charts shows the progression of the deficit/surplus (combined for CN ESPS and WPD ESPS) in nominal prices

- Calculations use financial conditions at 31 December 2015

- Progression of deficit/surplus calculated using contributions calculated on the assumption that company contributions paid are those calculated at the 2013 actuarial valuation. i.e. there is no change to the 2013 valuation deficit contributions at future actuarial valuations.

3.17.4 Progression of deficit contributions under strategy 5B
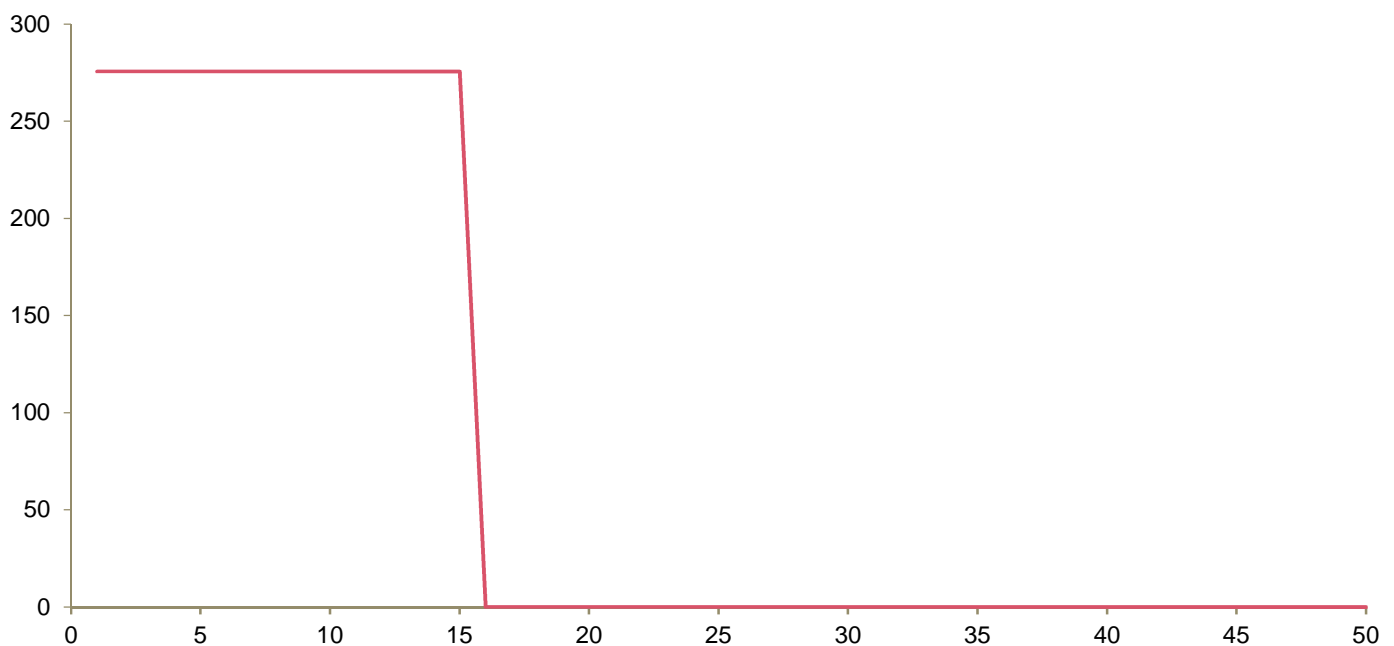
3.17 Strategy 5B (Cont'd)

3.17.5 Notes on deficit/surplus projection

- Charts shows the progression of the deficit contributions (combined for CN ESPS and WPD ESPS) in 2015/16 prices (i.e. in real terms)

- The chart shows the calculated deficit contributions at each actuarial valuation using the corrective action specified in the table above in sections 2.2.3 and 2.2.4

- Calculations use financial conditions at 31 December 2015

- Percentiles in the chart above are as follows:

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5th percentile	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	–	–	–	–	–
Median	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	–	–	–	–	–
95th percentile	275	275	275	275	275	275	275	275	275	275	275	275	275	275	275	–	–	–	–	–

Year	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40+
5th percentile	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Median	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
95th percentile	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Appendices

4

Appendix 1 – Membership summary

	CN ESPS – Final salary	CN ESPS – Retirement balance	WPD ESPS
Employees			
Number of members	1,434	767	2,204
Average age (years)	48.2	36.8	45.6
Average pensionable pay (£ p.a.)	40,386	31,368	36,372
Average pensionable service (years)	25.7	6.2	21.7
Ex-employees			
Number of members	3,893	177	1,564
Average age (years)	47.8	38.9	48.9
Average pension/retirement balance (£ p.a.)	3,518	46,641	5,106
Pensioners (including dependants)			
Number of members	12,613	19	8,080
Average age (years)	72.2	65.2	74.1
Average pension (£ p.a.)	9,573	2,105	9,774

Appendix 2 – Benefit specification used to calculate liability cashflows

A2.1 CN Group of the ESPS

A2.1.1 Benefit categories: Eastern, EME, Midlands and Powergen

Component	Benefit
Normal pension age	Age 63 for members who joined on or after 1 April 1988
	Age 60 for members who joined before 1 April 1988
Member's normal ccontributions	6% of Salary (certain members pay 5%, 3% or 0%)
Pension at retirement	1/80th of a member's Pensionable Salary for each year of his reckonable service.
	For pre 1 April 1988 male joiners, pension for service before 17 May 1990 may be subject to reduction if retirement is at the member's request on or after age 60 but before age 63
Lump sum at retirement	3/80ths of a member's Pensionable Salary for each year of reckonable service (subject to reduction for abatements and pre 1 April 1988 male joiners as described above)
Salary	Salary is defined as basic salary plus certain additional elements allowable at the discretion of the Principal Employer
Pensionable salary	Pensionable Salary is calculated as the higher of:
	• The annual Salary paid in any of the previous five years increased in line with the Retail Prices Index (RPI) to the date of retirement or earlier leaving
	• The highest three-year average Salary increased in line with the RPI to the date of retirement or earlier leaving paid in the previous ten years
Early retirement	Members may retire at the Company's instigation before Normal Pension Age with no actuarial reduction to benefits. Members may retire from age 55 (50 for Protected Persons) with reduced benefits, without Company consent
Ill-health pension	The member's prospective pension had he/she remained in service to NPA with no change in Pensionable Salary. Service to age 65 counts for pre 1 April 1988 joiners
Ill-health lump sum	The member's prospective lump sum (calculated similarly to the ill-health pension as described above)
Pension increases	Pension in excess of GMP increases in line with RPI
	The Company may use its discretion to restrict increases when inflation exceeds 5% per annum
	GMP accrued between 6 April 1988 and 5 April 1997 is increased in line with CPI up to 3% per annum

Appendix 2 – Benefit specification used to calculate liability cashflows

Component	Benefit
Death after retirement	If the member dies within five years of retiring, a lump sum equal to the balance of five years' pension payments; plus
	A spouse's pension in accordance with the table below except for pension in respect of service prior to April 1978 which is subject to special restrictions. Dependants' and children's pensions may also be payable

Benefit category	% of member's pension payable
Powergen	66.67%
Powergen category members who left service or died prior to 1 January 1997	61.88%
EME category members	57.14%
Midlands category members	55.0%
Eastern category	57.5%
Eastern category members who joined from the Powergen Group on 1 August 1997	Post 1 August 1997 service: 57.5% Pre 1 August 1997 service: 66.67%
Eastern category members who joined from the NORWEB Group on 1 April 2001	Post 1 April 2001 service: 57.5% Pre 1 April 2001 service: 50%
Eastern category members who joined from the United Utilities Group on 1 June 2005	Post 1 June 2005 service 57.5% Pre 1 June 2005 service 50.0%

Component	Benefit
Death in service	A lump sum of broadly (dependant on age at date of death) 4 times salary; plus
	A spouse's pension in accordance with the table above, based on the pension that would have been paid to the member had he retired through ill health on the day of death, except for spouses' pension in respect of service prior to April 1978 which is subject to special restrictions.
	Dependants' and children's pensions may also be payable.
Death in deferment	A lump sum equal to the greater of:
	• Five times the member's pension;
	• Return of contributions plus interest
	Spouse's pension (equal to 50%-67% of the member's pension) and child allowance are also payable.
Leaving service options	A deferred pension and lump sum payable from Normal Pension Age; or
	A transfer payment to either a new employer's scheme or a suitable insurance policy, equivalent in value to the deferred pension

Appendix 2 – Benefit specification used to calculate liability cashflows

A2.1.2 Benefit categories: EMEPP and MEPS categories

Component	Benefit
Normal pension age	63
Member's normal ccontributions	5% for EMEPP 4% for MEPS (certain members pay 5%)
Pension at retirement	1 /60th of Final Pensionable Earnings for each year of reckonable service for EMEPP and MEPS 5% members 1 /80th of Final Pensionable Earnings for each year of reckonable service for MEPS 4% members
Pensionable earnings	Pensionable Earnings is defined as basic salary plus certain additional elements allowable at the discretion of the Principal Employer
Final pensionable earnings	Final Pensionable Earnings is calculated as the higher of: • Pensionable Earnings in the 12 months before retirement or earlier leaving • Pensionable Earnings in any 12 months period in the four years preceding the last year before retirement or earlier leaving, increased in line with the Retail Price Index (RPI) to the date of retirement or earlier leaving
Early retirement	Members of the Group may retire at the Company's instigation after age 58 with no actuarial reduction to benefits Early retirement in other circumstances is only with Company consent
Ill-health pension	Immediate payment of unreduced pension Enhancements to service may be granted
Pension increases	Pensions (in excess of GMP) are increased in line with the RPI, subject to a maximum of 5% per annum
Death after retirement	A spouse's pension of: 50% of the members' pension Dependants' and children's pensions may also be payable If the member dies within five years of retiring, a lump sum equal to the balance of five years' pension payments
Death in service	A lump sum of 3 times Final Pensionable Earnings for EMEPP members and 4 times Final Pensionable Earnings for MEPS members plus A spouse's pension of: • 50% of the member's pension based on Final Pensionable Earnings and completed service plus potential service to Normal Pension Age (subject to a maximum of 20 years). • Dependants' and children's pensions may also be payable
Death in deferment	A lump sum equal the member's contributions plus interest. Spouse's pension (equal to 50% of the member's pension) and child allowance are also payable.
Leaving service options	A deferred pension and lump sum payable from Normal Pension Age; or A transfer payment to either a new employer's scheme or a suitable insurance policy, equivalent in value to the deferred pension.

Appendix 2 – Benefit specification used to calculate liability cashflows

A2.1.3 Benefit categories: Retirement balance plan (RB Plan) category

Component	Benefit
Normal pension age	63
Member's normal ccontributions	Varies by accrual rate and age as set out in the member's booklet
Pension at retirement	Retirement Balance is calculated based on accrual rate and pensionable salary in any year, revalued to retirement date
	Accrual rate is at member's choice from 20%, 25%, 30%, 35% and 40% of pensionable pay and can be varied each year
	Between 75% and 100% of Retirement Balance is converted to pension using market related conversion factors
Lump sum at retirement	Up to 25% of Retirement Balance
Pensionable salary	Pensionable salary is defined as basic salary plus certain additional elements allowable at the discretion of the Principal Employer
Early retirement	Members of the category may retire up to ten years before Normal Pension Age with a reduction to Retirement Balance.
Ill-health pension	The pension purchased with between 75% and 100% of Retirement Balance with no reduction. For members with more than 2 years' service the Retirement Balance will be increased to take account of a proportion of future service.
Ill-health lump sum	Up to 25% of Retirement Balance (calculated similarly to the ill-health pension described above)
Pension increases	The member can select at retirement date whether to purchase an increasing or non-increasing pension
Death after retirement	The member may opt to purchase a dependant's pension
	If the member dies within five years of retiring a lump sum equal to the balance of five years' pension payments
Death in service	A lump sum of 4 times salary; plus
	A lump sum of 4 times salary with which to purchase a dependant's pension
Death in deferment	Account is used to provide one or more dependants with an annuity. No child allowances.
Leaving service options	A deferred pension and lump sum payable from Normal Pension Age; or
	A transfer payment to either a new employer's scheme or a suitable insurance policy, equivalent in value to the deferred pension.

Appendix 2 – Benefit specification used to calculate liability cashflows

A2.2 WPD Group of the ESPS

Component	Benefit
Normal pension age (NPA)	63 for members who joined on or after 1 April 1988
	60 for members who joined before 1 April 1988
Member's normal ccontributions	6% of salaries (except for some members who pay 5%, 3% and 0%)
Company's normal contributions	Twice members' normal contributions, contributions
Pension at retirement	1/80th of pensionable salary for each year of reckonable service. For pre 1 April 1988 male joiners, pension for service before 17 May 1990 may be subject to reduction if retirement is at the member's request on or after age 60 but before age 63.
Lump sum at retirement	3/80ths of pensionable salary for each year of reckonable service (subject to reduction for abatements and pre 1 April 1988 male joiners as described above).
Pensionable salary	Pensionable salary is calculated as the higher of: • The annual salary paid in any of the previous five years increased in line with the Retail Prices Index (RPI) to the date of retirement or earlier leaving; • The highest three-year average salary increased in line with the RPI to the date of retirement or earlier leaving paid in the previous ten years. Salary is defined as basic salary plus certain additional elements allowable at the discretion of the Principal Employer.
Early retirement	Members of the Group may retire at the Company's instigation before Benefits Normal Pension Age with no actuarial reduction to benefits. Members may retire from 50, with reduced benefits, without Company consent.
Ill-health pension	The member's prospective pension had he/she remained in service to NPA with no change in pensionable salary. Service to age 65 counts for pre 1 April 1988 joiners.
Ill-health lump sum	The member's prospective lump sum (calculated similarly to the ill-health pension as described above).
Pension increases	Pensions (in excess of GMP) are increased in line with the RPI. The Company may, with the consent of the Independent Trustee, use its discretion to restrict increases when inflation exceeds 5%.
Death after retirement	A spouse's pension of 54.25% of the member's pension, except for spouses' pension in respect of service prior to April 1978 which is subject to special restrictions. Dependants' and children's pensions may also be payable; plus If the member dies within five years of retiring, a lump sum equal to the balance of five years' pension payments.
Death in service	A lump sum of 4 times salary; plus A spouse's pension of 54.25% of the pension that would have been paid to the member had he retired through ill health on the day of death, except for spouses' pension in respect of service prior to April 1978 which is subject to special restrictions. Dependants' and children's pensions may also be payable

Appendix 2 – Benefit specification used to calculate liability cashflows

A2.2 WPD Group of the ESPS

Component	Benefit
Death in deferment	A spouse's pension of 54.25% of the member's pension, except for spouse's pension in respect of service prior to April 1978 which is subject to special restrictions.
	Dependants' and children's pensions may also be payable; plus A lump sum broadly equal to the greater of:
	• Five times the member's pension plus the retirement lump sum;
	• Return of contributions plus interest
Leaving service options	A deferred pension and lump sum payable from Normal Pension Age; or
	A transfer payment to either a new employer's scheme or a suitable insurance policy, equivalent in value to the deferred pension; or
	If the member has completed less than three months of pensionable service, a return of the member's contributions with interest, less a State Scheme premium deduction and less tax at the rate of 20%
	If the member has completed between three months and two years pensionable service he/she can select a transfer or a return of contributions as described above. Members who have completed between one and two years pensionable service have the additional option of selecting a deferred pension

Appendix 3 – Actuarial assumptions used to calculate liability cashflows

Assumption		CN Group of the ESPS		WPD Group of the ESPS	
1.1	Future price inflation (RPI)	Derived from the difference between the yields on fixed-interest and index-linked Gilts (using the Bank of England yield curve) with no adjustment for an inflation risk premium			
1.2	Future price inflation (CPI)	0.75% p.a. less than RPI assumption			
1.3	Future pay rises (general)	RPI plus 1.5% p.a.			
1.4	Future pay rises (promotional)	None			
1.5	Pension increases	Derived from the RPI (post 88 GMP: CPI) assumption using best estimate inflation uncertainties allowing for the various minima and maxima that apply			
2.1	Pension payment age for retirements in normal health	Pre 88 joiners: age 60 Post 88 joiners: age 63			
2.2	Rate of early retirement (employees)	All members retire at pension payment age. ESPS pre-88 male joiners retire at age 60 with their pre-17 May 1990 benefits reduced by the applicable reduction factor		All members retire at age 62 without reduction for early payment (or age 60 for pre 1 April 1988 female joiners)	
2.3	Rate of early retirement (ex-employees)	All members retire at their pension payment age applying at date of leaving service, or, if left service under redundancy arrangements, the age at which unreduced benefits can be taken			
2.4	Future life expectancy (after retirement)	S2PMA/S2PFA with a scaling factor of 105%/90% for non-pensioners/ pensioners Future improvements in line with CMI 2015 with a 1.5% p.a. long-term rate of improvement	Male aged 40: 89.1 Male aged 60: 86.8	S2PMA/S2PFA with a scaling factor of 95%/90% for non-pensioners/ pensioners Future improvements in line with CMI 2015 with a 1.5% p.a. long-term rate of improvement	Male aged 40: 88.6 Male aged50: 87.9 Male aged 60: 87.7
2.5	Future life expectancy (before retirement)	ACM00/ACM00 tables published by the CMI with a 85% adjustment to death rates			
2.6	Proportions of members who are married	80% at point of retirement		• Non-pensioners: 85% males and 75% females at point of retirement or earlier death • Pensioners: 75% males and 65% females	
2.7	Age different between members and their spouse	Males are three years older than their spouses			

Appendix 3 – Actuarial assumptions used to calculate liability cashflows

Assumption	CN Group of the ESPS			WPD Group of the ESPS		

2.8 Rate of leaving contributory service in the pension scheme

Age	Withdrawal rate Male	Female		Age	Withdrawal rate Male	Female
25	10.59%	10.74%		20	3.75%	7.50%
30	6.36%	9.73%		25	3.21%	7.67%
35	3.81%	5.94%		30	1.93%	6.95%
40	2.59%	4.07%		35	1.16%	4.25%
45	1.92%	2.78%		40	0.78%	2.91%
50	1.24%	1.75%		45	0.58%	1.98%
55	0.69%	1.15%		50	0.38%	1.25%
				55	0.21%	0.82%
				60	0.09%	0.63%

2.9 Rate of retirement on ill-health grounds

Age	Ill-health retirement rate Male	Female		Age	Ill-health retirement rate Male	Female
25	0.01%	0.00%		20	0.00%	0.00%
30	0.02%	0.02%		25	0.02%	0.00%
35	0.03%	0.06%		30	0.03%	0.03%
40	0.06%	0.12%		35	0.05%	0.09%
45	0.10%	0.24%		40	0.09%	0.18%
50	0.20%	0.35%		45	0.16%	0.36%
55	0.46%	0.83%		50	0.30%	0.52%
				55	0.67%	1.24%
				60	1.62%	2.36%

3.1 Cash conversion terms

Age	Factor		Age	Factor
55	30.25		55	27.34
56	29.43		56	26.64
57	28.61		57	25.92
58	27.78		58	25.21
59	26.95		59	24.49
60	26.11		60	23.78
61	25.29		61	23.08
62	24.47		62	22.40
63	23.66		63	21.72
64	22.88		64	21.05
65	22.11		65	20.36

3.2 Conversion of pension to a tax-free lump sum

No additional lump sum taken

3.3 Proportion of members who choose to take a cash equivalent transfer value

None

Appendix 3 – Actuarial assumptions used to calculate liability cashflows

Assumption		CN Group of the ESPS	WPD Group of the ESPS
3.4	Contributions method	Projected Unit Method with a 3-year control period	Attained Age Method
3.5	Method used to calculate present value of death benefits	Based on benefits accrued to the valuation date	
3.6	Method used to calculate present value of ill-health benefits	Based on benefits accrued to the valuation date	
3.7	Scheme running costs	Review actual expenses and adopt same approach as 2013	Derived using a consistent approach to the 2013 actuarial valuation
3.8	PPF levies	Review actual expenses and adopt same approach as 2013	Derived using a consistent approach to the 2013 actuarial valuation
3.9	Profile of deficit contributions	8-year plan increasing with RPI	9-year plan increasing with RPI

Appendix 4 – stochastic modelling parameters (Asset returns, volatilities and correlations)

A4.1 Expected asset returns and volatilities

	Expected return (in excess of nominal GY) over 50 years (p.a.)	Volatility over 50 years (p.a.)
UK equities	4.6%	19.5%
Overseas equities	5.0%	20.5%
RAFI equities	5.8%	22.0%
DGF	4.0%	12.0%
Multi-asset credit	3.5%	10.5%
AA-rated Corporate bonds	0.7%	10.0%
Buy-and-maintain corporate bond portfolio	0.8%	11.0%
LDI	0.0%	8.0%

Source: AONHewitt

A4.2 Correlations between asset classes

	Index-linked gilts	AA-rated Corporate Bonds	UK Equities	Overseas equities	Property	Cash	Buy-and-maintain corporate bond portfolio	Multi-asset credit	DGF	LDI – Long dated fixed-interest gilts	LDI – Long dated index-linked gilts
Index-linked gilts	100%	42.10%	-6.49%	-4.81%	-0.44%	22.74%	19.79%	2.22%	-0.59%	47.27%	97.86%
AA-rated Corporate Bonds	42.10%	100%	5.16%	5.60%	5.87%	37.46%	40.68%	36.36%	15.19%	86.33%	41.03%
UK Equities	(6.49)%	5.16%	100%	84.87%	41.86%	6.56%	20.26%	48.29%	77.03%	(8.49)%	-6.11%
Overseas equities	(4.81)%	5.60%	84.87%	100%	39.14%	2.93%	14.49%	48.66%	91.84%	(7.88)%	-4.57%
Property	(0.44)%	5.87%	41.86%	39.14%	100%	12.06%	17.72%	24.43%	41.29%	0.69%	0.46%
Cash	22.74%	37.46%	6.56%	2.93%	12.06%	100%	95.65%	20.92%	9.49%	51.99%	27.79%
Buy-and-maintain corporate bond portfolio	19.79%	40.68%	20.26%	14.49%	17.72%	95.65%	100%	31.83%	21.45%	48.49%	24.67%
Multi-asset credit	2.22%	36.36%	48.29%	48.66%	24.43%	20.92%	31.83%	100%	59.33%	9.88%	3.63%
DGF	(0.59)%	15.19%	77.03%	91.84%	41.29%	9.49%	21.45%	59.33%	100%	(1.70)%	0.26%
LDI – long dated fixed-interest gilts	47.27%	86.33%	(8.49)%	(7.88)%	0.69%	51.99%	48.49%	9.88%	(1.70)%	100%	48.91%
LDI – long dated index-linked gilts	97.86%	41.03%	(6.11)%	(4.57)%	0.46%	27.79%	24.67%	3.63%	0.26%	48.91%	100%

Source: AONHewitt

Appendix 5 – Deficit contributions from 2013 actuarial valuations

	CN ESPS (£m)	WPD ESPS (£m)	Total (£m)
2015/16	86	81	167
2016/17	87	82	169
2017/18	90	84	174
2018/19	92	87	179
2019/20	95	89	184
2020/21	98	92	190
2021/22	101	176	277
2022/23	87	0	87

Note: deficit contributions are RPI-linked. Contributions in the table above assume RPI out-turns at 3% p.a.

Appendix 6 – updated calculation of deficit contributions under each strategy

The calculation of the deficit contributions emerging under the stochastic simulations was carried out during January-March 2016.

Later in 2016 there were significant changes in financial conditions as a result of EU referendum. These changes do not have a material impact on the comparison of the pension strategies as the assessment is a relative comparison.

However, when assessing the impact of the various strategies against the previous contributions paid, a more up to date deficit calculation is required. The following table sets-out the updated calculation of the deficit contributions under each strategy allowing for the deficit contributions that may apply for the 2016 actuarial valuations.

Strategy	Deficit contributions (calculated at 31 December 2015 (£m p.a. RPI-linked)	Deficit contributions from 2016 valuation (£m p.a. RPI-linked)
1A	140	181
1B	113	152
1C	140	181
1D	113	152
2A	161	206
2B	132	175
2C	161	206
2D	132	175
3A	212	265
3B	181	232
3C	212	265
3D	181	232
4A	193	248
4B	162	207
5A	261	323
5B	275	341