

**Ofgem**

**Review of network operators' pension costs**

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## 1 Executive Summary

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- 1.1 Ofgem commissioned the Government Actuary's Department (GAD) to conduct an initial high-level review of network operators' (NWOs') defined-benefit (DB) pension costs. The results of this review assist Ofgem to assess the reasonableness of the methods and assumptions used to determine NWOs' pension costs, and to understand the differences between individual NWOs' pension costs.
- 1.2 This report analyses the principal factors which determine NWOs' pension costs. NWOs' pension schemes are compared against each other and with publicly available information on typical UK private sector DB pension provision. This review covers NWOs' principal DB pension schemes, and two DB schemes sponsored by a non-regulated company in the same industry.

### ***Scheme benefits***

- 1.3 Scheme benefits are one of the main determinants of contribution rates to defined-benefit pension schemes. There have been relatively few changes to NWOs' schemes' benefits since my review in July 2009. Licensees' abilities to amend the schemes' provisions are limited by constraints that were imposed at privatisation.
- 1.4 All NWOs' original DB pension schemes have been closed to new entrants, with all now offering defined contribution (DC) arrangements to new entrants. Replacing DB provision with DC provision for new entrants reduces the licensee's exposure to the risk of deficiency contributions, and would be expected to reduce overall pension costs (although this depends on the design of the DC scheme).
- 1.5 The gas schemes provide more generous benefits than the electricity schemes (as a consequence of a lower normal retirement age, lower member contributions and higher accrual rate), and the electricity schemes provide slightly more generous benefits than typical UK private sector defined benefit pension schemes (as a consequence of a lower normal retirement age). Unlike many (but not all) other UK private sector DB schemes, licensees do not anticipate significant savings due to the change in statutory minimum indexation requirements, because of the wording of the schemes' rules and restrictions on amendment powers.

### ***Investment strategy***

- 1.6 Schemes' investment strategies affect their investment returns (and therefore their current and future funding levels), and also the choice of actuarial assumptions for funding valuations. A number of factors affect schemes' investment strategies.

- 1.7 Most licensees' schemes invest between 50% and 65% in "return-seeking" assets such as equities and property (as opposed to "matching" assets such as bonds). Such proportions are broadly consistent with average UK private sector defined benefit pension schemes, after adjusting for the relative maturity of licensees' schemes, and are little changed since my July 2009 report.
- 1.8 Schemes' investment returns over the past 10 years have been broadly in line with data on typical funds' returns.

### ***Funding valuation methodology and assumptions***

- 1.9 The results of a pension scheme's funding valuation and therefore the sponsor's future cash contributions depend significantly on the assumptions made for future experience.
- 1.10 Most licensees' schemes' funding assumptions are within a range that would be expected from data on typical schemes' assumptions. Outliers are discussed in the body of this report.
- 1.11 Most electricity licensees' schemes' funding assessments assume that full RPI-linked pension increases will be provided in the future, with no allowance for any cap.
- 1.12 Ofgem may wish to consider further the UKPNESPS's Scheme Actuary's comments regarding the effects of the recent sale of the network business on the assumptions used for the UKPNESPS's funding assessment, while noting that the funding outcome is broadly in line with those of other electricity licensees' schemes.

### ***Funding valuation results***

- 1.13 Many variations between individual licensees' schemes' funding valuation results as at March 2010 are explained by the differences in scheme benefits, investment strategy and funding assumptions discussed in this report. Licensees' schemes' funding levels are generally within a range that would be expected compared to other UK private sector schemes.
- 1.14 A scheme's ongoing funding level reflects its past experience (for example past investment returns, employer contributions and any transfers to or from the scheme) as well as its future liabilities and valuation assumptions. Movements in funding results since previous valuations are broadly as expected.
- 1.15 This report does not consider schemes' recovery periods or deficit recovery contributions. This is because Ofgem's pension allowances in price controls do not directly equal schemes' actual annual deficit recovery contributions. Ofgem should note that many licensees' schemes assume higher investment returns during the recovery period for the purposes of calculating deficit recovery contributions than those underlying the calculation of technical provisions. In other words, they apply a smaller margin for prudence when calculating deficit recovery contributions, and assume that some of the funding deficit will be met by excess investment returns rather than additional contributions.

### ***Next steps***

- 1.16 This review is principally an information gathering and summarising exercise. Identification as a possible outlier must not be seen as actual or implied criticism of a scheme or NWO, but allows Ofgem to consider if further investigation is appropriate (and informs the decision of how such further work might be specified). Ofgem has sought further information from NWOs on the process and rationale underlying certain decisions and assumptions, where the initial information provided suggested that further investigation was appropriate. Where appropriate, this report reflects such additional information and Ofgem's analysis of it.

### ***Limitations of the analysis***

- 1.17 This review considers NWOs' DB pension provision in isolation. It is recognised that pension arrangements are only part of overall remuneration packages.
- 1.18 Schemes' benefits, investment strategies and funding valuations reflect each scheme's particular circumstances. It is beyond the scope of this report to consider all such factors. It is recognised that a "one-size fits all" approach is not appropriate. This review must not be interpreted as advising that a particular approach or level of provision is necessarily inappropriate. Further, in the review of schemes' funding assumptions, while individual assumptions are reviewed in turn it is recognised that the overall basis in the round determines the funding valuation results. Comparisons of NWOs' schemes with publicly available information on other UK private sector DB pension schemes do not take into account factors which affect particular industries, sponsoring employers or pension schemes in isolation.
- 1.19 The purpose of this report is to assist Ofgem in its consideration of price control allowances. This report does not represent advice on the appropriate funding of licensees', or other, pension schemes.

## 2 Introduction

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### **Section summary**

Ofgem commissioned the Government Actuary's Department (GAD) to conduct an initial high-level review of network operators' (NWOs') defined-benefit (DB) pension costs. The results of this review assist Ofgem to assess the reasonableness of the methods and assumptions used to determine NWOs' pension costs, and to understand the differences between individual NWOs' pension costs. This report analyses the principal factors which determine NWOs' pension costs. NWOs' pension schemes are compared against each other and with publicly available information on typical UK private sector DB pension provision. This review covers NWOs' principal DB pension schemes, and two DB schemes sponsored by a non-regulated company in the same industry. Limitations of the analysis are noted.

### **Background**

- 2.1 Ofgem regulates the energy networks to protect the interests of customers. It sets price controls which limit the total revenues that each network licensee can recover from customers at a level that allows an efficient business to finance its activities. In considering such revenues, Ofgem considers the treatment of pension costs.
- 2.2 Ofgem applies six pensions principles to its price controls. Of these, two are most relevant to this report:
- > **Principle 1 – Efficient and economic employment and pension costs** – Customers of network monopolies should expect to pay the efficient cost of providing a competitive package of pay and other benefits, including pensions, to staff of the regulated business, in line with comparative benchmarks.
  - > **Principle 4 – Actuarial valuation / scheme-specific funding** – Pension costs should be assessed using actuarial methods, on the basis of reasonable assumptions in line with current best practice.

### **Objectives of this review**

- 2.3 Ofgem commissioned the Government Actuary's Department (GAD) to conduct an initial high-level review of network operators' (NWOs') defined-benefit (DB) pension costs. The Terms of Reference (ToR) state the review's objectives, which are reproduced in Appendix A.
- 2.4 The results of this review assist Ofgem to assess:
- > The reasonableness of the methods and assumptions used to determine NWOs' pension costs; and
  - > Differences between NWOs' pension costs.

- 2.5 This review is principally an information gathering and summarising exercise. Identification as a possible outlier must not be seen as actual or implied criticism of a scheme or NWO, but allows Ofgem to consider if further investigation is appropriate (and informs the decision of how such further work might be specified).
- 2.6 Ofgem has sought further information from NWOs on the process and rationale underlying certain decisions and assumptions, where the initial information provided suggested that further investigation was appropriate. Where appropriate, this report reflects such additional information and Ofgem's analysis of it.

### ***Pension schemes***

- 2.7 This review covers NWOs' principal DB pension schemes, being those which are most significant for future pension costs. Appendix B lists the licensees and pension schemes which have been included in the analysis, and the abbreviations used in this report.
- 2.8 In addition, Centrica (a non-regulated company in the same industry) has provided information on its defined-benefit pension schemes voluntarily. Ofgem has asked GAD to include Centrica in this review for comparison purposes.
- 2.9 This report only considers licensees' defined-benefit pension provision.

### ***Methodology***

- 2.10 This report analyses the principal factors which determine NWOs' pension costs:
- > Scheme benefits (Section 3);
  - > Investment strategy and returns (Section 4);
  - > Actuarial funding methodology and assumptions (Section 5); and
  - > Actuarial funding valuation results (Section 6).
- 2.11 NWOs' pension schemes are compared against each other and with publicly available information on typical UK private sector DB pension provision.
- 2.12 Appendix C provides some background on DB pension scheme funding and contributions. Appendix D summarises factors affecting a scheme's high-level investment strategy. A glossary is included in Appendix E.

### ***Data***

- 2.13 Ofgem has provided GAD with data on NWOs' pension schemes. In general, this includes:
- > Pensions data from NWOs' annual returns to Ofgem;
  - > NWOs' schemes' funding documentation (for example, schemes' actuarial valuation reports and funding updates);
  - > NWOs' schemes' reports and accounts; and
  - > Information provided by NWOs in response to specific questions from Ofgem.
- 2.14 My analysis is based solely on the information that has been provided by Ofgem. It relies on the completeness and accuracy of that information. I have checked this information for consistency with other sources provided where appropriate and, where material to the review, queried any discrepancies. Such checks do not represent a full independent audit of the data supplied. In particular, I have not checked the details of NWOs' schemes' funding calculations. GAD accepts no responsibility for any inaccuracies or omissions due to any errors or omissions in the data provided for this review.

### ***Limitations***

- 2.15 This review considers NWOs' DB pension provision in isolation. It is recognised that pension arrangements are only part of overall remuneration packages.
- 2.16 Schemes' benefits, investment strategies and funding valuations reflect each scheme's particular circumstances. It is beyond the scope of this report to consider all such factors. It is recognised that a "one-size fits all" approach is not appropriate. This review must not be interpreted as advising that a particular approach or level of provision is necessarily inappropriate. Further, in the review of schemes' funding assumptions, while individual assumptions are reviewed in turn it is recognised that the overall basis in the round determines the funding valuation results.
- 2.17 Comparisons of NWOs' schemes with publicly available information on other UK private sector DB pension schemes do not take into account factors which affect particular industries, sponsoring employers or pension schemes in isolation.

***Distribution and publication of this report***

- 2.18 This report is addressed to Ofgem. I am aware that Ofgem may make this report available to other parties. I am aware that this report may be published or quoted in part by Ofgem, subject to confidentiality requirements. GAD reserves the right to review and comment on any context in which Ofgem may quote material from this report. GAD does not accept any responsibility to third parties who may read this report or extracts from it.
- 2.19 The purpose of this report is to assist Ofgem in its consideration of price control allowances. This report does not represent advice on the appropriate funding of licensees', or other, pension schemes.

### 3 Scheme benefits

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#### ***Section summary***

Scheme benefits are one of the main determinants of contribution rates to defined-benefit pension schemes. There have been relatively few changes to NWOs' schemes' benefits since my review in July 2009. Licensees' abilities to amend the schemes' provisions are limited by constraints that were imposed at privatisation.

All NWOs' original DB pension schemes have been closed to new entrants, with all now offering defined contribution (DC) arrangements to new entrants. Replacing DB provision with DC provision for new entrants reduces the licensee's exposure to the risk of deficiency contributions, and would be expected to reduce overall pension costs (although this depends on the design of the DC scheme).

The gas schemes provide more generous benefits than the electricity schemes (as a consequence of a lower normal retirement age, lower member contributions and higher accrual rate), and the electricity schemes provide slightly more generous benefits than typical UK private sector defined benefit pension schemes (as a consequence of a lower normal retirement age). Unlike many (but not all) other UK private sector DB schemes, licensees do not anticipate significant savings due to the change in statutory minimum indexation requirements, because of the wording of the schemes' rules and restrictions on amendment powers.

#### ***Introduction***

- 3.1 Scheme benefits are one of the main determinants of contribution rates to defined-benefit pension schemes. This section considers the absolute and relative levels of benefits provided by NWOs' schemes.
- 3.2 There have been relatively few changes to NWOs' schemes' benefits since my review of NWOs' pension questionnaire responses in July 2009. This section summarises the key messages from that report and highlights recent changes.

#### ***Background to schemes***

- 3.3 The four gas schemes originate from the pre-privatisation British Gas pension schemes, which were consolidated into one scheme over the period to April 2000. The original scheme became the National Grid UK Pension Scheme. The other three gas schemes were formed in 2005 on the sale of distribution networks to three separate buyers. All four schemes provided identical benefits in 2005.
- 3.4 The relevant Centrica pension schemes were formed in 1998 following the demerger of Centrica from British Gas plc, originally providing identical benefits to the British Gas Staff and Corporation Schemes.

- 3.5 The majority of the electricity licensees' principal DB pension schemes originate from the pre-privatisation Electricity Supply Pension Scheme (ESPS). Two licensees' schemes did not originate from the ESPS but have similar provisions to the ESPS.
- 3.6 On privatisation in 1990, individual businesses' shares of the ESPS were split into segregated sections of the scheme, referred to as Groups. Since then, there have been various transfers between and mergers of Groups, in line with sales and mergers of the sponsoring employers.
- 3.7 Licensees' abilities to amend the schemes' provisions are limited by constraints that were imposed at privatisation:
- > The gas schemes are subject to a rule amendment made on the privatisation of the industry in 1986, whereby any reduction in scheme benefits or increase in member contributions can only occur with the consent of two thirds of affected members.
  - > Similar provisions to the gas schemes also applied to Centrica. Paragraph 3.24 discusses scheme changes which have been made by Centrica.
  - > Pension provision in respect of *Protected Persons* (broadly members of the ESPS on privatisation, plus some other employees) is governed by legislation made on the privatisation of the electricity industry in 1990. In broad terms, future pension rights cannot be reduced for Protected Persons unless a meeting of affected members votes in favour of the change by a two-thirds majority. Similar provisions apply to the two Scottish electricity schemes.

### ***Closure of original schemes to new entrants***

- 3.8 All NWOs' original DB pension schemes have been closed to new entrants. Active members continue to accrue benefits in respect of future service, but new employees are offered alternative provision.
- 3.9 Licensees have closed their original schemes to new entrants at different times. Because the original schemes' benefits are typically more generous than those offered to more recent entrants, the earlier a licensee closed their original scheme to new entrants the larger the expected saving on pension costs. Table 3 in my July 2009 report listed the changes made by each licensee. Western Power Distribution (South Wales / South West) has closed its original DB scheme to new entrants since my previous report.
- 3.10 All NWOs now offer defined contribution (DC) pension arrangements to new entrants. UK Power Networks ceased offering new employees membership of a final salary defined benefit pension scheme in July 2011.
- 3.11 Where a licensee has closed its original DB scheme to new entrants and replaced it with a DC arrangement, this reduces the licensee's exposure to the risk of deficiency contributions, and would be expected to reduce overall pension costs (although this depends on the design of the DC scheme). These effects will increase over time, as more entrants join the DC arrangement rather than the DB scheme.

- 3.12 The main difference between DB and DC provision relates to risk: in a DB scheme the employer bears the risk of adverse future experience through the possibility of deficiency contributions being required, whereas in a DC scheme the risk of adverse future experience rests with the member through lower than expected benefits. Conversely, any benefits of favourable experience are more likely to go to the member in a DC scheme (through higher than expected benefits) than in a DB scheme (where employer contributions may be reduced, although this depends on the scheme rules).
- 3.13 A DC pension usually, but not necessarily, involves lower employer pension contributions than a defined benefit pension. Whether contributions are lower to a DC arrangement than to a previous DB scheme depends on the design of the two schemes.

***Original schemes' benefits***

- 3.14 Very similar benefits are provided by the original schemes within each of the gas and electricity sectors. The principal benefits are summarised in Table 1. Table 1 also illustrates the benefits offered by "typical" UK private sector defined benefit pension schemes, from ONS survey data.<sup>1</sup> This initial comparison ignores differences between individual gas or electricity schemes and industry- or company-specific factors.

**Table 1: Principal benefits provided by gas and electricity original DB schemes**

|  | Gas            | Electricity              | "Typical" UK scheme |
|--|----------------|--------------------------|---------------------|
| Age at which unreduced benefits are paid | 60             | 63 <sup>1</sup>          | 65                  |
| Accrual rate                             | 60ths          | 80ths <sup>2</sup>       | 60ths               |
| Lump sum on retirement                   | By commutation | 3 x pension <sup>2</sup> | By commutation      |
| Member contributions (% of pay)          | 3%             | 6% <sup>3</sup>          | 5%                  |
| Dependants' pension after member's death | 67%            | 50%-67%                  | 50%                 |
| Pension increases (in payment)           | RPI-linked     | RPI-linked <sup>4</sup>  | Capped <sup>5</sup> |

Source: "Typical" UK scheme: Occupational Pension Schemes Annual Report 2010 (ONS)

<sup>1</sup> For post-April 1988 entrants. Some employers grant unreduced benefits at age 60.

<sup>2</sup> Two schemes offer 60ths accrual with lump sum by commutation.

<sup>3</sup> Some schemes have different member contribution rates.

<sup>4</sup> Increases above 5% are generally subject to employer consent in the electricity schemes.

<sup>5</sup> Increases linked to price inflation but with a cap.

<sup>1</sup> "[Occupational Pension Schemes Annual Report 2010](#)", Office for National Statistics (ONS), Tables 3.19, 4.2, 5.1 and 5.14, and Figure 5.13.

- 3.15 Most electricity schemes provide 80ths accrual<sup>2</sup> with an additional lump sum on retirement of three times the annual pension. The gas schemes provide 60ths accrual, but any lump sum is by commutation (this means in return for giving up some of the member's annual pension). A comparison of schemes' benefits must take into account this difference in lump sum entitlement. The value of a 60ths pension where the lump sum is by commutation is usually higher than the value of an 80ths pension with an additional lump sum of 3 times the annual pension, but not by as much as the accrual rate alone would suggest (in other words, comparing 60ths with 80ths). The precise difference depends on the terms and extent of commutation.
- 3.16 Table 1 shows that, in general, benefits provided by the gas schemes are more generous than those provided by the electricity schemes and by "typical" UK private sector schemes, principally due to the lower age at which benefits are paid, the lower member contribution rate, and the higher accrual rate (compared with the electricity schemes) or higher expected pension increases (compared with "typical" schemes).
- 3.17 The electricity schemes pay unreduced benefits at a lower age than the "typical" UK private sector defined benefit scheme. Otherwise, the electricity schemes provide a similar level of benefits to typical schemes except for pension increases, which are discussed in the following paragraphs.
- 3.18 The Government announced its intention in July 2010 to change the calculation of future statutory minimum pension increases in payment and in deferment from the Retail Prices Index (RPI) to the Consumer Prices Index (CPI). CPI is generally expected to report a lower level of inflation on average over the long term than RPI. Since 1988, RPI has averaged 0.73% a year more than CPI. Many observers expect similar or larger differences over the long-term in the future.
- 3.19 The effect of this change on a scheme depends on its rules. Therefore, different UK private sector DB schemes will be affected in different ways. For example, where the rules require pension increases based on the RPI (perhaps with certain limits) then there might be relatively little effect on scheme benefits. However, I would expect sponsors of such schemes to consider whether they can and wish to align the scheme's provisions with the statutory minimum requirements for future accruals.
- 3.20 Conversely, where the rules require pensions to be increased in line with statutory minimum requirements, CPI-based increases would be expected to be lower than the RPI-based increases previously expected. In terms of scheme funding, this could reduce the value placed on the scheme's accrued liabilities and reduce the expected cost of future benefit accruals (and therefore the employer's share of the SCR).
- 3.21 Licensees have indicated that their schemes' rules require pension increases to continue to be based on the RPI and that the constraints referred to in paragraph 3.7 restrict their ability to amend the rules going forward. To the extent that many (but not all) other UK private sector DB schemes' pension increases will be affected by the change in statutory indexation, this increases the relative generosity of the gas and electricity schemes going forward.

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<sup>2</sup> Please refer to the glossary in Appendix E for a definition of accrual rates.

***Individual licensees***

3.22 My July 2009 report noted that the generosity of benefits provided by the gas and electricity schemes, and therefore their SCRs and current funding positions, reflect improvements to benefits made in the 1990s and early 2000s mostly in order to utilise valuation surpluses. Table 5 of that report summarised differences between licensees' schemes. No licensees have made significant changes to their original schemes' benefits since my previous report. Key points from my previous report are:

- > UK Power Networks has an agreement to provide unreduced benefits before normal retirement age for certain members.
- > Member contributions are less than 6% of pay in the SPPS (5% of pay) and the MANESPS (5½% of pay).
- > The SHEPS and the SPPS offer higher accrual rates (60ths with lump sum by commutation) than other electricity schemes (80ths with a separate lump sum).

3.23 There has been an increase in the number of licensees with salary sacrifice arrangements since my previous report. Table 2 shows the licensees with salary sacrifice arrangements.<sup>3</sup> Salary sacrifice arrangements result in a saving in the licensee's National Insurance Contributions.

**Table 2: Licensees with salary sacrifice arrangements**

| Network operator (licensee)            | Year introduced |
|--|-----------------|
| <b><i>Gas</i></b>                      |                 |
| Northern Gas Networks                  | 2006            |
| National Grid Gas                      | 2009            |
| <b><i>Electricity</i></b>              |                 |
| SP Distribution                        | 2009            |
| Northern Powergrid                     | 2007            |
| National Grid Electricity Transmission | 2009            |
| SP Manweb                              | 2009            |
| Electricity North West                 | 2006            |

<sup>3</sup> Please refer to the glossary in Appendix E for a definition of salary sacrifice arrangements.

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- 3.24 My July 2009 report noted that Centrica increased member contribution rates to the CEPS from 4% of pay to 6% of pay between 2002 and 2008 by obtaining the consent of two thirds of affected members. There have been no significant changes to the pension benefits provided by Centrica since my previous report. However, Centrica has transferred members between schemes. It has stated that part of the benefit of doing so is that the receiving scheme does not have the same amendment restrictions that applied to the ceding scheme.

## 4 Investment strategy

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### ***Section summary***

Schemes' investment strategies affect their investment returns (and therefore their current and future funding levels), and also the choice of actuarial assumptions for funding valuations. A number of factors affect schemes' investment strategies.

Most licensees' schemes invest between 50% and 65% in "return-seeking" assets such as equities and property (as opposed to "matching" assets such as bonds). Such proportions are broadly consistent with average UK private sector defined benefit pension schemes, after adjusting for the relative maturity of licensees' schemes, and are little changed since my July 2009 report.

Schemes with relatively low investment in return-seeking assets are the SHEPS and the CNESPS.

Schemes' investment returns over the past 10 years have been broadly in line with data on typical funds' returns.

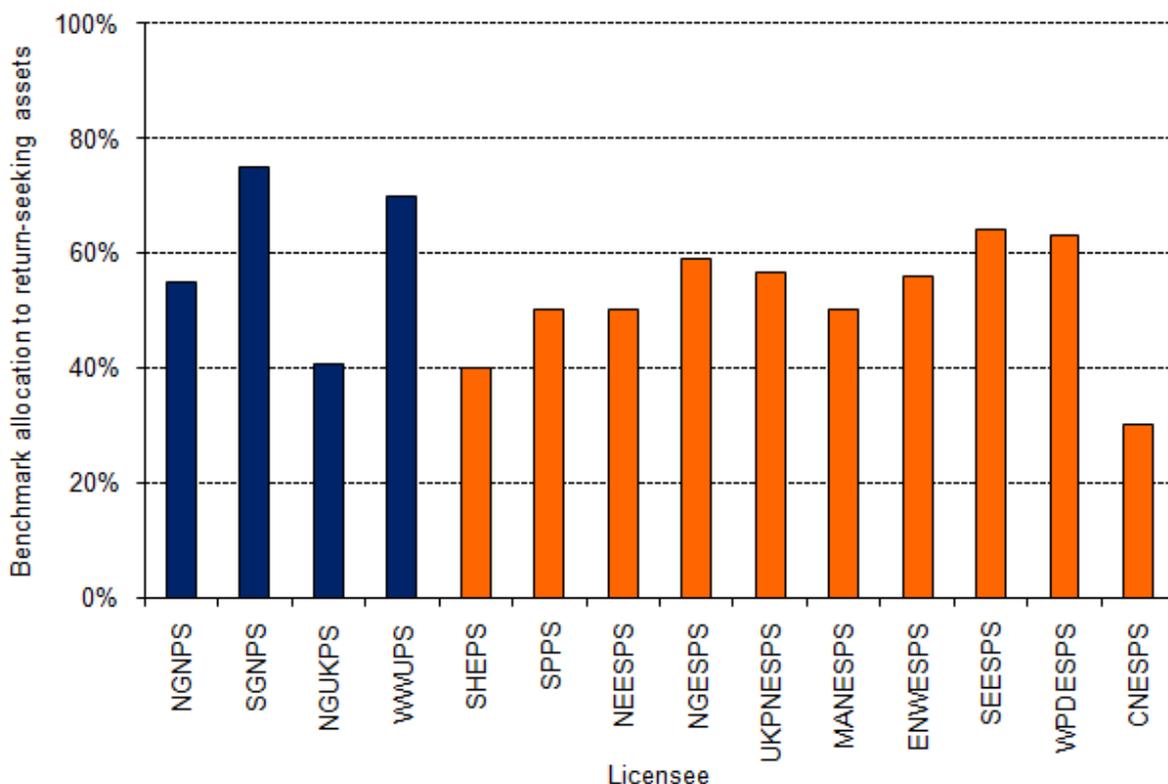
### ***Introduction***

- 4.1 Schemes' investment strategies affect their investment returns (and therefore their current and future funding levels), and also the choice of actuarial assumptions for funding valuations. A summary of the key factors that influence the high-level strategic investment strategy for a funded defined benefit pension scheme is given in Appendix D.
- 4.2 Schemes' actual investment returns are a key factor affecting future pension costs.
- 4.3 This section analyses NWOs' schemes' benchmark investment strategies and recent investment returns.
- 4.4 The analysis in this section concentrates on the high-level split between return-seeking assets and matching assets. A more detailed analysis of specific asset classes is beyond the scope of this report.

***Licensees' schemes' investment strategies***

4.5 Figure 1 illustrates licensees' schemes' current benchmark investment strategies, showing the percentage of the schemes' assets to be invested in return-seeking assets. In most cases, the percentages reflect the stated benchmark strategy.<sup>4</sup> Actual investment allocations would be expected to deviate from the benchmark strategies from time to time due to tactical decisions and short-term investment returns.

**Figure 1: Percentage of assets invested in return-seeking assets, benchmark**



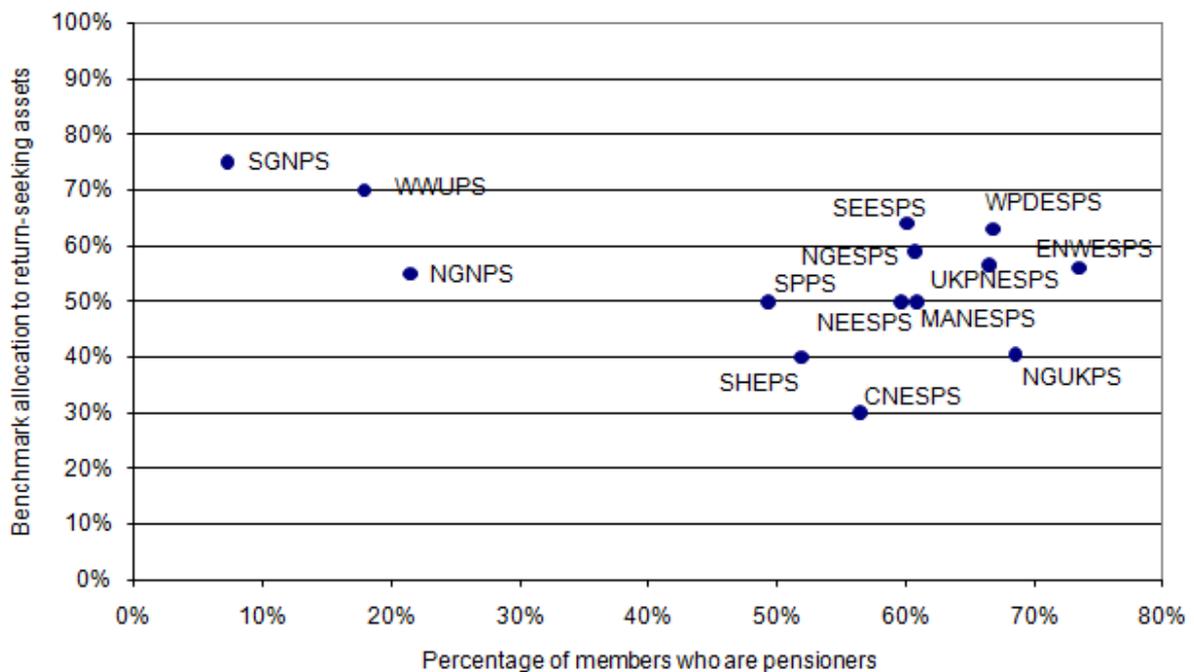
4.6 Figure 1 shows that most schemes' strategies are to invest between 50% and 65% of their assets in return-seeking assets. Exceptions are:

- > SGNPS: 75% in return-seeking assets;
- > NGUKPS: 40% in return-seeking assets;
- > WWUUPS: 70% in return-seeking assets;
- > SHEPS: 40% in return-seeking assets; and
- > CNESPS: 30% in return-seeking assets

<sup>4</sup> The WWUUPS's investment allocation has, intentionally, moved some way from its most recent stated benchmark strategy, due to a policy of investing new cash flows in matching assets. The WWUUPS's approximate current investment allocation (by market value) has been used instead.

- 4.7 Schemes' investment strategies are similar to those shown in my July 2009 report.
- 4.8 One of the main factors affecting investment strategy is the maturity of the scheme: other things being equal, a scheme with a more mature liability profile would be expected to invest a lower proportion of its liabilities in return-seeking assets.
- 4.9 Figure 2 illustrates each scheme's allocations to return-seeking assets (vertical axis) relative to the percentage of its members who are pensioners (horizontal axis). The percentage of a scheme's members who are pensioners has been used as a simplified indication of a scheme's maturity.

**Figure 2: Percentage of assets to be invested in return-seeking assets on vertical axis, against percentage of members who are pensioners (horizontal axis)**



4.10 Figure 2 shows that:

- > The SGNPS and WWUPS invest a relatively high percentage in return-seeking assets, but this is partly explained by the relative immaturity of the schemes (indicated by the relatively low percentage of pensioner members).
- > Conversely, a slightly greater investment in return-seeking assets might be expected for the NGNPS. However, considering that the NGNPS's investment in return-seeking assets is still relatively high compared to other schemes and that this analysis is simplified, this may not be significant.
- > The NGUKPS invests a relatively low percentage in return-seeking assets, but this is partly explained by the relative maturity of the scheme.

- > The CNESPSPS is less mature than most other electricity schemes (as measured by the percentage of pensioner members) but invests a lower percentage in return-seeking assets.
  - > A slightly greater investment in return-seeking assets might be expected for the SHEPS.
- 4.11 No information was provided on the CPP's or the CEPS's benchmark investment strategies. At March 2010 they had around 65-70% by market value invested in return-seeking assets, with 5-15% of their members being pensioners. In this regard, they are broadly consistent with the SGNPS and WWUPS in Figure 2.
- 4.12 Licensees' schemes' strategic investment strategies are broadly consistent with those of average UK private sector defined benefit schemes from publicly available information.
- 4.13 2011 PPF/tPR data<sup>5</sup> suggests that the average asset allocation for UK private sector defined benefit pension schemes is to have around 50% in return-seeking assets. This is of a similar order to most licensees' schemes, as shown in Figure 1.
- 4.14 Chart 7.4 in the 2011 Purple Book illustrates the relationship between investment strategy and scheme maturity. It suggests that relatively immature schemes (schemes where current pensioner liabilities are less than 20% of the total liabilities) typically invest around 60% in return-seeking assets, whereas more mature schemes (schemes where current pensioner liabilities are between 60% and 79% of the total liabilities) typically invest around 40% in return-seeking assets.
- 4.15 Figure 2 suggests that most licensees' schemes invest a slightly greater percentage in return-seeking assets than typical schemes of similar maturities, from this Purple Book data. However, the comparison is complicated by the effect of market movements, as the Purple Book data reports allocations by market value at a certain date, not schemes' benchmark strategies. Further, to the extent that licensees' covenants might be stronger than average and their schemes larger than average, a greater allocation to return-seeking assets could be reasonable. Taking all of these points into account, overall licensees' schemes' strategic investment strategies appear to be broadly consistent with the Purple Book data on typical UK private sector schemes.

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<sup>5</sup> ["The Purple Book: DB pensions universe risk profile, 2011"](#), Pension Protection Fund (PPF) and the Pensions Regulator (tPR), Table 7.1.

***Implications of strategic investment strategy***

4.16 ***Long-term implications*** Other things being equal, less (more) investment in return-seeking assets implies:

- > lower (higher) long-term expected investment returns; and therefore
- > an expectation of higher (lower) long-term employer contributions (in order for the scheme's assets to be able to meet future benefit payments); but with
- > less (more) investment risk; so
- > potentially less (more) volatile funding outcomes; and therefore
- > potentially less (more) volatile overall employer contribution rates.

4.17 ***Short-term implications*** One possible consequence of a relatively low (high) investment in return-seeking assets is a relatively high (low) employer contribution rate in the short term, due to actuarial valuation assumptions anticipating lower (higher) long-term investment returns.

***Investment returns***

4.18 Table 3 summarises licensees' average rates of investment return over the three- and ten-year periods to March 2010. It also shows the median return on balanced funds from CAPS pooled pension fund updates<sup>6</sup> for comparison, while noting that this source does not reflect licensees' schemes individual asset allocations and objectives.

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<sup>6</sup> CAPS pooled pension fund updates, BNY Mellon P&RA Europe Limited.

**Table 3: Average investment returns – three- and ten-year periods to March 2010**

| Scheme                           | 3 years to March 2010<br>% a year | 10 years to March 2010<br>% a year |
|----------------------------------|-----------------------------------|------------------------------------|
| <b>Gas</b> <sup>1</sup>          |                                   |                                    |
| NGNPS <sup>2</sup>               | 1.6                               | 3.2                                |
| SGNPS                            | 4.5                               | 3.9                                |
| NGUKPS                           | 5.6                               | 4.2                                |
| WWUPS                            | 1.3                               | 3.8                                |
| <b>Electricity</b>               |                                   |                                    |
| SHEPS                            | 6.9                               | 5.9                                |
| SPPS                             | 6.7                               | 5.0                                |
| NEESPS                           | 3.8                               | 5.2                                |
| NGESPS                           | 4.9                               |                                    |
| UKPNESPS                         | 4.6                               | 3.9                                |
| MANESPS                          | 4.3                               | 4.1                                |
| ENWESPS                          |                                   |                                    |
| SEESPS                           | 3.5                               | 3.8                                |
| WPDESPS                          | 4.2                               | 5.0                                |
| CNESPS                           | 4.0                               | 3.7                                |
| <b>CAPS median balanced fund</b> | <b>5.1</b>                        | <b>4.8</b>                         |

Source: CAPS median balanced fund: BNY Mellon P&RA Europe Limited

<sup>1</sup> Returns for all four gas schemes before 2005/06 relate to the former combined gas scheme.

<sup>2</sup> Data for recent years for the NGNPS are for years to December, not March (up to December 2009).

<sup>3</sup> Blank cells indicate that complete data is not available due to scheme changes.

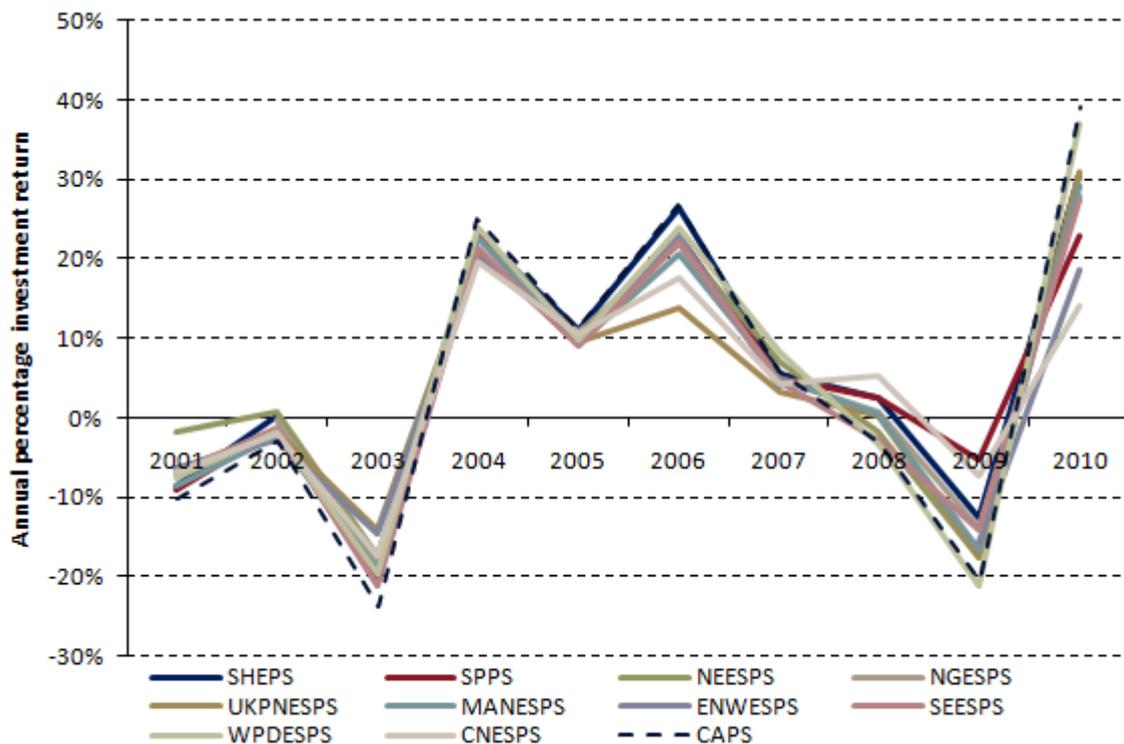
<sup>4</sup> For simplicity, calculations use arithmetic means of annual returns and ignore timing of cash flows.

4.19 Considering returns over the ten-year period to March 2010, all schemes' average annual returns were within 1.1% of the CAPS median balanced fund (4.8% a year), except for the NGNPS (see paragraph 4.22).

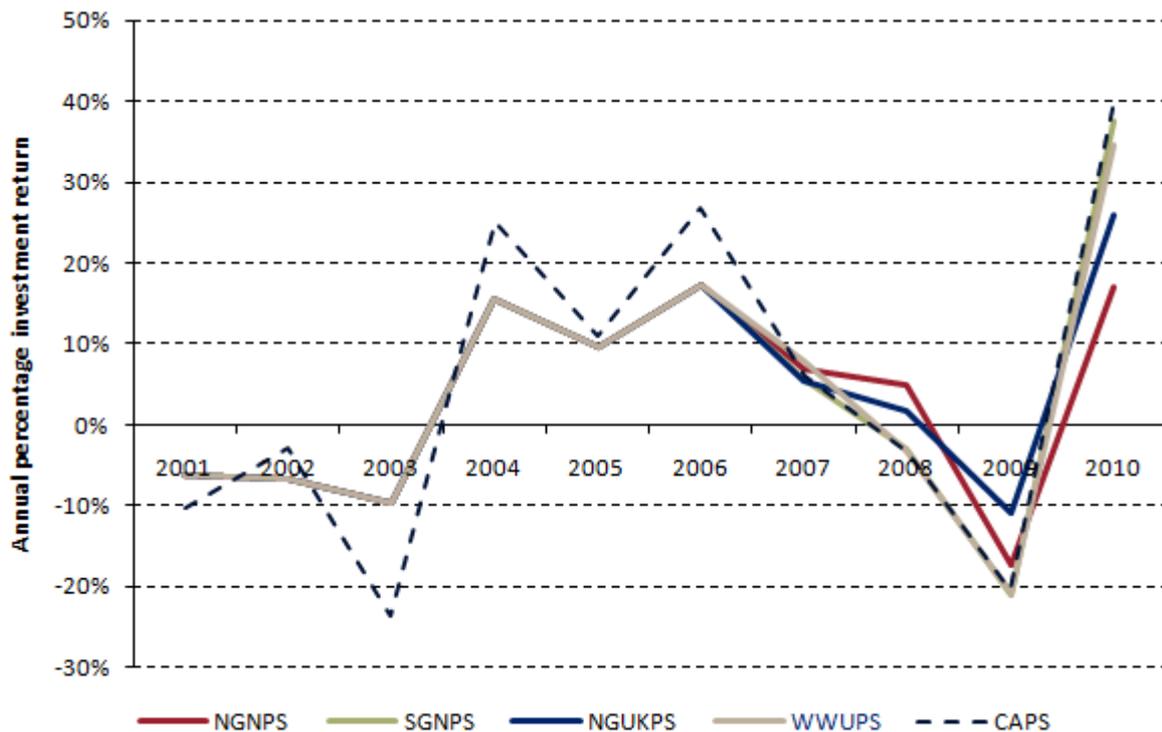
4.20 Of the remainder, four schemes (the SHEPS, SPPS, NEESPS and WPDESPS) had higher returns than the CAPS data, with seven schemes (the SGNPS, NGUKPS, WWUPS, UKPNESPS, MANESPS, SEESPS and CNESPS) having lower returns. Due to scheme mergers and other changes, data is not available over this ten-year period for two schemes (the NGESPS and ENWESPS).

- 4.21 All other things being equal, a difference of 1% a year in investment returns over a ten-year period would result in a difference of over 10% in asset values at the end of the period, depending on the incidence of cash flows.
- 4.22 The NGNPS's returns reflect, in part, the different period covered in recent years (see footnote 2 to Table 3). In particular, the NGNPS's data exclude the relatively strong period of market returns between December 2009 and March 2010.
- 4.23 Average returns over the three-year period to March 2010 were more volatile, ranging from 1.3% a year for the WWUPS to 6.9% a year for the SHEPS, compared with 5.1% a year from the CAPS data. Investment returns were extreme over this three-year period. Individual schemes' outcomes depend significantly on their asset allocations.
- 4.24 Figures 3 and 4 illustrate past investment returns for the electricity and gas schemes respectively. They show that NWOs' schemes' investment returns have broadly followed the same shape as the CAPS returns. Variations will reflect differences in investment strategy among other factors. For example, Figure 3 illustrates that the SPPS and the CNESPS, which have relatively low investment in return-seeking assets, suffered smaller investment losses in the year to March 2009 than other schemes (when UK equities returned -29%, as measured by the UK FTSE All-share total return index) with consequentially smaller gains during the year to March 2010 (when UK equities returned +52%).

**Figure 3: Annual percentage investment returns, years to March – electricity NWOs**



**Figure 4: Annual percentage investment returns, years to March – gas NWOs**



<sup>1</sup> Returns for all four gas schemes before 2005/06 relate to the former combined gas scheme.

### ***Limitations of this analysis***

- 4.25 The analysis in this section focuses on high-level strategic investment strategy only. It ignores many detailed risk and return factors which schemes' trustees' take into account when deciding on investment strategy.
- 4.26 Comparisons of investment returns have not been adjusted for investment risk or other factors. It is recognised that schemes' trustees will monitor regularly investment returns relative to their stated objectives and benchmarks. The use of the CAPS pooled balanced fund returns does not imply that this is an appropriate benchmark for licensees' schemes' returns. The purpose of this analysis is to summarise the available information and to identify if there are any significant concerns shown by past experience.
- 4.27 Comparisons between pension schemes are indicative and do not reflect many detailed scheme- and sponsor-specific factors.

## 5 Actuarial funding methodology and assumptions

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### **Section summary**

The results of a pension scheme's funding valuation and therefore the sponsor's future cash contributions depend significantly on the assumptions made for future experience. This section of the report considers the assumptions adopted for licensees' schemes' funding assessments as at 31 March 2010.

Most licensees' schemes' funding assumptions are within a range that would be expected from data on typical schemes' assumptions. Outliers are discussed.

Most electricity licensees' schemes' funding assessments assume that full RPI-linked pension increases will be provided in the future, with no allowance for any cap.

Ofgem may wish to consider further the UKPNESPS's Scheme Actuary's comments regarding the effects of the recent sale of the network business on the assumptions used for the UKPNESPS's funding assessment, while noting that the funding outcome is broadly in line with those of other electricity licensees' schemes.

### **Introduction**

- 5.1 The results of a pension scheme's funding valuation and therefore the sponsor's future cash contributions depend significantly on the assumptions made for future experience. More prudent (or cautious) assumptions place a higher present value on the scheme's liabilities<sup>7</sup> and will result in a higher Standard Contribution Rate (SCR)<sup>8</sup>, but would be more likely to result in a future valuation surplus and hence lower future contribution rates (assuming that surplus is used to reduce contribution rates rather than to improve members' benefits).
- 5.2 This section of the report considers the assumptions adopted for licensees' schemes' funding assessments as at 31 March 2010. Assumptions are set by the pension scheme trustees, after taking actuarial advice, but they must be agreed by the sponsoring employer. Appendix C provides some background on scheme funding valuations and assumptions.
- 5.3 No information has been provided on the WWUPS's most recent full actuarial valuation or subsequent interim funding update. This is due to the valuation having not been agreed in time for this review. The WWUPS has therefore been excluded from most of the analysis in this section. Ofgem should consider when and how to review the WWUPS's funding position.

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<sup>7</sup> In other words, it would suggest that the scheme should be holding more assets now in order to meet its future liabilities.

<sup>8</sup> In other words, the sponsoring employer will be required to pay higher contributions to meet the expected cost of benefits accruing to active members. Please refer to the glossary in Appendix E for a definition of Standard Contribution Rate.

- 5.4 While individual assumptions are reviewed in turn it is recognised that the overall basis in the round determines the funding valuation results. The analysis in this section focuses on the most significant actuarial assumptions.

### ***Sponsor covenant***

- 5.5 A key factor affecting the trustees' choice of valuation assumptions, and in particular the degree of prudence incorporated, is the trustees' view of the sponsor's covenant. The greater the trustees' perceived risk of the sponsoring employer's insolvency, the more prudence they are likely to apply.
- 5.6 For the purposes of this section, I have assumed that licensees' covenants are relatively strong. Therefore, I would expect licensees' schemes' funding assumptions to incorporate low to normal margins for prudence. I have not independently reviewed licensees' covenants for the purposes of this review. Instead, this is based on the following information:
- > All licensees have indicated that, for the purposes of recent funding valuations, the scheme's trustees considered the sponsor to have a "strong", or in some cases "tending to strong", covenant.
  - > Licensees have reported their Dun & Bradstreet (D&B) failure scores: a measure of sponsor covenant that is used to calculate Pension Protection Fund levies. Failure scores range from 1 to 100. A failure score of 1 indicates a good chance of a company being declared bankrupt, with 100 indicating a small chance. Most licensees' D&B scores are over 90.

### ***Uncertainty caused by recent sale of network business***

- 5.7 The CNESPS has been affected by a sale of the relevant network operators in April 2011. Pension scheme assets and liabilities relating to the regulated network business were transferred to a new ESPS Group in May 2011. The first actuarial funding valuation of the new Group will be carried out with an effective date in 2011. The residual assets and liabilities of the former Group now relate entirely to unregulated businesses and are not relevant to this review.
- 5.8 For the purposes of this report, historical information regarding the CNESPS relates to the ESPS Group of the former owner of the relevant network operators.
- 5.9 The new owner has provided Ofgem with an indicative funding valuation of the CNESPS (covering only the new ESPS Group) as at 31 March 2010, which adopts the funding approach and assumptions used by another Group sponsored by the owner. For the purposes of Sections 5 and 6 of this report, I have used the results of this indicative funding valuation for the CNESPS. Ofgem should note that this indicative valuation does not determine the licensee's actual future contributions.

### ***Valuation method***

- 5.10 Almost all schemes' valuations were carried out using a standard actuarial funding method called the *projected unit method*, except for the WPDESPS and CNESPS, where a different method (called the *attained age method*) was used to calculate future service contributions. Both methods are commonly used for funding valuations of pension schemes that are closed to new entrants.
- 5.11 The use of the attained age method for the WPDESPS and CNESPS would be expected to lead to a higher initial contribution rate than if the projected unit method had been used instead. The use of the projected unit method for other licensees' schemes provides consistency otherwise.
- 5.12 Appendix C contains further information on these actuarial funding methods.

### ***Discount rates and pay increases***

- 5.13 The discount rate is the rate at which a scheme's expected future benefit expenditure is discounted for the purpose of an actuarial valuation. It can be thought of as corresponding to an assumed rate of return on assets. Pension scheme valuation outcomes are very sensitive to changes in the discount rate. For example, a ½% increase in the discount rate could increase a typical scheme's funding level by around 5 to 10 percentage points and reduce the employer's share of the SCR by 2-4% of pay.
- 5.14 Discount rates are typically set by reference to gilt yields or swap curves plus an allowance for assumed *outperformance* of return-seeking assets relative to gilts or swaps.<sup>9</sup>
- 5.15 A comparison of the assumed *asset outperformance* (relative to gilts or swaps) adopted for schemes' funding valuations therefore provides a comparison of the relative prudence of the valuation assumptions: other things being equal, assuming lower outperformance relative to gilts is more prudent than assuming higher outperformance. Such a comparison is somewhat simplified, but does provide a basis on which to compare different schemes' assumptions. In particular, it should be borne in mind that a scheme with a higher percentage of return-seeking assets would, other things equal, be expected to assume higher outperformance relative to gilts.
- 5.16 It is relatively common for schemes to adopt different discount rates for valuing benefits in the period up to retirement (in which period investment is assumed to be predominantly in return-seeking assets) and for valuing benefits post-retirement (in which a greater degree of matching is typically assumed). The assumed asset outperformance has therefore been analysed separately for pre- and post-retirement.
- 5.17 The assumed asset outperformance should reflect market conditions at the valuation date. The assumptions considered in this report are taken from valuations with effective dates between 31 December 2008 and 31 March 2010.

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<sup>9</sup> Gilt yields or swap curves are taken to represent the market's view of the expected rate of return on risk-free assets.

5.18 When considering the effect of the assumed asset outperformance on a scheme's SCR in particular, it is important also to consider the assumed rate of salary growth above price inflation ("real salary growth"). In a final salary pension scheme, an active member's pension will depend on his or her pay at, or near, retirement (or other exit). Other things being equal, higher assumed real salary growth will result in a higher SCR (and a higher value being placed on liabilities in respect of active members).

5.19 Table 4 shows the assumed asset outperformance and real salary growth adopted for licensees' (and Centrica's) schemes' funding assessments.

**Table 4: Assumed asset outperformance (% a year) and real salary growth (% a year)**

| Scheme             | Pre-retirement asset outperformance (% a year) <sup>1</sup> | Post-retirement asset outperformance (% a year) <sup>1</sup> | Real salary growth (% a year) <sup>2</sup> |
|--------------------|---|--|--|
| <b>Gas</b>         |   |  |  |
| NGNPS              | 1.8%  | 0.9%   | 0.8%                                       |
| SGNPS              | 1.0%  | 0.5%   | 1.2%                                       |
| NGUKPS             | 0.7% – 2.3% <sup>4</sup>                                    | 0.7%   | 1.0% <sup>3</sup>                          |
| <b>Electricity</b> |   |  |  |
| SHEPS              | 1.0%  | 0.5%   | 2.3%                                       |
| SPPS               | 1.5%  | 1.5%   | 1.5%                                       |
| NEESPS             | 1.3% <sup>5</sup>   | 0.3%   | 0.5%                                       |
| NGESPS             | 0.4% – 3.2% <sup>4</sup>                                    | 0.4% – 1.7% <sup>4</sup>                                     | 1.0% <sup>3</sup>                          |
| UKPNESPS           | 1.3%  | 1.0%   | 1.5%                                       |
| MANESPS            | 2.0%  | 0.5%   | 1.5%                                       |
| ENWESPS            | 2.0%  | 0.5%   | 1.0% <sup>3</sup>                          |
| SEESPS             | 2.0%  | 0.5%   | 1.5%                                       |
| WPDESPS            | 2.0%  | 0.5%   | 1.5%                                       |
| CNESPS             | 2.0%  | 0.5%   | 1.5%                                       |
| <b>Centrica</b>    |   |  |  |
| CPP                | 2.3%  | 1.0%   | 1.0% <sup>3</sup>                          |
| CEPS               | 2.0%  | 1.0%   | 1.0%                                       |

<sup>1</sup> A higher (lower) value decreases (increases) the SCR and value of the liabilities.

<sup>2</sup> A higher (lower) value increases (decreases) the SCR and value of the liabilities.

<sup>3</sup> A material additional allowance is made for promotional salary increases.

<sup>4</sup> Asset outperformance varies over time.

<sup>5</sup> 1.7% a year pre-retirement asset outperformance is used to calculate future service SCRs.

- 5.20 Data from the Pensions Regulator<sup>10</sup> suggests that, until late 2008, typical asset outperformance assumptions for funding purposes were around 1½% to 2% a year pre-retirement and ¼% to ½% a year post-retirement, or around 1% a year overall for both pre- and post-retirement combined.
- 5.21 For valuations between late 2008 and late 2009, the Pensions Regulator's data suggests typical asset outperformance of 2% to 2¼% a year pre-retirement and ¾% to 1% a year post-retirement, or around 1¼% a year overall for both pre- and post-retirement combined. This reflects the significant falls in equity markets during 2008, and implies an expectation of equity market recoveries relative to risk-free returns for valuations then.
- 5.22 The Pensions Regulator has not yet published data on assumptions for funding valuations during 2010. However, based on the above information and on changes in market conditions over the year to March 2010, very broadly I might expect typical asset outperformance assumptions of around 2% a year pre-retirement and around ½% a year or slightly higher post-retirement for valuations as at 31 March 2010.
- 5.23 Most schemes in Table 4 are broadly consistent with this and with each other. The following features are worth noting:
- > The SGNPS and SHEPS have relatively low asset outperformance assumptions, particularly in the context of market conditions at the relevant valuation date (31 March 2009). The asset outperformance assumptions are unchanged from the March 2006 valuations, whereas the Pensions Regulator's data suggests that outperformance assumptions typically increased over this period (there were significant changes in market conditions between March 2006 and March 2009). The SGNPS's relatively low asset outperformance assumption should be viewed in the context of its relatively high investment in return-seeking assets, whereas the SHEPS's relatively low asset outperformance assumption is likely to reflect, in part, its relatively low investment in return-seeking assets. The next section of this report notes that these schemes have relatively high SCRs calculated using the past service valuation assumptions, but that the licensees have agreed with the schemes' trustees to pay lower contribution rates than the SCRs, and that the schemes' funding levels are no lower than other schemes'. Further, the licensees' deficit recovery contributions have been calculated assuming higher investment returns than implied by the assumptions described above. The relatively high assumed real salary growth for the SHEPS is explained, in part, by the inclusion of around 1% a year for promotional increases. The relevant companies have provided further information on the rationale behind the assumed discount rates, including evidence of the outcome of the companies' negotiations with the trustees during the funding valuation processes.

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<sup>10</sup> "[Recovery plans: assumptions and triggers](#)", The Pensions Regulator (tPR), December 2010, Table 2.1.

- > The NGUKPS's and NGESPS's asset outperformance assumptions vary over time. Taking into account the equivalent single pre- and post-retirement outperformance rates, and also the allowances made for salary growth, these schemes' assumptions are not significantly out of line with those used for other licensees' schemes.
- > The SPPS does not have separate pre- and post-retirement discount rates, but instead has a different rate for the period to March 2028 (2% a year outperformance) and subsequently (0.3% a year outperformance). The company has advised that this is broadly equivalent to a single discount rate with 1½% a year outperformance in all future years, as shown in Table 4. This is broadly consistent with most other licensees and the Pensions Regulator's data.
- > The NEESPS has relatively low assumed pre-retirement asset outperformance for the calculation of past service liabilities, but in conjunction with relatively low assumed real salary growth. Further, this scheme has a higher pre-retirement discount rate (1.7% a year outperformance) for the calculation of future service SCRs than that used to value past service liabilities. While, in themselves, the discount rates are lower than for most other licensees' schemes, relevant considerations include the assumed real salary growth and that the scheme's funding level and SCR are broadly similar to those for other electricity licensees' schemes (see next section of the report).
- > The UKPNESPS has relatively low assumed pre-retirement asset outperformance, but is towards the upper end of assumed post-retirement asset outperformance, and is therefore not significantly out of line with the assumptions used for most other licensees' schemes. The next section of this report notes that the UKPNESPS's funding level and SCR are broadly in line with those of other electricity licensees' schemes. However, the asset outperformance assumptions have decreased since the previous valuation as at 31 March 2007 (from 1½% a year pre- and post-retirement to 1¼% a year pre-retirement and 1% a year post-retirement). The assumed real salary growth has also decreased, from 2% a year to 1½% a year (which would be expected to partially offset the effects of the reduction in the discount rates). The relevant network operators were sold during 2010. The Scheme Actuary's valuation report states that the reduction in assumed asset outperformance reflects "a perceived weakening in the employer covenant; a step change in the maturity of the Group following the segregation...; and the expected more cautious investment strategy of the Group." Ofgem may wish to consider the implications of these changes further, while noting that the funding outcome is broadly in line with those of other electricity licensees' schemes.
- > The WPDESPS's assumed post-retirement asset outperformance decreased from 1% at March 2007 to ½% at March 2010. The valuation report comments that this reflects the move to a lower risk investment strategy following the closure of the scheme to new entrants. Table 4 shows that, after this reduction in discount rate, the WPDESPS is consistent with most other electricity licensees' schemes.

- > The CPP and the CEPS assume relatively high asset outperformance and relatively low real salary growth. The former is likely to reflect, in part, the valuation date of 31 March 2009.

5.24 Most electricity licensees' schemes' funding assessments assume that full RPI-linked pension increases will be provided in the future, with no allowance for any cap.

### ***Assumed longevity***

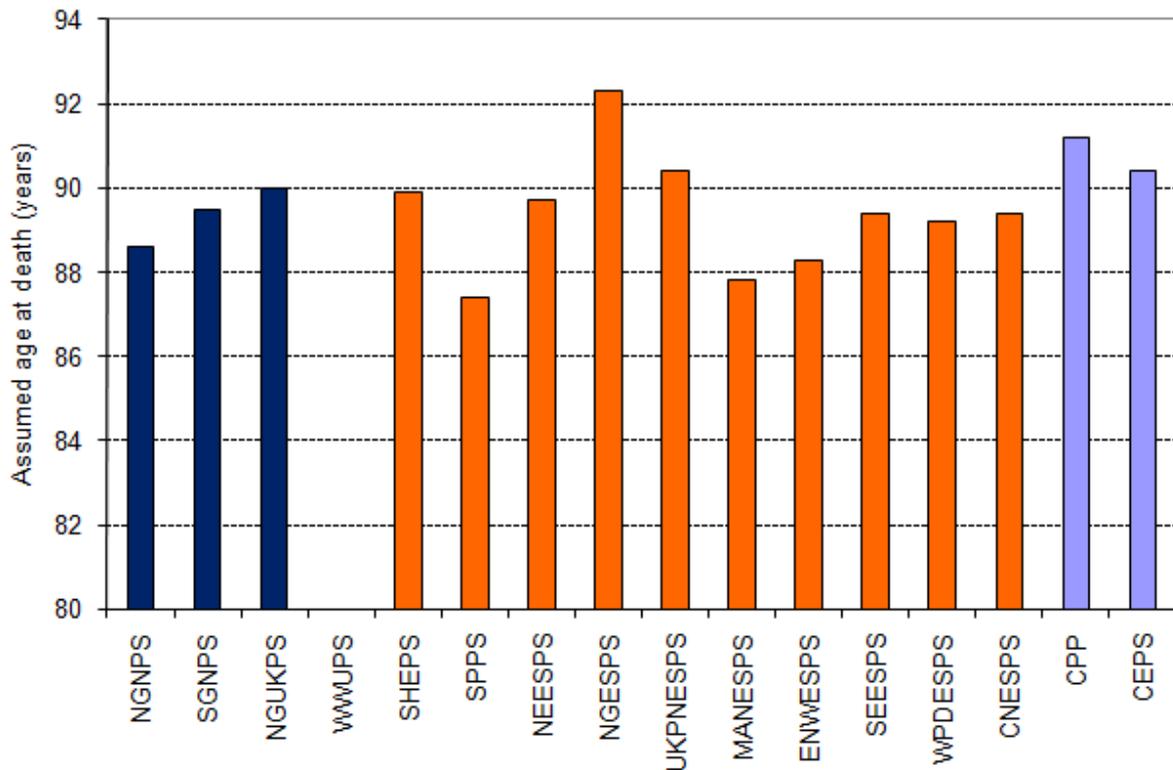
5.25 The longer a pension scheme member lives after retirement, the greater the cost of providing a defined benefit pension. Ongoing funding valuations require an assumption regarding the assumed longevity of members and their dependants. Such assumptions should reflect the particular membership of the scheme (in other words, whether the members' industry or geographical location suggests they might live for longer or shorter than average), and should allow for expected future improvements in longevity.

5.26 Figure 5 shows the expected age at death for a male pension scheme member currently age 40 and retiring in 20 years' time as assumed for licensees' (and Centrica's) schemes.<sup>11</sup>

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<sup>11</sup> No information is available for the WWUPS.

**Figure 5: Assumed age at death (years) for a male pension scheme member currently age 40 retiring in 20 years' time**



5.27 Data from the Pensions Regulator<sup>12</sup> suggests a typical assumption of around 89 years for funding valuations between late 2008 and late 2009. This is broadly consistent with most schemes shown in Figure 5. Differences between schemes will arise, in part, due to the different membership of schemes (for example, due to regional variations).

5.28 Figure 5 shows that the NGESPS has higher assumed longevity than other licensees' schemes. The licensee has provided further information on this assumption. This information demonstrates that the difference observed in Figure 5 predominantly relates to differences in baseline longevity for certain categories of member reflecting actual data on past deaths and statistical analyses of members' characteristics and locations.

<sup>12</sup> "[Recovery plans: assumptions and triggers](#)", The Pensions Regulator (tPR), December 2010, Table 3.4. This data considers a slightly different cohort, but this is not expected to have a material effect on the comparison.

***Administration expenses and PPF levies***

5.29 Table 5 shows the approaches adopted in respect of schemes' administration costs and PPF levies in funding valuations.

**Table 5: Allowance for administration costs and PPF levies**

| Scheme             | Approach  |
|--------------------|---|
| <b>Gas</b>         |   |
| NGNPS              | SCR includes 1.2% of pay for admin costs, PPF levy paid directly by company |
| SGNPS              | SCR includes 1% of pay for admin costs and PPF levy                         |
| NGUKPS             | 4% of pay in 2010/11 added for admin costs and PPF levy, reviewed annually  |
| <b>Electricity</b> |   |
| SHEPS              | SCR includes 1% of pay for admin costs and PPF levy                         |
| SPPS               | SCR includes 1% of pay for admin costs, PPF levy paid directly              |
| NEESPS             | SCR includes 2.8% of pay for admin costs, PPF levy paid directly by company |
| NGESPS             | Admin costs and PPF levy paid directly by company, no allowance in SCR      |
| UKPNESPS           | Admin costs and PPF levy paid directly by company, no allowance in SCR      |
| MANESPS            | Addition to SCR for admin costs, PPF levy paid directly                     |
| ENWESPS            | Admin costs and PPF levy paid directly by company, no allowance in SCR      |
| SEESPS             | SCR includes 2.3% of pay for admin costs and PPF levy                       |
| WPDESPS            | SCR includes 2.4% of pay for admin costs and PPF levy                       |
| CNESPS             | SCR includes 1.9% of pay for admin costs and PPF levy                       |

5.30 Table 5 identifies differences in both the treatment of administration costs and also in the additions to contribution rates. The NGUKPS has the largest addition, at 4% of pay. However, this reflects its relatively small active membership as a proportion of total members (5%), in conjunction with recovering the administration costs in respect of the whole scheme through a percentage of pensionable pay (which relates to the active members only). By comparison, the other gas licensees' schemes' percentages of active members are at least 70%, with the equivalent percentage for the electricity schemes being around 25% in most cases.

5.31 Where appropriate, any allowance for administration costs has been removed from contribution rates in this report to facilitate comparisons. When considering licensees' projected pension costs, Ofgem should consider differences in the treatment of administration costs summarised in Table 5.

### ***Other factors***

- 5.32 A number of other actuarial assumptions affect the results of funding valuations. It is beyond the scope of this report to analyse in detail all assumptions adopted for licensees' schemes valuations.

### ***Limitations of this analysis***

- 5.33 The analysis in this section focuses on key valuation assumptions. It ignores many detailed factors which schemes' trustees' take into account when deciding on funding assumptions. It is recognised that a scheme's funding approach should reflect its, and its sponsor's, particular circumstances. This review is solely intended to highlight where Ofgem may wish initially to seek further information on the approach adopted. It should not be interpreted as advising that a particular approach is necessarily inappropriate for funding purposes.
- 5.34 Comparisons between pension schemes are indicative and do not reflect many detailed scheme- and sponsor-specific factors.

## 6 Actuarial funding valuation results

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### ***Section summary***

This section reviews licensees' funding levels (the ratio of the value of the assets to the value of the past service liabilities) and employers' shares of schemes' SCRs (excluding expenses) as at 31 March 2010.

It comments on features that are explained by the analyses in earlier sections of this report and notes that licensees' schemes' funding levels are generally within a range that would be expected compared to other UK private sector schemes.

This section also reviews changes in funding levels and SCRs since previous valuations. It notes that movements in funding results are broadly as expected. Outliers are noted and discussed.

### ***Introduction***

- 6.1 This section reviews licensees' funding levels (the ratio of the value of the assets to the value of the past service liabilities) and employers' shares of schemes' SCRs (excluding expenses) as at 31 March 2010. It comments on features that are explained by the analyses in earlier sections of this report. It also comments on changes in funding levels and SCRs since previous valuations.
- 6.2 This section does not consider schemes' recovery periods or deficit recovery contributions. This is because Ofgem's pension allowances in price controls do not directly equal schemes' actual annual deficit recovery contributions. Ofgem should note that many licensees' schemes assume higher investment returns during the recovery period for the purposes of calculating deficit recovery contributions than those underlying the calculation of technical provisions. In other words, they apply a smaller margin for prudence when calculating deficit recovery contributions, and assume that some of the funding deficit will be met by excess investment returns rather than additional contributions.
- 6.3 This section reviews licensees' schemes' funding assessments as at 31 March 2010. In some cases these assessments will not determine licensees' actual future pension contributions. This is the case where a full triennial actuarial valuation has not been carried out as at 31 March 2010.
- 6.4 No information has been provided on the WWUPS's most recent full actuarial valuation or subsequent interim funding update. This is due to the valuation having not been agreed in time for this review. Therefore, the WWUPS has been excluded from the analysis in this section. Ofgem should consider when and how to review the WWUPS's funding position.

***Funding valuation results***

6.5 Table 6 summarises licensees' schemes' funding positions at March 2010.

**Table 6: Funding positions at March 2010**

| Pension scheme     | Employer SCR <sup>1</sup><br>(% of pay) | Funding level (%) |
|--------------------|---|-------------------|
| <b>Gas</b>         |   |                   |
| NGNPS              | 34%                                     | 88%               |
| SGNPS              | 43% <sup>2</sup>                        | 74%               |
| NGUKPS             | 32%                                     | 96%               |
| <b>Electricity</b> |   |                   |
| SHEPS              | 42% <sup>3</sup>                        | 87%               |
| SPPS               | 24% <sup>4</sup>                        | 99%               |
| NEESPS             | 27%                                     | 78%               |
| NGESPS             | 24%                                     | 75%               |
| UKPNESPS           | 26%                                     | 77%               |
| MANESPS            | 25%                                     | 80%               |
| ENWESPS            | 29% <sup>5</sup>                        | 85%               |
| SEESPS             | 26%                                     | 71%               |
| WPDESPS            | 24% <sup>6</sup>                        | 70%               |
| CNESPS             | 28% <sup>6</sup>                        | 82%               |

<sup>1</sup> Excluding any allowances for administration expenses and PPF levies. The SCRs are those calculated as at 31 March 2010. In some cases (such as where a full triennial actuarial valuation has not been carried out as at 31 March 2010), the SCRs shown do not reflect licensees' actual pension contributions.

<sup>2</sup> The SGNPS SCR is that calculated at March 2010 using the past service liability valuation assumptions discussed in Section 5. However, the rate being paid by the company implicitly adopts a smaller margin for prudence in the assumptions for future service benefits.

<sup>3</sup> The SHEPS SCR is that calculated at March 2010 using the past service liability valuation assumptions discussed in Section 5. However, the rate being paid by the company implicitly adopts a smaller margin for prudence in the assumptions for future service benefits.

<sup>4</sup> The SPPS SCR covers two benefit scales. The equivalent SCR for the original scheme's benefit scale (as described in Section 3) would be around 28% of pay (very approximately).

<sup>5</sup> The ENWESPS SCR covers two benefit scales. The equivalent SCR for the original scheme's benefit scale (as described in Section 3) would be around 27% of pay (very approximately).

<sup>6</sup> These SCRs have been calculated using a different method than the other schemes' (see paragraphs 5.10 to 5.12). Otherwise, the SCR would be expected to be lower. The CNESPS SCR is that for final salary benefit members only.

6.6 The following features are shown in Table 6:

- > The gas schemes' SCRs are generally higher than for the electricity schemes. This is principally due to the more generous benefits provided as discussed in Section 3.
- > The SGNPS has a higher SCR and lower funding level than other gas schemes. Section 5 noted its relatively low assumed asset outperformance. Note 2 for Table 6 comments that a smaller margin for prudence has implicitly been adopted for the determination of future service contribution rates.
- > The other gas schemes' SCRs differ by only 2% of pay.
- > The electricity schemes' SCRs lie between 24% and 28% of pay (taking into account the comments in the notes to the table), except for the SHEPS.
- > The SHEPS has a much higher SCR than other electricity schemes. This is principally due to its relatively low assumed asset outperformance as discussed in Section 5. Further, Section 3 noted its higher accrual rate. Note 3 for Table 6 comments that a smaller margin for prudence has implicitly been adopted for the determination of future service contribution rates.

6.7 SCRs and funding levels for the CPP and the CEPS have not been provided as at March 2010. Therefore, consistent comparisons with licensees' funding results at that date cannot be made. In broad terms, the CPP's and the CEPS's employer SCRs are lower than the gas licensees' schemes' SCRs, partly due to the higher rate of member contributions in the CPP and the CEPS (which reduces the employer's share of the SCR) and partly due to the relatively high assumed asset outperformance noted in Section 5.

6.8 A scheme's ongoing funding level reflects its past experience (for example past levels of employer contributions and any transfers to or from the scheme) as well as its future liabilities and valuation assumptions. It is beyond the scope of this report to quantify all the factors affecting schemes' funding levels. Recent movements in the funding level are discussed later in this section.

### ***Comparison with other schemes***

6.9 PPF/tPR data<sup>13</sup> suggests that average funding levels for UK defined benefit pension schemes were around 86% on an ongoing funding basis at 31 March 2010. This data is purely indicative, and is based on the past relationship between different types of actuarial valuation rather than reflecting actual scheme funding data at that date. Nevertheless, it indicates that licensees' funding levels at 31 March 2010 (as shown in Table 6) are broadly within an expected range compared to other UK private sector schemes.

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<sup>13</sup> "[The Purple Book: DB pensions universe risk profile, 2010](#)", Pension Protection Fund (PPF) and the Pensions Regulator (tPR), Table 4.1. This information was not shown in the 2011 version.

***Movements in SCRs and funding levels***

6.10 Table 7 shows movements in schemes' SCRs and funding levels since the previous full actuarial valuation, by effective date of the previous valuation.

**Table 7: Movements in SCRs and funding levels from previous full valuation (effective date shown) to March 2010**

| Pension scheme          | Employer SCR <sup>1</sup><br>(% of pay) |            | Funding level (%)  |            |
|-------------------------|---|------------|--------------------|------------|
|                         | Previous valuation                      | March 2010 | Previous valuation | March 2010 |
| <b>31 March 2007</b>    |   |            |                    |            |
| NEESPS                  | 24%                                     | 27%        | 91%                | 78%        |
| NGESPS                  | 21%                                     | 24%        | 77%                | 75%        |
| UKPNESPS                | 20%                                     | 26%        | 95%                | 77%        |
| SEESPS                  | 23%                                     | 26%        | 81%                | 71%        |
| WPDESPS                 | 19%                                     | 24%        | 90%                | 70%        |
| CNESPS                  | 22%                                     | 28%        | 94%                | 82%        |
| NGUKPS                  | 29%                                     | 32%        | 97%                | 96%        |
| <b>31 March 2008</b>    |   |            |                    |            |
| ENWESPS                 | 30%                                     | 29%        | 89%                | 85%        |
| <b>31 December 2008</b> |   |            |                    |            |
| NGNPS                   | 31%                                     | 34%        | 81%                | 88%        |
| <b>31 March 2009</b>    |   |            |                    |            |
| SHEPS                   | 37%                                     | 42%        | 72%                | 87%        |
| SPPS                    | 21%                                     | 24%        | 90%                | 99%        |
| MANESPS                 | 24%                                     | 25%        | 66%                | 80%        |
| SGNPS                   | 41%                                     | 43%        | 55%                | 74%        |

<sup>1</sup> Excluding any allowances for administration expenses and PPF levies.

**Table 8: Commentary on movements in SCRs and funding levels shown in Table 7**

|                               | <b>Employer SCR</b>  | <b>Funding level</b>   |
|-------------------------------|--|--|
| <b>March 07 – March 10</b>    |  |  |
| Typical change                | Increase by 3-4% of pay  | Decrease by 10-15 percentage points  |
| Explanation                   | Reasonable due to decrease in gilt yields (reduces discount rate)  | Reasonable due to combination of lower than expected asset returns and decrease in gilt yields, partially offset by additional contributions |
| Exceptions                    | <ul style="list-style-type: none"> <li>&gt; NGESPS – smaller decrease in funding level due to relatively high contributions paid</li> <li>&gt; UKPNESPS and WPDESPS – larger increases in SCR and larger decreases in funding level, due to changes in valuation assumptions (see 5.23).</li> <li>&gt; CNESPS – larger increase in SCR due to change in valuation method (see 5.10-5.12)</li> <li>&gt; NGUKPS – smaller decrease in funding level due to relatively good investment returns (see Table 3)</li> </ul> |  |
| <b>March 08 – March 10</b>    |  |  |
| Typical change (ENWESPS only) | Small decrease   | Decrease by 4 percentage points  |
| Explanation                   | Might have expected a small increase due to small decrease in gilt yields  | Reasonable due to combination of lower than expected asset returns and small decrease in gilt yields   |
| <b>Dec 08 – March 10</b>      |  |  |
| Typical change (NGNPS only)   | Increase by 3% of pay  | Increase by 7 percentage points  |
| Explanation                   | Mainly due to small decrease in gilt yields  | Reasonable due to higher than expected asset returns, partially offset by decrease in gilt yields  |
| <b>March 09 – March 10</b>    |  |  |
| Typical change                | Increase by 2-5% of pay  | Increase by 10-20 percentage points  |
| Explanation                   | Reasonable due to decrease in gilt yields (reduces discount rate)  | Reasonable due to higher than expected asset returns, partially offset by decrease in gilt yields  |

## 7 Conclusions

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7.1 The results of this review assist Ofgem to assess:

- > The reasonableness of the methods and assumptions used to determine NWOs' pension costs; and
- > Differences between NWOs' pension costs.

7.2 This review is principally an information gathering and summarising exercise. Identification as a possible outlier must not be seen as actual or implied criticism of a scheme or NWO, but allows Ofgem to consider if further investigation is appropriate (and informs the decision of how such further work might be specified).

7.3 Most licensees' schemes' strategic investment strategies, funding assumptions, future service contribution rates and funding positions are broadly consistent with each other, and are broadly as might be expected from publicly available information, given the level of benefits being provided and the strengths of the sponsors' covenants (as assessed by the schemes' trustees and reported to Ofgem by the licensees). Outliers are discussed in the body of this report.

7.4 Ofgem should note in particular:

- > Most electricity licensees' schemes' funding assessments assume that full RPI-linked pension increases will be provided in the future, with no allowance for any cap;
- > Many licensees' schemes assume higher investment returns during the recovery period for the purposes of calculating deficit recovery contributions than those underlying the calculation of technical provisions; and
- > The UKPNESPS's Scheme Actuary's comments regarding the effects of the recent sale of the network business on the assumptions used for the UKPNESPS's funding assessment, while noting that the funding outcome is broadly in line with those of other electricity licensees' schemes.

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**16 May 2012**

## **Appendix A – Objectives of the review**

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1. To highlight those NWO DB schemes where the movement in the deficit (reviewing separately the movement in underlying assets and liabilities) appears to be out of line with the general market;
2. To identify whether any schemes' benefits, investment strategies, funding methodologies, funding assumptions, funding levels or standard contributions fall outside of the expected range compared to
  - (a) their industry peers; and
  - (b) publicly available information on other UK private sector DB pension provision;
3. To set out in advance the methodology for the review, relating them to Ofgem's pension principles; and
4. In particular, to use this methodology to identify whether an NWO's pension costs fall outside of the expected range, taking into consideration the economic and efficient tests in principle 1 and the stewardship tests in principle 3 in which Ofgem has set out some indicators of failure.

## Appendix B – Licensees and pension schemes

| Network operator (Licensee)   | Defined benefit pension scheme            | Abbreviation used |
|---|---|-------------------|
| <b>Gas</b>  |   |                   |
| Northern Gas Networks   | Northern Gas Networks Pension Scheme      | NGNPS             |
| Scotia Gas Networks   | Scotia Gas Networks Pension Scheme        | SGNPS             |
| National Grid Gas   | National Grid UK Pension Scheme           | NGUKPS            |
| Wales & West Utilities  | Wales & West Utilities Pension Scheme     | WWUPS             |
| <b>Electricity</b>  |   |                   |
| Scottish & Southern Energy: Hydro                                   | Scottish Hydro-Electric Pension Scheme    | SHEPS             |
| SP Distribution   | ScottishPower Pension Scheme              | SPPS              |
| Northern Powergrid  | ESPS Northern Electric Group              | NEESPS            |
| National Grid Electricity Transmission                              | ESPS National Grid Electricity Group      | NGESPS            |
| UK Power Networks   | ESPS UK Power Networks Group <sup>1</sup> | UKPNESPS          |
| SP Manweb   | ESPS Manweb Group                         | MANESPS           |
| Electricity North West  | ESPS ENW Group                            | ENWESPS           |
| Scottish & Southern Energy:<br>Southern Electric Power Distribution | ESPS Southern Electric Group              | SEESPS            |
| Western Power Distribution (South<br>Wales / South West)            | ESPS WPD Group                            | WPDESPS           |
| Western Power Distribution (West /<br>East Midlands)                | ESPS Central Networks Group               | CNESPS            |

<sup>1</sup> The UK Power Networks Pension Scheme is excluded from much of the analysis in this report, since its regulated share is currently small relative to the UK Power Networks Group of the ESPS.

### Centrica

The analysis in this report includes two defined benefit pension schemes operated by Centrica:

- > Centrica Pension Plan - CPP
- > Centrica Engineers Pension Scheme – CEPS

## Appendix C – Background to scheme funding and contributions

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1. Most UK private sector defined benefit pension schemes are subject to the scheme funding requirements of Part 3 of the Pensions Act 2004.<sup>14</sup> Pension schemes must have a full actuarial valuation carried out at least every three years. The purposes of such an actuarial valuation are:
  - > To check whether the pension scheme's assets are sufficient to cover its accrued liabilities (referred to as its *Technical Provisions* in the Pensions Act 2004); and
  - > To determine the contribution rate payable by the employer going forward.<sup>15</sup>
2. Employers' contribution rates usually comprise two elements:
  - > The employer's share of the *Standard Contribution Rate (SCR)*: this is the contribution rate required to meet the expected cost of pension benefits accruing to active members in respect of service in the relevant period (often the next three years), after deducting the members' contribution rate. The higher the members' contribution rate, the lower the employer's share of the SCR.
  - > Adjustments for past service surplus or deficit: where an actuarial valuation shows that the scheme's assets are less than required to cover the expected cost of members' benefits which have accrued up to the valuation date, additional *deficiency contributions* are required from the employer to make up the shortfall. Conversely, where the scheme's assets are more than sufficient, the employer's contributions may be reduced, depending on the scheme's rules.
3. The Standard Contribution Rate (SCR) therefore depends on the following three main factors:
  - > The level of benefits being provided: the more generous the benefits, the higher the SCR. Also, the lower the members' contribution rate (as specified in the scheme rules), the higher the employer's share of the SCR.
  - > The actuarial assumptions used: the more optimistic the assumptions, the lower the expected cost now of providing the defined benefits.<sup>16</sup>
  - > The membership profile of the pension scheme: the expected cost of providing a pension depends on the age of the members. Differences in age profiles will result in different SCRs.

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<sup>14</sup> For further information, please refer to the Pensions Regulator's regulatory code of practice 03, "[Funding defined benefits](#)".

<sup>15</sup> The pension scheme's rules usually determine the rate of members' contributions. In a defined benefit scheme, the employer's contributions are usually variable, and depend on the scheme's experience. In other words, given a fixed rate of member contributions, the employer must ensure the scheme has sufficient assets to pay the specified benefits.

<sup>16</sup> Other things being equal, the more optimistic the assumptions used to calculate the SCR, the greater the risk of actual future experience being worse than the assumptions used and hence of a deficit emerging in the pension scheme in the future.

4. The amount of any deficiency contributions depends on the following factors:
  - > The scheme's funding position: this depends on the scheme's actual past experience, and also on the assumptions used for the valuation with regard to the scheme's future experience. Past experience affects both the scheme's liabilities (its obligations to pay members' pensions) and the scheme's assets (the fund which has built up from past contributions and the actual investment performance achieved to date).
  - > The *recovery period*: in other words, the period over which any shortfall must be met by the employer through additional contributions. For any given deficit, the annual deficiency contribution will be lower the longer the period over which the deficit is to be repaid.
5. Some key points on the scheme funding process are<sup>17</sup>:
  - > The assumptions to be adopted for funding purposes are not prescribed in legislation or guidance.
  - > Assumptions must be set by the pension scheme trustees, after taking actuarial advice, and they generally must be agreed by the sponsoring employer. Assumptions must reflect the scheme's and the sponsoring employer's specific circumstances, in particular the trustees' view of the sponsoring employer's covenant.
  - > When calculating past service liabilities, assumptions must be prudent. The degree of prudence is not defined, and will depend on the scheme's circumstances.
  - > The recovery period must also be agreed with the sponsoring employer. The trustees should aim to eliminate any funding shortfall "as quickly as the employer can reasonably afford".<sup>18</sup>
6. A number of assumptions affect the results of an ongoing funding valuation. These include:
  - > Financial assumptions: including the discount rate (or equivalently, the assumed rate of return on the scheme's assets), pay increases, price inflation and pension increases.
  - > Demographic assumptions: including assumed longevity (allowing for expected future longevity improvements), assumed rates of withdrawal from active service (and whether this is through voluntary withdrawal, ill-health, death or retirement), and the proportion of members in respect of whom dependants' benefits will be paid.

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<sup>17</sup> This list is not exhaustive.

<sup>18</sup> Code of practice 03, "[Funding defined benefits](#)", the Pensions Regulator (tPR), paragraph 101.

### ***Valuation method***

7. Almost all licensees' funding valuations use an actuarial method called the *projected unit method*. This is a standard method which is commonly used for funding valuations. For schemes that are closed to new entrants (like licensees' original schemes), an alternative method (called the *attained age method*) is sometimes used. The attained age method would be expected to result in higher contribution rates in the short term. The following paragraphs explain this further.
8. The expected cost of pension benefits accruing to active members, expressed as a percentage of payroll, usually increases with age (although this depends on the actuarial assumptions used to calculate the expected cost). Where a pension scheme is closed to new entrants, this would be expected to result in an increase in the average age of active members over time, and hence an increase in the expected cost of benefits accruing to active members, expressed as a percentage of payroll.
9. If the employer standard contribution rate (SCR) is calculated to be sufficient to meet the expected cost of benefits accruing to active members in the few (typically three) years following the valuation date, then the employer SCR (expressed as a percentage of payroll) would be expected to increase in the future for a closed scheme. Such an approach is called the projected unit method.
10. Alternatively, the employer SCR could be calculated to be sufficient to meet the average expected cost of benefits accruing to active members for the remainder of their expected working lifetimes. This can result in a higher initial SCR, but with no further increases being expected in the future as the average age of active members increases. This is called the attained age method.
11. Both the projected unit method and the attained age method are commonly used for funding valuations of closed pension schemes. The projected unit method would be expected to result in lower initial employer contributions than if the attained age method were used. The projected unit method is expected to lead to future increases in the employer SCR as the average age of active members increases, but this should be considered in light of the corresponding expected reduction in pensionable payroll.

## **Appendix D – Factors affecting investment strategy**

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1. A number of factors affect the high-level strategic investment strategy for a funded defined benefit pension scheme. The choice of investment strategy represents a trade-off between:
  - > Return – In isolation, assets which are expected to generate higher returns would be preferred to assets with lower expected returns. Such assets include equities and property, and are referred to as return-seeking assets in this report.
  - > Risk – The scheme's trustees wish to minimise the risk of sufficient assets not being available to meet the scheme's benefit payments as they fall due. The employer may also want to minimise the risk of large deficiency contributions being required in the future. Investing in matching assets, such as government and corporate bonds, can reduce risk by providing an approximate match to future pension liabilities, and by their market values broadly reflecting changes in the present value of the scheme's liabilities<sup>19</sup>.
2. In their consideration of risk, one key factor for the trustees is the financial strength of the sponsoring employer (that is, its 'covenant'). They wish to minimise the likelihood of there being insufficient assets in the scheme with no continuing sponsoring employer being able to meet the deficiency. The greater the trustees' perceived risk of the sponsoring employer's insolvency, the more cautious the scheme's investment strategy is likely to be, although this may be influenced by the size of any existing surplus or deficit.
3. The maturity of the scheme is also important. Mature schemes, for example schemes where a large proportion of their liabilities relate to current pensioners, generally have net cash outflow and need certainty of investment income to ensure pensioner payments can be met. Immature schemes with significant cash inflows may choose to take a more risky approach to investment, as there is a longer time horizon to deal with fluctuations in asset values (subject to the strength of the sponsor's covenant).

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<sup>19</sup> Depending on the method used to value the scheme's liabilities.

## Appendix E – Glossary

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**Accrual rate** – The rate at which benefits accrue to active members in a defined benefit scheme. For example, in a final salary scheme where a member is entitled to a pension of one eightieth of his or her final salary for each year of pensionable service, the *accrual rate* is one eightieth.

**Asset outperformance** – The assumed extent to which a scheme's investment return will exceed returns on government bonds (gilts).

**Deficiency contributions** - Where an actuarial funding valuation shows that the scheme's assets are less than required to cover the expected cost of members' benefits which have accrued up to the valuation date (so the scheme is in "deficit"), additional *deficiency contributions* will be required from the employer to make up the shortfall. Deficiency contributions are payable for a fixed term, known as the **recovery period**, after which the deficiency would be expected to have been eliminated.

**Defined benefit (DB) pension scheme** – A pension scheme in which an employee's pension is determined under the scheme rules. In a **final salary scheme**, the pension is based on the number of years of service and on the employee's *pensionable salary* at, or shortly before, the employee leaves active service. In a **career average scheme**, the pension reflects the employee's average *pensionable salary* throughout his or her active service. The cost of providing the defined benefits will depend on the scheme's experience. In most schemes, the employer has to provide additional funds to the scheme to meet the cost of providing the defined benefits, if experience is worse than expected. In other words, the risk of adverse experience usually rests with the sponsoring employer. Conversely, the employer usually benefits from reduced contributions if experience is favourable.

**Defined contribution (DC) pension scheme** – A pension scheme in which the benefits paid to an employee depend on the level of contributions to the scheme, the investment return earned on the contributions, annuity rates at retirement and the provider's expense charges. There is no guaranteed level of benefits. In other words, the risk of adverse experience rests with the employee (who also benefits from any favourable experience).

**Discount rate** – The rate at which a defined benefit pension scheme's expected future benefit expenditure is discounted for the purpose of an actuarial valuation. That is, to convert a stream of expected future benefit cash flows to a current capitalised value. It can be thought of as corresponding to an assumed rate of return on assets. A higher discount rate (or assumed rate of return) means that the scheme's assets are expected to generate higher investment returns, and therefore the scheme needs to hold less assets now in order to meet its liabilities, its *funding level* is higher, and its *standard contribution rate* is lower.

**Distribution network operators (DNOs)** – A DNO is a company which operates the electricity distribution network.

**ESPS** – The Electricity Supply Pension Scheme. The ESPS was formed in 1983 as a result of the amalgamation of the Staff Scheme and the Industrial Staff Scheme. On privatisation in 1990, individual businesses' shares of the ESPS were split into segregated sections of the scheme, referred to as Groups.

**Funding level** – The ratio of the value of the pension scheme's assets to the value of its accrued liabilities. A funding level of 100% means that the pension scheme is deemed to be "fully funded"; in other words, its assets are expected to be sufficient to meet the expected cost of the benefits accrued to the valuation date, on the basis of the assumptions adopted for the valuation. A "fully-funded" scheme is not guaranteed to be able to meet its future liabilities; it is only an expectation based on the assumptions adopted.

**Gas distribution networks (GDNs)** – GDNs transport gas from the National Transmission System to final consumers and to connected system exit points.

**Matching assets** – Asset classes such as government and corporate bonds, whose cashflows can provide an approximate match to future pension payments, and whose market values may broadly reflect changes in the present value of the scheme's liabilities, depending on the method used to value the scheme's liabilities. Such assets are used to reduce a pension scheme's investment risk (in simplistic terms) but at the expense of lower expected long-term investment returns compared with *return-seeking assets*.

**Pensionable salary** – The amount of an employee's salary which is used to calculate the amount of contributions to a pension scheme, and the benefits provided by a defined benefit pension scheme. Pensionable salary can exclude fluctuating elements of pay, such as overtime and bonuses.

**Protected persons** – People covered by The Electricity (Protected Persons) (England and Wales) Pension Regulations 1990 (SI 1990/346). Principally members of the ESPS on privatisation, plus some other employees. The Protected Persons Regulations place obligations on successor employers to fund accrued pension rights. The Regulations also specify (broadly) that future pension rights cannot be reduced for Protected Persons unless a meeting of affected members votes in favour of the change by a two-thirds majority.

**Prudence (in the context of scheme funding assumptions)** – A prudent (or cautious) assumption increases the value of the liabilities compared to a best-estimate assumption.

**Real salary growth** – The rate of salary growth in excess of price inflation, that is, how much quicker salaries increase than prices.

**Return-seeking assets** – In a pensions context, asset classes such as equities and property, which are expected to generate higher returns than *matching assets*. However, the market values of such assets are expected to demonstrate greater volatility of returns relative to the value of the liabilities than *matching assets*, increasing the risk of a future deficit.

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**Salary sacrifice** – A salary sacrifice arrangement in respect of pension scheme benefits is where the member's salary is reduced by the amount of the member pension contributions that he or she would normally pay, and instead the employer meets the cost of the member pension contributions. The advantage of such an arrangement is a saving in National Insurance Contributions for both the member and the employer.

**Standard contribution rate (SCR)** - The level of contributions required to meet the expected cost of the additional pension to which active members will be entitled in respect of service in the relevant period. The SCR is assessed at full actuarial funding valuations.

**Transmission network owners and operators (TOs)** – 3 TOs own the high-voltage electricity transmission system in Great Britain, and a further company is responsible for the gas transmission system.

**Technical provisions** – The present value of a pension scheme's past service liabilities for scheme funding purposes.

Government Actuary's Department  
16 May 2012