Hewitt Associates Limited
Parkside House
Ashley Road
Epsom KT18 5BS
Tel +44 (0) 1372 733000 Fax +44 (0) 1372 733991
aonhewitt.com

Energy Networks Association (ENA)
Date: 31 January 2011
Prepared for: Mike Bedford, Chairman ENA Pensions Group
Prepared by: Martin Lowes FIA
Fred King FIA

Alternatives to the Ofgem proposals from Ernst & Young

Addressee and purpose of advice

This report is addressed to the Pensions Group of ENA under the terms of our agreement dated 17 November 2010. It is provided for the purpose of assisting ENA with the formulation of their response to Ofgem's proposals in relation to the notional allocation and monitoring of pensions deficits over time. ENA may rely on this report for this purpose but it has been prepared in response to specific instructions from the Pensions Group and we accept no liability if it is used for any other purpose or used by anyone else who may receive a copy. In particular, it is not necessarily appropriate advice for an individual regulated business in considering any response they may wish to make on their own account as it has not considered their individual circumstances.

Background

You have requested that we review Ofgem's proposals as set out in the Ernst & Young (E&Y) paper 'Deficit allocation methodology' dated 6 September 2010 and consider whether there is a more appropriate alternative. In this paper we have proposed an alternative approach which has been developed having initially performed a detailed analysis and critique of the E&Y proposal (the latter can be found in Appendix A to this paper).

Throughout this paper, any abbreviations not defined have the meaning set out in the E&Y paper. For a fuller understanding of the issues covered in our paper, it should be read in conjunction with the E&Y paper.

The criteria we have applied in reviewing the E&Y proposals and in formulating our alternative proposals are that:

- The calculations to allow tracking of the scheme's liabilities should be accurate so as not to distort the outcome between the subfunds;
- The appropriate level of accuracy for a particular component of the calculations should not be achieved at a cost which outweighs the materiality of that component;
- The calculations should work for most of the situations that could apply to schemes for regulated businesses.

In various sections of this paper we have referred to possible costs of, or savings from, adopting a particular approach. These have been estimated based on our expectations for a typical scheme and our discussions with a scheme administrator. However, if you believe your decision is marginal based on these figures, we would be happy to provide more tailored estimates for specific situations.

Registered in England No. 4396810
Registered office:
6 More London Place
London SE1 2DA

Guiding principles behind the E&Y and alternative proposals

In the past regulated businesses have had to carry out significant pensions investigations at the time of each price control review. These investigations were needed in order to determine the proportion of pension scheme liabilities attributable to regulated operations from largely incomplete historical data. We understand that the E&Y proposal draws a line under the continuation of those investigations by requiring improved record keeping going forward and does not seek to re-open the position agreed at the price control review that coincides with the relevant cut-off date (e.g. 31 March 2010 for DNOs). However, where pre cut-off date records allow, a regulated business may wish to continue to ask Ofgem to recognise changes in the regulatory fraction applied to pre cut-off date liabilities as these liabilities mature.

E&Y have proposed splitting the pension scheme into subfunds which distinguish between pre and post cut-off date liabilities and between regulated and non-regulated liabilities to create four subfunds. We support the general approach of tracking different subfunds in order to derive the regulated liabilities at future dates and agree that this generally dispenses with the need to assess the regulatory fraction for pre cut-off date liabilities at future reviews (although we recognise that there may be events in the lifetime of a Scheme which require special treatment (such as a material block transfer in respect of a wholly licensed business) and may need an adjustment at the time they occur which falls outside of the general approach for tracking subfunds).

General support for E&Y tracking approach

To enable Ofgem to monitor the progress of the Established Deficit and Incremental Deficit within a pension scheme, it is necessary to notionally split the scheme into four subfunds (as proposed in the E&Y paper). Further, in respect of the reconciliation of the assets and liabilities of each subfund, we agree that the E&Y proposal includes the necessary items and that the proposal links them together in an appropriate way as this represents standard actuarial techniques. However, we have concerns about the derivation of the inputs and the detailed calculations proposed by E&Y for some of the components where these fail to meet our assessment criteria because the proposals are either insufficiently accurate in a way that could be rectified at reasonable cost or they do not cater for likely scheme situations.

Unsurprisingly, the requirement to track the assets and liabilities of a scheme using a notional four-way subfund will introduce significant additional costs for the regulated businesses and we provide an estimate of the additional costs later in this report. We would expect to see Ofgem allow for reasonable implementation costs to be funded through the pre cut-off date regulated subfund.

Summary of key alternative proposals

To address our concerns with the existing E&Y proposals, we have identified nine areas where an alternative proposal should be made to Ofgem. These areas are set out below where we have also included a high level summary of our alternative proposal. Subsequent sections of the paper provide justification for our alternative proposals and illustrate the potential impact of adopting the alternative approach as compared to the E&Y proposals. These proposals represent our eventual conclusions following our fuller analysis and options set out in Appendix A.

In an ideal world there would be a common reconciliation approach that is adopted by all regulated businesses, but we recognise that in reality there will be certain areas where pension schemes are managed differently. We believe that our alternative proposals are likely to be appropriate in the majority of situations and should therefore be proposed as the default approach. However, where there is clear evidence that a scheme is being managed in a way that leads to or recognises specific differences between the subfunds, we would suggest that the relevant employer has an opportunity to agree a different methodology with Ofgem to reflect these differences. In the summary below we identify those reconciliation items where the default may not be appropriate in certain situations.

Frequency of submissions

Instead of producing the subfund information annually (as proposed by E&Y in paragraph 4.2) we propose that, although the membership and accounting records be maintained as part of ongoing administration, reporting is only required at triennial valuation dates and only once the valuation has been finalised (which regulations permit to be up to 15 months from the valuation date).

If necessary, it would be possible to roll-forward the figures (with a reasonable degree of accuracy) to the reference point for a new price control review period although we understand that, in the context of the new RIIO regulatory framework, Ofgem is minded to move to three-yearly pension review periods.

Liabilities at start and end of period (items 5.2.1 and 5.2.2)

These items should be based on accurate (i.e. by individual member) liability splits from the most recent triennial funding valuation. The triennial funding valuation will recognise that different periods of benefit accrual may have different benefits or payment conditions (and therefore values) and this approach is therefore more accurate than the E&Y proposal which appears to treat all service as having equal value.

Employer service cost and contributions (items 5.2.3 and 5.3.2)

For consistency with existing practices, we recommend that these items should be calculated by applying the relevant employer contribution rate to the salary roll in respect of each subfund. We assume that member contributions (under item 5.2.4 and 5.3.3) will be calculated consistently.

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Summary of key alternative proposals (continued)

Interest on liabilities (item 5.2.5)

As a default this item would be determined as per the E&Y approach but using a common discount rate across all the subfunds. Where a dual discount rate methodology was adopted at the latest triennial valuation then the common discount rate would be calculated as the weighted average discount rate (where the post-retirement and pre-retirement discount rates are weighted by pensioner and non-pensioner liabilities at the start of the period respectively). An alternative approach could be agreed with Ofgem if risk management strategies have been adopted that aim to match assets to liabilities or mitigate longevity risk for (portions of) one or more of the subfunds. We do not believe that these are common in schemes at present but they are being seriously considered by schemes in general.

Benefits paid or transferred out (items 5.2.7, 5.3.9 and 5.3.11)

These can be calculated accurately at subfund level once member administration records and processes have been updated to support the liability calculations (see separate section in Appendix B to this paper). This approach is more accurate than the pro-rata approach proposed by E&Y.

Impact of changes in actuarial assumptions (item 5.2.8)

Unless the relative sizes of the three components listed under this item will always be irrelevant for Ofgem, we propose that the order of allowing for assumption changes be specified in order to prevent manipulation of the items by judicious choice of the order by regulated businesses. We also propose that the scope of the third component should be extended to include changes arising from a change in the Statement of Funding Principles (as these currently appear to be ignored).

We are also unsure why E&Y / Ofgem have drawn out changes to the longevity assumption for particular focus as this is the assumption least within network operators' control.

Assets at the start of the period (item 5.3.1)

Although the E&Y proposal is consistent with their proposal for item 5.2.1 (i.e. using the agreed regulated fraction to determine the initial asset split at cut-off date in respect of the pre cut-off date regulated and non-regulated subfunds), we understand that there may be reasons why this is not the most appropriate way to split the assets between the subfunds in some circumstances (for example, if deficit contributions have not been paid in accordance with previous Ofgem allowances or if deficit recovery plans have historically differed for regulated and non-regulated businesses).

We are happy in principle that the E&Y proposal becomes the default but would suggest that this item be the subject of individual negotiation with Ofgem by any regulated business that considers the E&Y proposal is not appropriate.

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Summary of key alternative proposals (continued)

Employer deficit contributions (item 5.3.4)

We would normally expect that the actual deficit repair contributions be split between the subfunds according to the ratio of the deficit in each subfund to the total scheme deficit (as per the E&Y proposal).

However, where one or more subfund is in surplus, the deficit contribution for each subfund will need to be split according to the ratio of the deficit (surplus) in each subfund to the overall net deficit. In this way the employer will effectively be deemed as having taken a contribution holiday from the subfund in surplus and paying deficit contributions to the subfunds in deficit that are expected to bring them back to fully funded.

An alternative to the above default approach will need to be negotiated with Ofgem if the employer / trustees have agreed a different recovery plan (in terms of duration or the extent of front-end loading) for one or more of the subfunds.

Actual investment return on assets (item 5.3.7)

For the default approach we propose that the total investment return of the Scheme be applied to each subfund rather than use a notional investment return based on a hypothetical asset allocation as in the E&Y proposal. This is consistent with our proposal for item 5.2.5.

An alternative approach could be agreed with Ofgem if the scheme has implemented risk reduction strategies (such as LDI hedging portfolios, buy-in or longevity insurance) or in other special circumstances.

Rationale for alternative proposals

Accuracy in the liability reconciliation:

For the liability tracking at a subfund level it is possible to argue that the accuracy of, or bias in, the individual reconciliation items (items 5.2.3 to 5.2.8) is not important since there is a balancing item in the liability tracking, item 5.2.9, which although intended to pick up differences between actual and expected experience, will in practice be a general "sweep up" item. Therefore, provided the opening and closing values are calculated accurately at a subfund level (which is the intention under our alternative approach), then any inaccuracies or bias in the other reconciliation items for a particular subfund will give rise to an equal and opposite impact in the "experience" item. This may be an issue if Ofgem require the size of this balancing item to be justified so our proposals attempt to achieve a reasonable level of accuracy without introducing bias, provided the cost of doing this is not high compared to the materiality of a particular item.

Accuracy in the asset reconciliation:

There is no such balancing item in the asset tracking because there is no way of determining an accurate closing asset value at a subfund level (an accurate asset value will only be known at scheme level). Therefore, our alternative proposals in respect of the asset tracking principles have been driven by the same guiding principles as for the liabilities (i.e. to achieve a reasonable degree of accuracy without introducing bias, provided the cost is not high compared to the materiality of a particular item).

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Rationale for alternative proposals (continued)

The following table looks at each of our alternative proposals in further detail. In relation to the "costs" column, we have ignored the costs of setting up and maintaining improved administration records and processes. These costs will need to be incurred whatever approach is adopted for tracking the subfunds but should be considered against the savings expected from not having to conduct extensive regular exercises to calculate a regulatory fraction for each price control review. We would expect the costs associated with improving the administration records and processes to be relatively small (estimated per scheme at £15K set up plus £20K for each triennial valuation exercise) compared to the expected savings, particularly if the proposed administration solution can be accommodated within existing system functionality as expected.

Where we have indicated figures for accuracy, bias or materiality, we have based these estimates on a notional scheme with:

- £1,000M of liabilities, of which £200M relate to active members;
- Pre cut-off liabilities being 90% of total (ie this assumes we are a few years into the process of tracking subfunds);
- Regulatory fraction of 80% applied to pre cut-off liabilities (this is as determined for the price control review concurrent with the cut-off date);
- 40% of post cut-off liabilities are regulated;
- Employer contributions of £10M p.a. and deficit contributions of £20M p.a.;
- Regulated members are 5 years older than non-regulated members with an average salary that is 10% higher;
- Pre cut-off date liabilities are 20% non-pensioner and post cut-off date liabilities are 95% non-pensioner.

Additional assumptions:

- Under the E&Y methodology we assume that the pre-retirement discount rate exceeds the post-retirement discount rate by 1.0% p.a.;
- During the year in question, we assume that the return on "return seeking" assets exceed that on "matching" assets by 2.5% p.a.

Detailed justification for alternative proposals

Item	Rationale	Accuracy/Bias	Costs
Frequency of submissions: triennial reporting instead of annual	Since the information is not expected to be used at any stage other than the price control reviews, annual reporting is unnecessary. If necessary, it would be possible to roll-forward the figures (with a reasonable degree of accuracy) to the reference point for a new price control review period although we understand that, in the context of the new RIIO regulatory framework, Ofgem is minded to move to three-yearly pension review periods	Aligning the frequency of pension submissions to the valuation cycle will allow accurate liability calculations on a member-by-member basis. While schemes are required to provide annual financial updates in non-valuation years, these are based on an approximate update for the whole scheme and would not allow detailed member (and therefore subfund) calculations.	The overall advisor cost for annual reporting might be of the order of £20K per scheme so moving to triennial reporting is expected to save around £40K per scheme over a three-year period. The savings would be significantly less if submissions were also needed at the start / close of each price control period where this is not aligned with the valuation date.
Liabilities at the start and end of the period (items 5.2.1 and 5.2.2)	Liability splits between the various subfunds are relatively straightforward to produce at each triennial funding valuation once the member records contain the required information. This will then recognise situations where the value of benefit accrual is different for different periods of service.	Where benefit accrual spans the cut-off date, this approach removes a bias in the E&Y proposal that might otherwise have increased the pre cut-off date liabilities by around £1M to £2M at the expense of the post cut-off date liabilities. As well as improving the accuracy, our proposal for liabilities, employer service costs and contributions is also cheaper to implement than the E&Y approach. This is because the liability calculations are already a natural part of the valuation process given the additional data.	Cost of adding these calculations to triennial funding valuations might be around £10K per scheme.

Item	Rationale	Accuracy/Bias	Costs
Employer service cost (item 5.2.3) and future contributions (item 5.3.2)	The E&Y proposal ignores membership profile differences (due to salary) between the post cut-off date subfunds. It is customary to establish employer pension costs for each employer by applying the average scheme contribution rate to the salary roll for relevant employees. This approach can be extended to regulatory / non-regulatory businesses. Therefore our proposal is a slight adjustment to the E&Y proposal to recognise this same approach in allocating the employer service costs and contributions to the subfunds.	This adjustment to the E&Y proposal improves its accuracy, albeit that for our notional scheme it will generally understate the regulated service cost by about £0.2M to £0.4M p.a. because the regulated members are assumed to be older. As noted earlier, this residual bias will disappear on the liability side of the reconciliation (due to the "experience" balancing item), but will remain on the asset side of the reconciliation. The residual bias may however be considered immaterial.	Costs of performing these calculations are negligible.
Interest on liabilities (item 5.2.5) and actual investment returns (item5.3.7)	The use of investment returns based on a hypothecation of assets to different subfunds is complex in practice and much of the information needed may not be available (at least not without significant extra costs). In our experience, this approach is at odds with how schemes are run (schemes do not generally consider their investments at the subfund level, indeed, some schemes adopt an investment strategy for the scheme as a whole and do not consider separately the assets to back pensioners / non-pensioners). Therefore use of a single scheme return for each period is a pragmatic approach and reflects reality in a lot of cases. The approach of using a common flat discount rate across all subfunds is consistent with the alternative asset return proposal, is much simpler to apply and does not rely on a valuation methodology which uses pre and post retirement discount rates (this approach to valuations is rapidly being overtaken by the use of discount rate curves and/or term dependent risk premiums that recognise the gradual de-risking of pension schemes and these methods result in different discount rates at each duration).	Using a common discount rate (as compared to the E&Y approach) might increase the allocation of the interest cost to pre cut-off liabilities by around £0.7M p.a. (although this difference will disappear due to the "experience" balancing item). Using a common scheme return figure might increase the allocation of asset return to pre cut-off assets by around £1.7M p.a. but this figure is likely to be very volatile because "matching" and "return seeking" investments can have widely varying performance from year to year.	Following the E&Y approach could incur significant costs, particularly if performance managers are tasked with tracking the return on specific sub-funds (which would be needed in order to determine asset returns with any degree of accuracy). With our alternative methodology, we would expect that the costs of these calculations could be carried out relatively simply as part of the £20K costs estimated above for each price control period.

Item	Rationale	Accuracy/Bias	Costs
Benefits paid or transferred out (items 5.2.7, 5.3.9 and 5.3.11)	Once the membership records have been updated to hold the information to split service between the subfunds, the main benefit outgo (from pensions, retirement lump sums, death benefits and bulk transfers) can be accurately reported between the subfunds. Approximations may be needed for the less material items of benefit outgo (including individual member transfers) if the cost of updating calculation procedures to obtain values in line with funding valuation calculations and split at subfund level is not justifiable for the volume of cases.	This approach should be more accurate than the E&Y proposal in relation to bulk transfers and, possibly, in relation to individual transfers if calculation processes are updated.	The regular costs for this should be modest and the impact for bulk transfers might be an extra £10K of advisor costs for each transfer to calculate the subfund splits. The cost of updating individual member transfer calculations for the subfund split might incur a one-off cost of around £10K if required.
Impact of changes in actuarial assumptions (item 5.2.8)	The order of allowing for the three components of assumption changes identified by E&Y will affect the absolute values of each component. If Ofgem do not intend to make comparisons between companies at component level but will only look at the overall total then the order is irrelevant. However, if Ofgem want to reserve their position on this then a calculation order is essential.	N/A	Included in reporting costs whichever way the calculations are done.
Assets at the start of the period (item 5.3.1)	The natural starting point for the asset split at the cut-off date is to apply the regulatory fraction to the total assets as for the liability calculation. This has the effect of setting the funding levels in the two pre cut-off subfunds to be equal. If this is not what has been agreed with Ofgem by a particular company then they may want to agree an alternative split.	N/A	N/A
Employer deficit contributions (item 5.3.4)	The E&Y proposal has unwanted outcomes if one of the subfunds moves into surplus. This could make it difficult for the employer to get proper recognition for the allowances already agreed by Ofgem or result in the possibility of stranded surplus. Our proposal would tackle this directly by effecting the required payments between subfunds to recognise the different subfund funding positions compared to the overall funding position.	See separate section beneath the table in Appendix A for further details	N/A

Evidence to justify a departure from the default approach

As noted earlier, a number of the alternative proposals above represent a default approach which we believe would be appropriate in the majority of situations. However, where there is clear evidence that the scheme is being administered or managed in a way which leads to or recognises specific differences between the subfunds then the relevant employers should be able to agree a different methodology with Ofgem to reflect these differences.

Examples of the types of evidence that we might expect Ofgem to want to see in these situations could include:

- Risk management strategies to match assets to liabilities or mitigate longevity risk for (portions of) one or more of the subfunds;
- Agreement of separate recovery plan contributions for one or more of the subfunds;
- A Statement of Investment Principles or Statement of Funding Principles which sets out distinctly different approaches for different parts of the business which are then shown to be carried out in practice.

Situations not considered

In conducting our analysis and proposing alternative approaches we have not considered or provided detailed proposals in all the situations where special treatment may be required.

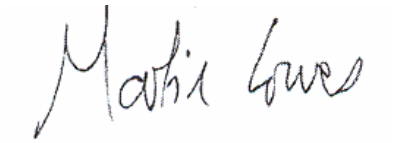
Examples of some other situations include:

- The treatment of contributions in respect of a Section 75 debts (incurred as a consequence of corporate restructuring or a business sale);
- The way to amend membership records to split service between regulated and non-regulated subfunds when a business sale involves pre cut-off date liabilities and/or staff who provide services to both regulated and non-regulated operations of the company (further comments are included in Appendix B).
- The treatment of buy-in / buy-out transactions or longevity swaps that may involve additional costs in exchange for reduced risk.

Next steps

We understand that you will share this paper with Ofgem when responding to their consultation.

Signed on behalf of Hewitt Associates Limited



Martin Lowes FIA
Principal
+44 (0) 1727 888215
martin.lowes@aonhewitt.com

Fred King FIA

+44 (0) 1372 733699
fred.king@aonhewitt.com

Appendix A – Analysis of E&Y proposal

Background to analysis

You asked that we review each component of the asset and liability reconciliation in the E&Y proposal and offer:

- Viable alternative methodologies (including approximations);
- An assessment of the accuracy of the original and alternative methodologies;
- A comparison of potential implementation and maintenance costs (administration, system and adviser) for the original and alternative methodologies;
- An assessment of whether the methodologies are likely to provide bias between the Established Deficits (EDs) and Incremental Deficits (IDs) for different pension scheme profiles.

Our comments are set out in tabular form below together with a summary of our interpretation of the E&Y proposals. Note that we have expressed these interpretations in terms of price control periods (although we note that for pensions purposes, reporting under the new RIIO regulatory regime could be aligned with triennial valuations which would be beneficial) in line with our view that the annual reconciliations proposed by E&Y are not necessary.

Where appropriate we have discussed ways of maintaining the data required to support the E&Y proposals or our alternatives with an administrator providing pension administration services for a significant number of schemes connected to regulated businesses.

Frequency of calculations

Although the principles set out in the E&Y paper are largely sensible, we would suggest one key simplification that would affect all the reconciliation components. Instead of producing the information annually (as proposed by E&Y in paragraph 4.2) we would propose that, although the membership records be maintained regularly as part of ongoing administration, reporting is only required at triennial valuation dates and only once the valuation has been finalised (which regulations permit to be up to 15 months after the valuation date).

If necessary, it would be possible to roll-forward the figures (with a reasonable degree of accuracy) to the reference point for a new price control review period although we understand that, in the context of the new RIIO regulatory framework, Ofgem is minded to move to three-yearly pension review periods.

E&Y Liability reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.2.1	Liabilities at the start of the period **(Key item)**	The E&Y proposal allocates liabilities between pre and post cut-off date subfunds by a ratio of service at the member level before and after the cut-off date.			
		A: Aligning pensions reporting to the triennial valuation and then producing accurate calculations that recognise benefit value differences at an individual member level is our preferred outcome since accurate calculations are already performed at the valuation date. B: Where the valuation date is not concurrent with the reporting date, it is still possible to produce an accurate assessment at a member level but only by taking on additional membership data and running separate calculations. (While scheme's have to report on the updated financial position in between valuation dates, these are generally produced using roll-forward techniques which are less accurate than a full valuation). C: An alternative to B might be to assess these liabilities at the subfund level at regular triennial valuations and then to roll these forward in an approximate way to the measurement date.	The E&Y proposal is less accurate than options A and B in situations where either the benefit formula or the value of benefits has not been constant through the whole period of service (eg due to the presence of GMPs or Barber equalisation). Although the roll forward in option C is more approximate than under options A or B, it will still be considerably more accurate than the E&Y proposal which assumes that all member service is equally valuable.	Whatever approach is chosen there will be a cost of maintaining service and regulatory data at administration level (see Appendix B). Once the above information is available, aligning pensions reporting to the triennial valuation date would be the cheapest option since the majority of the calculations are already performed at the time of the triennial valuation. The additional actuarial costs might be of the order of £5K - £10K. The cost of programming the calculations for the E&Y proposal or running a separate valuation exercise (Option B) at member level is likely to be significantly higher (perhaps up to £30K in the case of Option B). Under Option C the adviser cost would reflect A plus an additional roll forward to the price control date (so, of the order of £10K - £15k).	In cases where service spans the cut-off date, the E&Y proposal is likely to overstate the liabilities for the ED because of the presence of the less valuable pre-Barber and GMP benefits in the pre cut-off date subfunds. This overstatement is likely to be of the order of 0.5% to 1% of active liabilities – ie £2.5M to £5M for a scheme with active liabilities of £500M.

E&Y Liability reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.2.2	Liabilities at the end of the period **(Key item)**	See 5.2.1			
5.2.3	Employer paid value of new benefits accrued during the period by active members **(Key item)**	The E&Y proposal allocates future service costs between regulated and non-regulated subfunds by the amount of service in that subfund during the period (ie effectively split by number of members).			
		A: One relatively easy refinement to the E&Y proposal might be to split the contributions by reference to salary roll. B: Where there is alignment of reporting and triennial valuations a more accurate assessment is possible at member level by using the valuation calculations but this does not reflect how employers meet the cost of new benefit accrual in practice. C: Where there is no alignment, an assessment of the accruing service cost at subfund level could be made at regular funding valuations with an approximate roll forward to the start of the price control period. The subfund assessment would recognise profile differences between the subfunds for salary and age.	The E&Y approach is not accurate because it does not recognise profile differences between the subfunds for age and salary. The effect of these two differences is compounded because the benefits for older members are more valuable and they tend to have the higher salaries. Option A would still not recognise differences in age profile between the subfunds but it should be closely aligned with the way contributions are collected from participating employers. Option B could provide an accurate assessment. Option C would be more accurate than the E&Y proposal (though less accurate than Options A and B) despite the approximations involved in the roll-forward.	As for 5.2.1.	If the subfund differences are not recognised, the liability increase allocated to subfunds with older and better paid members will be understated at the expense of subfunds with younger and lower paid members. Assuming that the regulated members are 5 years older with salary roll 10% higher, the E&Y proposal might typically understate the regulated proportion compared to options B and C by around 3% to 6% - ie by £0.3M to £0.6M per year for annual employer contributions of £10M. The 'error' for option A is rather less at around 2% to 4% - ie around £0.2M to £0.4M per year.

E&Y Liability reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.2.4	Member paid value of new benefits accrued during the period	The E&Y proposal allocates member contributions between regulated and non-regulated subfunds by the amount of service in that subfund during the period.			
		It is unclear whether the E&Y proposal: A: Apportions the total member contributions by looking at aggregate service (which is inaccurate); OR B: Apportions the contributions at member level and then aggregates across all members (which is accurate and should be readily available from employer HR records provided the shared service information is consistent with the scheme records or could be prepared by the scheme administrator).	Alternative A of the E&Y proposal is not accurate enough because it does not recognise salary profile differences between the subfunds. Alternative B may still not be accurate when members change roles or move pay grades (although this is unlikely to be significant).	Small cost in respect of admin processing and reporting.	If there is a difference in salary profile between the subfunds, this may not be recognised in the apportionment and could understate the liability increase allocated to the subfund with the higher paid members (at the expense of the subfund with lower paid members). The bias will be different to 5.2.3. and might be of the order of 1% to 4% - ie up to around £0.1M per year for annual member contributions of £3M

E&Y Liability reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.2.5	Interest on liabilities during the period **(Key item)**	The E&Y proposal allocates interest on liabilities to the subfunds according to a method that will recognise differences in liability profile between the subfunds but only if the scheme uses different pre and post retirement discount rates.			
		The E&Y proposal is expressed in terms of a valuation funding methodology that is becoming less common. It is now becoming more common to use the same discount rate for all liabilities which is term based to recognise the expected asset derisking strategy for the scheme as a whole over time. However, the E&Y principles are sound if the calculation is expressed in terms of the discount rate appropriate to the relevant period in the yield curve or assumed outperformance curve for the particular subfund. It is possible to simplify the calculation to use a single discount rate which doesn't recognise subfund mix differences and this is our preferred approach.	The alternative is marginally simpler than the (re-expressed) E&Y proposal but the potential cost saving is likely to be outweighed by the loss of accuracy.	These calculations will probably need to be carried out by the advisers but the cost should be modest.	The alternative approach would expect to give a lower interest figure for the post cut-off liabilities and a higher figure for pre cut-off liabilities. A typical differential between pre and post retirement discount rates could be 1% per annum. For a scheme with pre cut-off liabilities being 20% non-pensioner and post cut-off being 95% non-pensioner, compared to the E&Y proposal, the alternative option would reduce the interest allocated to post cut-off liabilities by £0.6M per year for a £500M scheme (split £400M / £100M between subfunds) with a corresponding increase to the interest allocated to the pre cut-off subfund. The bias is highest when the pre and post subfunds are equal in size and increases as the discount rate differential and the difference in non-pensioner proportions between the subfunds increases. (see section below for the relationship)

E&Y Liability reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.2.6	New benefits due to incoming transfers / early retirement deficiency program	The E&Y proposal defines the treatment of incoming bulk transfers and ERDCs in line with Ofgem's pension principles. The amounts for bulk transfers use scheme funding assumptions appropriate at the time of the transfer. However the amount of transfer liability is split according to service pre and post cut-off date as described in 5.2.1.			
		The E&Y proposal essentially follows the Ofgem pension principles (i.e. all essentially treated as non-regulated liabilities) The E&Y proposal makes no mention of individual member transfers but we would suggest that these simply follow the members' transferred administration records for the purpose of allocation to the various subfunds.	If Ofgem adopt the E&Y approach with 4 subfunds, then to the extent that liabilities are split by service (rather than value of benefits during the periods of service) then we have similar concerns to 5.2.1	As for 5.2.1	Not expected to give rise to any bias since all liabilities treated as non-regulated.
5.2.7	Benefits paid or transferred out during the period **(Key item)**	The E&Y proposal splits benefit and transfer value payments between the subfunds according to service pre and post cut-off dates as described in 5.2.1. For bulk transfers the liability is assessed using scheme funding assumptions at the start of the price control period and is allocated to the subfunds by reference to service as described in 5.2.1 according to whether service is regulated or non-regulated			
		If member administration records are updated as described below with the processing correspondingly updated, benefit outgo figures can be obtained with accuracy for individual members. For bulk transfers special calculations could be done as proposed by E&Y subject to the special considerations mentioned below for shared services.	The E&Y approach is not accurate in similar situations and for similar reasons to those set out in 5.2.1. However, the alternative based on member records and processing should be factual and accurate.	As for 5.2.1 for individual member transfers but there would be modest additional adviser costs on a bulk transfer. There would also be some costs to account for split benefit outgo.	There would be complications to be resolved where members commute benefits at retirement (i.e. who determines whether the benefits commuted and the resulting lump sum are treated as pre / post cut-off and regulated / non-regulated? Perhaps easiest to assume this is all done pro-rate but this would introduce lots of extra calculations for the administrator).

E&Y Liability reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.2.8	Impact of changes in actuarial assumptions **(Key item)**	The E&Y proposal is to calculate the overall adjustment for changes in actuarial assumptions (and the various components) by applying standard actuarial change of basis techniques to the closing liabilities in each subfund at the end of each price control period.			
		The principles and description of the E&Y proposal are sound (albeit require detailed calculations for each subfund). We would suggest that Ofgem specify an order in which the various assumption changes will be calculated.	The calculations are only as accurate as the "standard actuarial change-of-basis techniques". These may differ from one actuarial adviser to the next.	In total these can be provided by the adviser at the end of each price control period for a relatively modest cost. However, the process of splitting them across the subfunds is not trivial with a corresponding cost.	The allocation to the different components will depend on the order of the calculations so this could be manipulated to make the results appear more favourable. The impact of any change to the longevity assumption has some dependency on the other assumptions used in the valuation (particularly the net discount rate) so may not allow Ofgem to make comparisons between network operators.
5.2.9	Differences between actual scheme experience and what was expected	The E&Y proposal is that this can be a simple balancing item rather than being derived by independent calculation of lots of components.			
		If this is a simple balancing item then there are no viable alternatives. However, this item has the potential to be significant in some cases and we might therefore expect that Ofgem would find it helpful for this to be justified. Even if this item was small, there could be equal and opposite factors that might warrant notification.	The method is not accurate and the numbers could be large if all the experience items work in the same direction. To the extent that there are approximations / inaccuracies in the previous items in 5.2.2 to 5.2.8 then this will also be reflected in this item.	Although this is easy to calculate, it may be difficult to justify or explain the differences between subfunds	To the extent that any of the other items are biased in a particular direction, the opposite bias will flow through to this item. Arguably this could mean that bias is not an issue but Ofgem will presumably wish to see justification for the size of this number before allowing uncontrollable items of experience to be passed on. This means other items should not contain material bias.

E&Y Asset reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.3.1	Assets at the start of the period	The E&Y proposal recognises that the post cut-off date subfund will be zero initially and allocates existing assets to the regulated and non-regulated subfunds by application of the regulatory fraction to the total assets at cut-off date.			
		The initial apportionment is straightforward although some companies may which to agree an alternative starting position with Ofgem.	N/A	N/A	N/A
5.3.2	Employer contributions for new benefits accrued during the period by active members **(Key item)**	The E&Y proposal is to allocate these to subfunds in the manner described for the value of accruing liabilities in 5.2.3.			
		There is a refinement to mirror option A suggestion under 5.2.3 and a slightly more complex alternative to mirror our option B or C suggestion under 5.2.3. The latter uses the service cost apportionment in 5.2.3 to split the actual contribution rate payable between the notional subfunds.	The E&Y proposal is accurate in total as would be our more sophisticated alternative. However, the splits between subfunds are not accurate for the E&Y proposal for the reasons set out in 5.2.3	Modest cost to adopt the alternative method	As for 5.2.3 but there is also an issue about how the employer allocates the amounts due from each employer which are commonly based on an aggregate contribution rate applied to the salary roll for each employer
5.3.3	Member contributions during the period	See 5.2.4.			

E&Y Asset reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.3.4	Employer contributions towards deficit **(Key item)**	The E&Y proposal is to allocate deficit contributions to the subfunds according to the ratio of deficit in each subfund compared to the total deficit for those subfunds in deficit.			
		The E&Y proposal as defined is flawed if one or more of the subfunds is in surplus during the price control period. This is because the subfunds in deficit will never actually reach full funding as the employer (who pays the deficit contributions) will look at the scheme holistically and regard the subfund in surplus as supporting the subfunds in deficit. An alternative would be to make a notional transfer from the subfunds in surplus to support those in deficit but we understand this is not permitted by Ofgem. See separate section below for more discussion of this point.	The alternative is practical, pragmatic and a reasonable reflection of what would happen if the subfunds were considered in isolation to the extent that any adjustment is made to deficit contributions in the light of experience at successive funding valuations.	This is a well defined calculation which should be simple for the company to do based on information from the advisers.	N/A
5.3.5	Employer contributions towards early retirement deficiency program	The E&Y proposal is to allocate ERDC amounts in line with the allocation of corresponding liabilities in 5.2.6.			
		See our comments in 5.2.6 but essentially there are no viable alternatives.	N/A	N/A	N/A

E&Y Asset reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.3.6	Employer contributions to meet scheme running expenses	The E&Y proposal is to allocate these between the subfunds based on liability proportions at the middle of the price control period.			
		No viable alternatives although we would suggest using an average of liabilities at the beginning and end rather than use a figure that requires further additional calculations at the mid-point of the period.	N/A	N/A	N/A

E&Y Asset reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.3.7	Actual investment return on assets during the period **(Key item)**	The E&Y proposal is to hypothecate an asset class strategy to each of the subfunds based on their liability profile (eg pensioners or non-pensioners) and use actual returns on these asset classes to allocate the known overall return on assets.			
		If a scheme operates any LDI or hedging strategies for all or part of their fund these should be allocated to the relevant subfund(s) and excluded for the purpose of allocating the remainder of the scheme investment return between the various subfunds. For the remaining assets it is possible that the investment strategy has been considered for the scheme as a whole (with no notional hypothecation of assets being used to back certain liabilities) and with a regular rebalancing of investments against strategy and between subfunds. Therefore, an alternative would be to use the overall scheme return over the price control period (derived from aggregated asset and cashflow data).	The alternative is potentially less accurate than the E&Y proposal but it is arguably closer to the realities of how assets are managed at a scheme level and there is continuous movement of assets between subfunds as new contributions are used to pay benefits in the first instance with the net cashflow being invested or obtained by selling assets.	Obtaining performance data for notional subfunds in order to adopt the E&Y proposal would be complex and costly whereas the simplified alternative merely requires some more calculations from existing data. These could be done by the company or the adviser.	The alternative is likely to result in a higher investment return on more mature subfunds than the E&Y proposal, in the long term, at the expense of the less mature subfunds although the volatility from one year to the next will increase. The bias would be constructed in a similar fashion to 5.2.5 but the differential on expected asset returns between the sub funds is likely to be higher than allowed for in discount rates due for the requirement of prudence in the discount rate – perhaps around 2% pa to 3% pa instead of 1% pa. Compared to the E&Y proposal, and using the same assumptions as 5.2.5, the alternative approach would reduce the expected asset return on post cut-off assets by £1.5M per year for a scheme with £500M assets with a corresponding increase to the expected return on pre cut-off assets (although in any particular year there could be big differences in the actual returns on different assets classes).

E&Y Asset reconciliation components					
E&Y item	**Description**	**Alternatives**	**Accuracy**	**Costs**	**Bias**
5.3.8	Assets paid in as part of a bulk transfer	The E&Y proposal is to allocate these to non-regulated subfunds in line with Ofgem's pension principles and split them between pre and post cut-off date subfunds using ratios of service as described in 5.2.1.			
		As 5.2.6 in relation to bulk transfers. There is no mention of incoming individual member transfers but these would need to be allocated to the subfunds in the line with the transferred member records. This might entail a slight adjustment to member calculations and some additional record keeping for investment purposes.	N/A	Additional costs to update member transfer-in calculations.	N/A
5.3.9	Benefits paid or transferred out during the period	See 5.2.7.			
5.3.10	Money paid out to meet scheme running expenses	See 5.3.6.			
5.3.11	Assets paid out as part of a bulk transfer	See 5.2.7.			
5.3.12	Assets at the end of the period **(Key item)**	Unless the trustees are separately tracking the assets in the notional funds, the only asset value available at the end of the period will be for the total scheme assets. The asset value for each of the notional subfunds at the end of the period will therefore have to be calculated as the sum of the items in 5.3.1 to 5.3.11 and is therefore exposed to all the approximations and inaccuracies in those items.			

Interest on liabilities and expected return on assets

In the tables above (see sections 5.2.5 and 5.3.7) we mention a formula which can be used to establish the difference in the interest on liabilities or the return on assets between using a common interest rate or asset return compared to one which recognises the different profiles of the subfunds to some degree. This formula is based on several parameters as follows:

$$Difference = \frac{\Pr eAL \times PostAL}{TotAL} \times idiff \times \left(\Pr eNPprop - PostNPprop\right)$$

where:

- PreAL is the pre cut-off date liabilities or assets
- PostAL is the post cut-off date liabilities or assets
- TotAL is the total liabilities or assets
- idiff is the extra discount rate or expected return on non-pensioner liabilities or assets
- PreNPprop is the proportion of non-pensioner liabilities or assets in pre cut-off date liabilities or assets
- PostNPprop is the proportion of non-pensioner liabilities or assets in post cut-off date liabilities or assets

The difference is negative when there is a higher proportion of non-pensioner assets or liabilities in the post cut-off date subfund than in the pre cut-off date subfund – ie the alternative of using a common interest rate or asset return will reduce the allocation to the post cut-off date subfund in this situation and increase the allocation to pre cut-off date subfund.

Deficit contributions

If the experience of the scheme at some future point results in the ability to reduce deficit contributions over the whole scheme, companies may need to be careful how this is presented in order to get full recognition for contributions paid if one or more of the subfunds is in surplus.

For any subfund in surplus, companies would probably need to present a reduction in deficit contributions as a continuation of deficit contributions for those subfunds still in deficit less a contribution holiday for subfunds in surplus. If this is not done, the reduced deficit contributions will be not big enough to clear the deficit for the subfunds in deficit and the contributions for the subfunds in surplus will be more than needed and therefore not efficient.

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Deficit contributions (continued)

There is a further issue which Ofgem may be concerned about which relates to the possibility of stranded surplus in the regulated pre cut-off date subfund. If this subfund is in surplus, which may happen as a consequence of favourable experience after the payment of deficit contributions, then there is no natural mechanism to remove that deficit because all continuing accrual and ongoing contributions are allocated to the post cut-off date subfund. In this situation Ofgem may demand the negative deficit contributions we have suggested under 5.3.4 above.

Appendix B – Member administration records

Member data requirements

Ofgem's proposals are predicated on more sophisticated membership data being available for pre and post cut-off date service than is currently the case. Regulated employers will need to supply that data to the scheme administrators compiled from employment records. For employee groups that are wholly regulated or non-regulated compilation of that data should be straightforward. However, the employer may want to agree with Ofgem the methods they use to compile regulatory splits applicable to employees who are employed in a shared service group (as defined below). Those methods may differ between service before and after the cut-off date.

The methods that regulated employers use for obtaining the regulatory split from employment data is outside the scope of this paper. We have only considered the possibilities for maintaining this regulatory data split within the pensions administration systems and would suggest the following (based on our discussions with a pensions administrator):

- Create a split of each benefit component into regulated and non-regulated elements for all pensioners, dependants and deferred pensioners at the cut-off date. Thus there would be a split of member pension, GMP and contingent spouse's pension for pensioners, and similar splits for deferred pensioners and dependants;
- Create special 'back service credits' splitting reckonable service before the cut-off date into regulated and non-regulated elements for all active members at the cut-off date. A similar split will be required for accrued added years, scheme service credits, non-reckonable service and genuine back service credits;
- For all members of the scheme at the cut-off date the special split 'back service credits' or split benefit components should be calculated by application of the pre cut-off date regulatory fraction to produce the regulated portions with the balance being non-regulated;
- For post cut-off date service a member would generally be 100% regulated or 100% non-regulated with accruing scheme and added years service being set accordingly. However, special considerations apply for members who are in shared service operations and this term may apply more widely than the traditional HR or property services if, for example, there are members whose work is primarily in a regulated function but who are seconded to work in a contract with a non-regulated business for part of their time;
- For members in a shared service operation the company should establish what proportion of that operation's post cut-off date service is regulated and split these members' accruing scheme and added years service in a similar way to past service. If this proportion should change a new period of past service should be crystallised as for pre cut-off date service so that there is only ever one split for accruing service (see the example at the end of this section for further information);

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Member data requirements (continued)

- Care is needed in bulk transfers involving shared service members because, in order to maintain an appropriate link between the overall quantum of regulated service and the regulated business, it would be necessary to reallocate past service proportions so that the transferring members are correctly allocated between regulated and non-regulated at the point of transfer. Indeed, given the application of the regulatory fraction for all pre cut-off date liabilities, the same issues arise in respect of pre cut-off date service records for the whole membership that is transferring which mean these service records should also be revisited;
- Some additional processing would be necessary to process the regulated and non-regulated service and benefits separately in order to maintain data going forward to split benefit payments etc. for accounting purposes. In particular service records for active members that are split between regulated and non-regulated elements should be processed to produce benefit splits in the same way as will be held for deferred pensioners, pensioners and dependants when the member withdraws from service retires or dies;
- There are some minor benefits (such as EPBs) which we propose be treated as regulated, pre cut-off date benefits and liabilities;
- Where any benefits are based on prospective service they should be allocated between regulated and non-regulated in line with the currently accruing service. However, where there are benefit adjustments resulting from service being rounded up, we propose that, if a split of these would otherwise be necessary, they are all allocated to the regulated post cut-off date subfund.

Note that we did originally consider proposing that separate regulated and non-regulated records be created for each member. However, following discussions with a pensions administrator we concluded that this would have significant impacts on the fees charged for administration systems and services (they are normally levied according to the number of records) and there would be complications when processing GMPs and tax codes.

Shared service example

Consider a group of ten members who have consistently provided services to two business operations – one regulated, the other non-regulated. For simplicity, these members are assumed to have the same age, service and salary profile.

Assume that they each have 18 years of service pre cut-off date and 8 years of service post cut-off date. Assume also that the regulatory fraction for the business pre cut-off liabilities is 75% and that initially 80% of their post cut-off date service is engaged with the regulated operation. Due to a change in business structure this then changes to only 50% regulated four years after cut-off date and this continues for another four years.

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Shared service example (continued)

At cut-off date these members will have two separate Back Service Credit (BSC) records.

- BSC1: representing the regulated portion of pre cut-off date time and corresponding to 75% of the 18 years service (i.e. 13.5 years); and
- BSC2: the portion of non-regulated pre cut-off date service which is 25% of the 18 years service (i.e. the balance of 4.5 years).

For their ongoing accrual after the cut-off date their records should show that this is 80% regulated and 20% non-regulated for the first four years.

Following the change in business structure, two new BSC records are created in respect of post cut-off date service.

- BSC3: This represents the regulated portion of post cut-off date time and corresponds to 80% of the 4 years service (3.2 years); and
- BSC4: Corresponding to non-regulated post cut-off date service and picking up the remaining 0.8 years.

At the same time their ongoing accrual going forward from four years after the cut-off date should be identified as 50% regulated and 50% non-regulated.

Now consider the situation where seven of these members are to be transferred out and that these members will be going with a regulated business that is being sold outright (i.e. the original employer is left with no regulated activities).

In this situation it will be desirable to minimise regulatory leakage (i.e. given the strong commitment from Ofgem to fund pre cut-off pension costs, the allowances of the regulated business going forward is maximised (and so the sale price will be maximised) if the members being transferred can be shown to have past service which is wholly in respect of regulated activities). To achieve this, the service records for the eight transferring members will need to be adjusted so as to allocate as much of the regulated service as possible to these members.

The impact on the pre and post cut-off date service allocations between those members transferring and those remaining is as follows:

Shared service example

	Original Scheme before transaction		Original scheme – after transaction		Receiving scheme- after transaction	
	Pre cut-off	Post cut-off	Pre cut-off	Post cut-off	Pre cut-off	Post cut-off
Number of members	10	10	3	3	7	7
Regulated fraction	75%	65%	17%*	0%	100%	92.9%
Non-regulated fraction	25%	35%	83%	100%	0%	7.1%
Regulated service per member	13.5	5.2	3*	0	18	7.4
Non-regulated service per member	4.5	2.8	15	8	0	0.6
Total regulated service	135	52	9*	0	126	52
Total non-regulated service	45	28	45	24	0	4

* As the ongoing business performs no regulated activities in the future, there is a risk that any residual regulated deficit in the original scheme may not be subject to funding through Ofgem's price control.

In the above example, the receiving scheme has retained the vast majority of the regulated service for the original group of 10 shared service employees, albeit that going forward they only have 7 members rather than the original 10.

Appendix C – Example calculations

Calculation differences

In this section we set out some simplified example calculations designed to highlight the key differences between the E&Y proposals and our alternatives*. For each item included we set out the original E&Y example calculation (as per their 6 September 2010 paper) and our alternative proposal alongside.

* Given the E&Y example is in respect of the one year period immediately following the cut-off date, any differences in respect of the subfund calculations between the two approaches are expected to be negligible and consequently we have shown the results to 1 decimal place for some items to evidence that the approaches give different results. Over time however we would expect that the two approaches could give quite different results.

Example calculations		
Calculation item	**E&Y calculation**	**Alternative calculation**
Liabilities at end of period (6.2.2)	Pre cut-off liabilities: Regulated = 885 so non-regulated = 885 * (0.2/0.8) = 221 Total non-regulated of 315 includes 95 from bulk transfer received (spurious difference of 1 presumably due to rounding) Post cut-off liabilities (assuming 90% regulated): Regulated = 50 so non-regulated = 50 * (0.1/0.9) = 6 Total non-regulated of 11 includes 5 from bulk transfer received	Accurate split of liabilities between pre and post cut-off date subfunds might reduce the regulated pre cut-off date liabilities to 880 and increase the post cut-off date liabilities to 55. Pre cut-off regulated = 880 so non-regulated = 880 * (0.2/0.8) = 220 Total non-regulated (including bulk transfer) = 220 + 95 = 315 Post cut-off regulated = 55 so non-regulated = 55 * (0.1/0.9) = 6 Total non-regulated (including bulk transfer) = 6 + 5 = 11
Employer value of new benefits (6.2.3)	These are all post cut-off date liabilities and assumed to be 90% regulated: Regulated = 40 * 0.9 = 36	Assume the average salary for regulated members is 20% higher than for non-regulated. Regulated proportion weighted by salary roll is 0.9 * 1.2 / (0.9 * 1.2 + 0.1) = 91.5% Regulated = 40 * 0.915 = 36.6

Example calculations		
Calculation item	**E&Y calculation**	**Alternative calculation**
Interest on liabilities (6.2.5)	The discount rates for pensioners and non-pensioners are assumed to be 4.5% pa and 7.0% pa respectively. The liabilities are assumed to be 70% non-pensioners for pre cut-off date liabilities and 100% non-pensioner for post cut-off date liabilities. Other assumptions are as above – ie 80% of pre cut-off date liabilities is regulated and 90% of post cut-off date liabilities is regulated. Average discount rate for pre cut-off date liabilities = 0.7 * 7.0% + 0.3 * 4.5% = 6.25% Average discount rate for post cut-off date liabilities = 7.0% Regulated pre cut-off interest = 800 * 0.0625 – 16 * 0.5 * 0.0625 = 49.5 Non-regulated pre cut-off interest = 200 * 0.0625 – 4 * 0.5 * 0.0625 = 12.4 Regulated post cut-off interest = 45 * 0.5 * 0.07 = 1.6 Non-regulated post cut-off interest = 5 * 0.5 * 0.07 = 0.2	The weighted average discount rate is 6.25% as for the E&Y calculations opposite so: Regulated pre cut-off interest = 800 * 0.0625 – 16 * 0.5 * 0.0625 = 49.5 Non-regulated pre cut-off interest = 200 * 0.0625 – 4 * 0.5 * 0.0625 = 12.4 Regulated post cut-off interest = 45 * 0.5 * 0.0625 = 1.4 Non-regulated post cut-off interest = 5 * 0.5 * 0.0625 = 0.2
Employer contributions for accruing benefits (6.3.2)	These are all post cut-off date liabilities and assumed to be 90% regulated: Regulated = 45 * 0.9 = 40.5 Unregulated = 45 * 0.1 = 4.5	Assume the average salary for regulated members is 20% higher than for non-regulated. Regulated proportion weighted by salary roll is 0.9 * 1.2 / (0.9 * 1.2 + 0.1) = 91.5% Regulated = 45 * 0.915 = 41.2 Unregulated = 45 * 0.085 = 3.8

Example calculations		
Calculation item	**E&Y calculation**	**Alternative calculation**
Employer deficit contributions (6.3.4)	Initially a deficit of 100 which is all in pre cut-off date subfunds. Contributions to recover this deficit are 14 each year. Pre cut-off date liabilities are 80% regulated. Regulated deficit contribution = 14 * 80/100 = 11.2 Non-regulated deficit contribution = 14 * 20/100 = 2.8	The initial calculations under the alternative approach would be identical to the E&Y approach.
		However, suppose that 3 years after the cut-off date the deficit in the pre cut-off date liabilities has reduced to 50 (through a combination of deficit repair contributions and asset returns). The scheme as a whole happens to be fully funded and as a result the employer suspends deficit contributions in line with the Statement of Funding Principles and Recovery Plan. Assuming that 80% of the pre cut-off deficit is regulated and 90% of the post cut-off surplus is regulated, this would give rise to subfund deficits of 40 in pre cut-off regulated and 10 in pre cut-off non-regulated. There is also a surplus of 45 in the post cut-off regulated and 5 in the post cut-off non-regulated. Regulated pre cut-off date deficit contribution is 14 * 40/50 = 11.2 (based on deficit allowance in pricing) Non-regulated pre cut-off date deficit contribution is 14 * 10/50 = 2.8 Regulated post cut-off date deficit contribution is -14 * 45/50 = -12.6 Non-regulated post cut-off date deficit contribution is -14 * 5/50 = -1.4 The total of these contributions is 0 as required because no money has been paid into the scheme.

Example calculations		
Calculation item	**E&Y calculation**	**Alternative calculation**
Actual investment return on assets (6.3.7)	Assume that bonds are backing pensioners and yielding 6.5% and that equities are backing non-pensioners and yielding 13.0% Other assumptions as above. Average investment return for pre cut-off liabilities = 0.7 * 13.0% + 0.3 * 6.5% = 11.0% Average investment return for post cut-off date liabilities = 13.0% Regulated pre cut-off investment return = 718 * 0.11 = 79.0 Non-regulate pre cut-off investment return = 179 * 0.11 = 19.7 Regulated post cut-off investment return = 25 * 0.13 = 3.3 Non-regulated post cut-off investment return = 3 * 0.13 = 0.4	We do not fully understand the logic of the way the E&Y example calculation has been constructed but we assume this is because they are using rounded returns. We have therefore followed the same principles to construct a comparable example using our proposed alternative approach. The overall investment return is known to be "approximately 11.0%" as per the E&Y example. Regulated pre cut-off investment return = 718 * 0.11 = 79.0 Non-regulate pre cut-off investment return = 179 * 0.11 = 19.7 Regulated post cut-off investment return = 25 * 0.11 = 2.8 Non-regulated post cut-off investment return = 3 * 0.11 = 0.3 In practice we would expect the sum of the investment returns under both approaches to be identical, albeit that the two approaches apportion the total investment return in slightly different ways. This however is not borne out in the above example due to using rounded and/or approximate returns.