Electricity distribution price control review

Second consultation

December 2003

Summary

This paper is the second full consultation paper on the electricity distribution price control review. It builds upon the initial consultation in July 2003, the update paper in October, a public workshop in November and a large number of written submissions and discussions in working groups and bilateral meetings.

The purpose of this paper is twofold:

- to set out the range of policy options under consideration on various issues, indicating where appropriate Ofgem's views on these options and/or the evidence needed to select between them, with the intention of resolving as many policy issues as possible by March 2004; and
- to provide an update on work undertaken, a transparent and public record of the review in progress, and details of further work planned for the coming months.

Generally, the review remains on track to deliver proposals in line with the timetable originally set out in detail in March 2003 and updated periodically since then. The timetable remains challenging, particularly as the work required to produce consistent and comparable financial data from the companies' submissions is more extensive than hoped.

Key points covered in this paper include:

- initial proposals for the incentive on distribution companies to connect distributed generation, meeting Ofgem's commitment to set out the incentive framework by the end of 2003. The proposals provide substantial downside protection to distribution companies, with 70-80 percent pass-through, with an incentive rate of £2-3.5/kW/year, set at a level which will generally allow companies to earn a premium return based on the companies' own submissions of costs. Further evidence is required to enable Ofgem to decide whether to take forward the mechanisms for Registered Power Zones and an Innovation Funding Incentive;

- a range of suggested developments in quality of supply regulation, intended to refocus the framework towards those issues that matter most to consumers, proposing to remove some standards that are no longer needed and to reduce reliance on post–event judgements to assess whether performance was acceptable by developing clearer incentives in advance;
- detailed discussion of cost trends and efficiency improvements achieved to date at each distribution company, drawing on the companies' submissions and the results of visits to each company;
- discussion of the approach to benchmarking, the treatment of mergers and the roll forward of the Regulatory Asset Value (RAV); and
- elaboration of the proposed methodology for assessing allowed pensions costs, with options set out prior to decisions on Ofgem's intended approach which will be taken in March.

In addition, the paper explains options for resolving issues relating to the structure of the price control and incentives, and sets out further thoughts on separation of metering from the distribution price control and on financial issues such as the cost of capital, and financial ratios.

Ofgem welcomes the constructive contribution made to the review so far by a wide range of stakeholders, including all the distribution companies, and hopes that this will continue into 2004. Formal responses to this consultation are invited by 10 February 2004 – in addition Ofgem welcomes meetings and discussions with any parties interested in the review, particularly during this consultation period. In particular, Ofgem requests that respondents provide quantitative comments to inform the development of the Regulatory Impact Assessment on incentives relating to distributed generation, the Innovation Funding Incentive and Registered Power Zones.

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1. Introduction

1.1. The existing price controls on the Distribution Network Operators (DNOs) are due to be reset with effect from 1 April 2005. The work to review these price controls has been underway for several months and the scope and nature of the work was explained in the first consultation paper of the review, published in July 2003. Ofgem published an update on certain issues in October 2003.[1]

1.2. Ofgem set out the objectives for the price control review in the July 2003 initial consultation – these are primarily driven by Ofgem's statutory objectives and duties and the statutory and licence obligations of the DNOs.

1.3. Ofgem's principal objective as set out in the Electricity Act 1989 as amended by the Utilities Act 2000 is to protect the interests of consumers (present and future), wherever appropriate by promoting effective competition. The Electricity Act also sets out other important duties for Ofgem[2], including:

- securing a diverse and viable long-term energy supply;
- ensuring that licence holders are able to finance their statutory and licensed obligations;
- having regard to the effect on the environment of activities connected with the generation, transmission, distribution or supply of electricity; and
- having regard to the interests of individuals who are disabled or chronically sick, of pensionable age, living on low incomes, or residing in rural areas.

1.4. Ofgem has also other environmental duties as set out in various other Acts[3]. Ofgem will have regard to all of its duties when carrying out its functions.

[1] Electricity Distribution Price Control Review – Initial Consultation, Ofgem, July 2003, 68/03 and Electricity Distribution Price Control Review – Update, Ofgem, October 2003, 124/03.
[2] See sections 3(A) – 3(C) of the Electricity Act 1989 as amended by the Utilities Act 2000
[3] For example, the Environment Act 1995 and the Countryside and Rights of Way Act 2000

Project update

1.5. Since the publication of the October 2003 update there have been a number of developments in the project including:

- publication of an initial version of the financial model that will be used by Ofgem to assess the financial impact of the price controls on the DNOs. This is available via Ofgem's website;[4]

- a public workshop on 7 November on key issues for the price control review. This was attended by a wide range of interested parties. A summary of the points raised and the slides used at the workshop are available on Ofgem's website;[5]

- meetings with each DNO to discuss companies' historic business plans and the information that has been provided on distributed generation;

- publication of a report produced for Ofgem, by Cambridge Economic Policy Associates (CEPA) on total factor productivity analysis. A copy of this report is available on Ofgem's website;[6] and

- publication of interim arrangements for payments to consumers in the event of severe storms.[7]

1.6. The Ofgem-DNO working groups have also met on a number of occasions to discuss key areas of the price control review.

Purpose and structure of this document

1.7. This second consultation paper sets out Ofgem's further thoughts on key issues for the price control review, in the light of responses to the July initial consultation, the October update document and the November workshop. The intention of this document is to begin narrowing down the options for key policy areas ahead of the March 2004 policy statement document. This should help ensure that there is a better shared understanding of the price control and

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[4] 'A Guide to the draft financial model', November 2003, 138/03
[5] 'Workshop summary – DPCR', December 2003, available at www.ofgem.gov.uk
[6] 'Productivity Improvements in Distribution Network Operators', December 2003, 156/03

incentive framework – which should help ensure that the work on assessing DNOs' costs is carried out within a more certain framework.

1.8. The document also sets out the timetable and consultation process (Chapter 2) and is structured as follows:

- **the form and structure of the price control (Chapter 3)** – this Chapter sets out Ofgem's further thinking on the scope and structure of the price control and the incentive framework that DNOs require;
- **quality of service and other outputs (Chapter 4)** – this Chapter sets out Ofgem's further thinking on the regulation of outputs that companies may be required to deliver over the next price control period. This includes revisions to the role, scope and form of the Guaranteed and Overall Standards of Performance, incentives under the Information and Incentives Project and incentives on network resilience;
- **distributed generation (Chapter 5)** – this Chapter sets out Ofgem's further thoughts on the incentive framework that should be put in place for DNOs in relation to distributed generation. This includes an initial view of the value of the incentive rate and the proportion of costs that will be treated as a pass-through. It also sets out Ofgem's further thoughts on the Innovation Funding Incentive (IFI) and Registered Power Zones (RPZs);
- **assessing costs (Chapter 6)** – this Chapter provides an update on the work that Ofgem is undertaking to assess DNOs' costs. This includes further thoughts on the approach to assessing companies' efficiency;
- **financial issues (Chapter 7)** – this Chapter sets out Ofgem's further thinking on certain financial issues including the cost of capital, pension costs and financial ratios;
- **developing RIAs for distributed generation, IFI and RPZs (Appendix 1)**- this Appendix sets out the questions that need to be answered in

[7] 'Standards of Performance: Interim Arrangements', November 2003, 151/03

developing RIAs for distributed generation, IFI, and RPZs for the March 2004 document;

- **scoping of competitive market review (Appendix 2)** – this Appendix sets out the scope of the competitive market review that Ofgem intends to undertake to inform its decisions on the scope of the price controls that will be applied to metering services from 1 April 2005; and

- **guidelines to the treatment of pension costs (Appendix 3)** – this Appendix presents the guidelines to the treatment of pension costs as published in the June 2003 document.

1.9. Ofgem has also published a separate Appendix which sets out more detailed information on the costs and associated commentary that DNOs submitted in the historical business plan questionnaires. This is available on Ofgem's website.[8] A separate summary of responses to the October 2003 document is available on Ofgem's website.[9]

Responding to this document

1.10. Ofgem would like to hear the views of all those with an interest in the development of revised price controls for the DNOs, including consumers and their representatives, investors and city analysts, distributed generators, environmental groups, suppliers and the DNOs themselves. Comments are also welcomed on CEPA's report on total factor productivity and Ofgem's financial model. Responses to this document should be received by 10 February 2004. They should be sent to:

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[8] 'Data and Cost Commentary Appendix', December 2003, available at www.ofgem.gov.uk
[9] 'Summary of responses - DPCR Update October 2003', December 2003, available at www.ofgem.gov.uk

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1.11. Unless marked as confidential all responses will be published by placing them in Ofgem's library or on the website. It would be helpful if responses could be submitted both electronically and in writing. Any questions on this document should, in first instance, be directed to Paul O'Donovan, who can be contacted on 020 79017414 or by email at Paul.ODonovan@ofgem.gov.uk

2. Timetable and consultation process

2.1. This Chapter sets out a slightly updated timetable for the price control review. There have been relatively few additions since the version published in the October update and the outline of future documents remains unaltered and is not reproduced here.

2.2. A significant amount of work has already been undertaken on the price control review, which began with consultation on the key issues and objectives in August 2002 as part of Ofgem's work on developing network monopoly price controls.

2.3. Ofgem published an initial consultation on the price control review in July 2003. Since then, Ofgem has:

- visited all the DNOs as part of its work on assessing costs and distributed generation;
- published reports by its consultants on:
  - the approach to benchmarking at the last price control review (CEPA – September 2003);
  - results from the first phase of consumer research (Accent – September 2003); and
  - total factor productivity (CEPA - December 2003);
- published an initial version of its financial model in October 2003; and
- published an update document on the price control review in October 2003.

2.4. Of the output milestones set out in the October document for the period October to end November, 5 were clear milestones for Ofgem and these were achieved on time or within days of the planned timing. The planned workshop was held on 7 November.

Table 2.1: Updated timetable for the price control review

Date	Output Milestone
December 2003	**2nd Consultation Paper Published** Responses due from DNOs to forecast BPQ base case
2004	
January 2004	Responses received from DNOs to forecast BPQ scenarios Bilateral meetings with DNOs and other interested parties (January and February)
February 2004	Responses due from interested parties to December consultation paper (10 February) Visits to DNOs to discuss historical performance and efficiency, capex projections and clarification of HBPQ Undertake second phase consumer survey (February and March)
March 2004	**Policy Paper published (target week commencing 22 March)** Feedback/clarifications to DNOs on responses to FBPQ
April 2004	Public workshop on March policy document Visits to DNOs to discuss cost projections Publish revised version of financial model Structure of Charges update paper
May 2004	Responses received to March policy document (early May) Finalise cost projections for initial proposals Publish results from second phase consumer research
June 2004	**Initial Proposals Paper published (including revenue allowances – P0/Xs)**
July 2004	Public workshop on initial proposals Bilateral meetings with DNOs and other interested parties
August 2004	Review and incorporate 2003/04 out-turns Responses received to June initial proposals
September 2004	**Update Paper published**

Date	Output Milestone
October 2004	Bilateral meetings with DNOs and other interested parties Responses received from interested parties to update document
November 2004	**Final Proposals Paper published (including P0/Xs/review of IIP and proposed Licence modifications)**
December 2004	Companies indicate whether they are willing to accept the new price controls
2005	
February 2005	Statutory notice on licence modifications
April 2005	**1 April** New price controls implemented
Early Summer 2005	Publish report on the price control review process for consultation
Autumn 2005	Publish final report on the price control review process

3. Form, structure and scope of the price controls

Introduction

3.1. This Chapter outlines Ofgem's further thinking on the form, structure and scope of the price controls that should apply to the DNOs including the incentive framework that should be provided to the companies. It also sets out Ofgem's views on dealing with uncertainty between price control reviews.

Form and structure of the price controls

3.2. The July document outlined the main features of the existing price controls, and along with the October update, sought respondents' views on a number of issues including:

- the structure of the price controls;
- the treatment of the revenue driver;
- the scope of the price controls and the treatment of the various categories of excluded service revenue;
- the duration of the price control; and
- the incentive framework applying to DNOs including the application of rolling adjustments for opex and capex and the losses incentive.

The structure of the price controls

3.3. The July document outlined the main features of the existing price control as including:

- the RPI-X form of price control that provides incentives to companies to operate and invest in the network on an efficient basis – this is discussed in paragraph 3.62;

- ♦ a revenue driver linking revenue to the number of units distributed and a predetermined projection of the number of consumers. The revenue driver is weighted equally between the two;
- ♦ an incentive mechanism to encourage distribution businesses to reduce the level of electrical losses on their distribution networks;
- ♦ an incentive mechanism to encourage companies to improve the quality of service delivered to consumers in three main areas –quality of service and other outputs are discussed in Chapter 4;
- ♦ an allowance for prescribed business rates on network assets, licence fees and NGC exit charges; and
- ♦ a correction mechanism that adjusts the price control for any previous over or under recovery of revenue.

Revenue drivers

3.4. The July document explained that price controls can be designed so that the permitted level of total revenue that a company is allowed to recover varies with relation to volume as well as being indexed to RPI. This provides financial incentives to companies to respond to the demands of their consumers and protects them against increases in costs driven by higher levels of demand. Under the existing price controls the revenue driver is 50 per cent weighted to the number of units distributed. The remaining 50 per cent is fixed as it is related to a predetermined projection of the number of consumers.

Views of respondents

3.5. Most DNOs argued that there was no need to change the existing form of the revenue driver as long as the impact of distributed generation could be addressed. DNOs expressed concerns that, although the number of units distributed could fall because of own generation, the DNO could still be incurring costs of providing network support to the generator. Two respondents suggested that some form of capacity driver may be appropriate. It was also argued that a capacity driver or a combination of capacity required (MW) and number of units might be a more appropriate form for the revenue driver.

3.6. Two DNOs argued that projected customer numbers should be replaced with actual customer numbers. One DNO argued that the revenue driver should be 100 per cent linked to customer numbers.

3.7. Several respondents argued that the number of units distributed should be removed from the revenue driver. The reasons given varied. Several respondents queried whether the number of units distributed is a significant cost-driver. Another respondent argued that units distributed would work as a disincentive for DNOs to connect distributed generation.

Ofgem's further thoughts

3.8. The main reason why a revenue driver was included in the price controls was to protect DNOs from cost volatility driven by demand (or load) growth. Further work needs to be undertaken to understand whether:

- the existing revenue driver provides appropriate revenue to DNOs to reflect changes in costs driven by load growth; and

- the cost drivers could be better reflected by measures other than units distributed.

3.9. There does not appear to be a strong energy efficiency argument for removing units distributed from the revenue driver. In April 2000, supply and distribution activities were separated which should have reduced the ability of DNOs to increase units distributed by promoting inefficient use of electricity.

3.10. Ofgem agrees that, for larger consumers, costs may be more closely related to capacity provided than to units distributed. The addition of a capacity driver as well as a units driver would add an element of complexity and would require definition and calibration. Ofgem would welcome any detailed and quantified proposals in this area but will only propose a change to the existing form of the revenue driver if such a case is made. In addition, Ofgem will undertake more work to compare the additional revenue provided by the existing driver with estimates of marginal load related costs. This will be reported in the March policy paper and may either support or lead to proposals to change the weight of the units distributed volume driver which presently stands at 50 per cent.

The scope of the price controls

NGC exit charges

3.11. Under the existing price controls, NGC exit charges are excluded from the definition of price controlled revenue and DNOs are able to pass through these costs to consumers. The October document consulted on whether NGC exit charges should continue to be treated as a pass through item or whether some form of limited incentive should be introduced to encourage DNOs to manage these costs more efficiently.

3.12. NGC exit charges are designed to cover the costs incurred by NGC in providing a connection to a DNO's network, along with an appropriate rate of return on those costs. The level of these charges (£247m for 2002/03, compared with price control revenues of £3.1bn) is largely determined by the existing connection assets and their related life-spans.

3.13. A related issue is the treatment of wheeled units, ie, units which are transferred from one distribution system to another. Wheeling may present an alternative to the further expansion of NGC exit points for a given network. Wheeled unit charges are an excluded revenue item and accounted for £2.75m of DNO revenues in 2002/03.

Views of respondents

3.14. One respondent to the June 2003 document on developing network monopoly price controls considered that incentives for efficient investment should also encompass the replacement of shared DNO/NGC assets. It stated that DNOs must retain the right to reject NGC requests to replace shared assets and considered that an incentive scheme could be developed which would facilitate efficiency in the development of the network in this area.

3.15. Five DNO responses to the October update argued that NGC exit charges are predominantly outside of their control and so should continue to be given full cost pass through, whilst two other responses indicated that these charges could be subject to a limited incentive to improve efficiency.

3.16. Two DNOs noted that electricity imported from other distribution networks should be treated in the same manner as NGC exit charges to avoid distorted investment decisions. One other DNO supported the treatment of wheeling charges as a cost pass-through and claimed that there is no existing mechanism for the recovery of these charges, even where they are incurred in relation to the movement of regulated units and that on this basis, Ofgem should consider allowing recovery of these costs in the existing price control period.

Ofgem's further thoughts

3.17. NGC has a duty under its licence to develop and maintain an efficient, co-ordinated and economical transmission system. The implementation of CAP012, Amendment (A) on 1 April 2003 places a requirement on NGC to provide an explanation of the engineering and economic reasons to replace a connection asset, thereby increasing transparency in the process. These obligations should help ensure that NGC connection work is necessary and the corresponding charges are at an appropriate level.

3.18. In order to justify some form of incentive for DNOs to manage NGC exit charges it will be important that they, at least to some degree, are within the DNOs' control. Previous price control reviews have recognised the scope for DNOs to influence the level of NGC exit charges over the longer term by changing the size or location of transmission exit points. The last price control review did not introduce any incentives in this area mainly due to the uncertainty associated with the impending review of transmission charges within the electricity trading arrangements. Now that the new electricity trading arrangements are well established this issue no longer constitutes a barrier to change.

3.19. Treating exit charges as a full cost pass-through may reduce the incentives for DNOs to develop their local networks as against NGC providing additional connections or reinforcement of Grid Supply Points. It has also been noted that incentivising DNOs on exit charges may act to encourage take-up of distributed generation, as this could reduce the level of expenditure on transmission and distribution interfaces.

3.20. It has also been argued that whilst DNOs are able to charge for providing a wheeling service to adjacent DNOs, the recipient of the service has to meet costs as any other opex that they incur - even where wheeling is the most efficient option for dealing with the movement of regulated units. Since wheeling charges will include an element of NGC exit charges and a use of system charge for the use of network assets, it appears anomalous that the recipient DNO cannot recover at least the portion relating to NGC exit charges. Under these circumstances, the continued treatment of NGC exit charges as full cost pass-through creates an incentive towards the further development of NGC exit points rather than the utilisation of wheeling.

3.21. If changes are made to the existing arrangements a number of issues will need to be considered including whether:

- DNOs are able to influence NGC exit charges, and if so, how;
- the current treatment of NGC exit charges distorts incentives between the development of connections to the transmission system and development of local distribution networks; and
- the current treatment of wheeled units and costs should be changed, and if so, how.

EHV charges

3.22. EHV charges refer to charges for connection to a DNO's distribution network at a voltage level above 22kV or directly to a sub-station with a primary voltage of 66 kV or above. The July document explained that under the existing price controls, EHV charges are excluded from the main price control.

3.23. The main protection for EHV consumers is that disputes between an EHV customer and a DNO can be referred to Ofgem in order to make a determination. Since 1995 there have only been two determinations, both were lengthy (at least one year), and in both of these cases the regulator found that the charges that had been levied were excessive.

3.24. Ofgem has also stated on various occasions that it expects the path of EHV charges to be similar to that of charges that are included in the price controls. In both determinations referenced above, Ofgem established the principle that the rate of return on EHV assets should be that as set by the then current price control, with an additional allowance (0.98 per cent) for capitalised operation, repair and maintenance. In October 1999, Ofgem issued a letter to DNOs, which guided them to change their EHV tariffs annually by RPI-3%. In the December 1999 Final Proposals, the protection afforded to EHV consumers was strengthened through modification of the licence condition. As a consequence, revenues from EHV units may only be categorised as excluded revenue if the licensee's charges for the distribution of such units are sufficiently consistent with their submissions to the Authority during the setting of the price control.

3.25. The July document consulted on whether these costs should continue to be treated as an excluded service or whether they should be included in the price control.

Views of respondents

3.26. The majority of DNOs argued that EHV charges should continue to be excluded from the price control. The main reason given was that EHV charges are site specific and including them in the price control could reduce flexibility in the level and form of the charges that are made. It was also argued that including EHV charges within the price control may weaken the locational price signals provided to EHV consumers if the result was a move away from cost reflective charging.

3.27. One DNO argued that EHV charges should be included within the price control. Its main reason for this was that over the last three years EHV consumption has decreased by more than 10 per cent and it expects this trend to continue and accelerate.

3.28. One DNO commented that it acts in accordance with Ofgem's guidance and that it has set EHV charges consistent with the assumptions underlying the price control.

3.29. It was suggested by one DNO that in order to address consumers' concerns, one approach would be to introduce a standard EHV tariff (reflecting generic 'deeper' reinforcement costs, rates, exit charges etc.) with an annualised connection charge to cover site specific costs. It argued that this would ensure that locational price signals are preserved whilst providing consumers with increased predictability and transparency in relation to the charges that they have to pay.

3.30. Ofgem received only one response from an EHV consumer. It argued that charges made to EHV consumers should be included in the price control given that the service is provided by a monopoly provider, and such consumers should be provided with the same protection as other consumers. It also provided confidential data for five EHV sites which showed that charges had reduced at a lower rate compared with regulated charges over a 10-year period. Subsequent discussions with EHV consumers and their representatives have also noted that, once price controls are set, DNOs have an incentive to increase charges to EHV consumers (or reduce them by less than other charges).

Ofgem's further thoughts

3.31. The data available to Ofgem on average EHV charges per unit appears to show a wide range of movements over the period of this price control, although on average they have fallen broadly in line with the assumptions underlying the price control. Ofgem intends to collect information from the DNOs, including seeking explanations of the data, confirmation of whether the guidance set out at the last price control review has been followed, and if not, the reasons for adopting a different approach.

3.32. The arguments presented so far by the DNOs in favour of continuing the present treatment of EHV charges are not convincing. Inclusion in the price control would not itself restrict the DNOs ability to set cost reflective, locational or site specific charges. DNOs do have a monopoly in respect of existing consumers and as such different treatment for different types of consumer risks distorting incentives.

3.33. Depending on evidence on EHV charges there are a number of options which could be followed.

3.34. The first option would be to include EHV charges (or elements of these charges) within the price control. This would be expected to provide incentives on

DNOs to provide these services more efficiently and help to ensure that EHV consumers were provided with the same protection as other consumers.

3.35. Another option would be for Ofgem to publish explicit guidelines on how EHV charges should be set, with obligations on the DNOs to publish certain information on a regular basis. This could result in a more uniform approach to EHV charging and it should reduce the scope for any excessive charges. It could also improve transparency and it should make determinations more straightforward which would allow them to be processed within a shorter timeframe. This approach would result in additional monitoring costs and may not be appropriate for all elements of EHV charges if they are entirely site/consumer specific.

3.36. A third option would be to impose an obligation on all DNOs to provide information on their EHV charges at regular intervals, say annually, which is then made public. This could improve transparency but may not have a significant impact on the protection provided to EHV consumers.

3.37. Ofgem would like to hear from EHV consumers if they have any evidence which would suggest that EHV charges have not moved in line with assumptions underlying the current price control and that DNOs are earning a rate of return that is higher than the guidance Ofgem has provided. It would also be useful if they could identify whether improvements could be made to the information that DNOs make available on EHV charges.

3.38. In addition, Ofgem would like to hear views on the effectiveness of the determinations process and whether it provides sufficient protection to EHV consumers. It should be noted that Ofgem has recently introduced a simplified procedure for speeding up the determination process. Ofgem expects that all except the most complex of disputes to be processed within a 16 week timescale.

3.39. Any DNOs or other interested parties that consider that EHV charges should continue to be excluded from the price control are requested to explain how this would better protect the interests of consumers.

Non-contestable connection charges

3.40. DNOs classify the various aspects of connections work as contestable (ie, open to competition) and non-contestable. Although some DNOs permit more services to be provided on a contestable basis than others, only procurement of materials for new connection assets and installation of those assets are universally contestable. All DNOs reserve the right to undertake various activities (such as determining the point of connection) which are essential to the effective provision of connections. In the July 2003 document, Ofgem consulted on whether consumers of non-contestable services need to be provided with some form of additional protection in terms of charges that they pay and the quality of service they receive.

3.41. The main options to protect consumers of non-contestable services are to:

- ♦ where feasible, open up more areas of the market to competition, ensuring that the market operates effectively;
- ♦ provide some form of price control protection for non-contestable charges either by including them in the overall price control or through a separate price/revenue cap, including any appropriate standards of performance; or
- ♦ introduce guidelines on charging for non-contestable services and standards of performance.

3.42. Between June 2002 and May 2003 Ofgem undertook a review of the nature and level of competition within the connections industry. Over 415,000 electricity connections, with an approximate value of £372m, were undertaken during the review period. Independent connection providers (ICPs) undertook about 4 per cent of this total.

3.43. Consumers and ICPs were surveyed in the course of the review. A number of consumers said they had difficulties with an ICP completing works to agreed timescales. ICPs claimed this was due to information provision problems and poor standards of service from DNOs. Consumers and ICPs who had purchased or provided electricity connection services considered that the general attitude of DNOs was preventing the expansion of competition in connections.

Views of respondents

3.44. Three DNOs expressed the view that non-contestable connection charges should remain outside the price control and another highlighted several issues that would need to be considered if the price control were to include non-contestable charges including:

- formalisation of any such arrangements within either the Electricity Act or the licence;
- ensuring there was no distortion in the treatment of non-contestable charges and those of statutory connections that remain capex;
- the difficulty of establishing efficient costs for each DNO's non-contestable activities due to differing degrees of competition within each DNO's area; and
- the possibility of DNOs being left with stranded overhead costs.

3.45. Two other respondents were supportive of moves to develop competition in connections, with one of these also supporting the introduction of standards of performance in certain areas.

3.46. Four responses to the October update considered that DNOs have enjoyed excess returns from non-contestable connections, which could be having a negative impact on the development of competition in the contestable market. It was argued that this should be addressed by bringing some aspects of non-contestable charges within the price control and opening others to competition. They also stated that regulation in the electricity connections market should more closely mirror that of the gas market and that diversions work should be made contestable.

Ofgem's further thoughts

3.47. There is potential to expand the existing scope of connection services that could be provided by the competitive market by adopting some of the principles used in developing the gas connections market. Ofgem is encouraged by the success to date of live working trials in two DNO areas and the ongoing development of service level agreements for street lighting which are due to be finalised in the early part of 2004. The success of live working trials on greenfield housing suggests that this is an activity that should be capable of being made contestable across all DNOs during 2004. In the longer term, diversion and reinforcement works associated with new or amended connections would appear to be logical areas for the further development of competition.

3.48. Respondents to the October update noted that the 25 per cent rule[10] would need to be altered to facilitate the application of shallow charging on reinforcements. Ofgem's work on the structure of electricity distribution charges has indicated that a draft licence modification to change this rule will be set out in an April 2004 update paper[11].

3.49. There is concern that the market for contestable services is being hampered by the actions of monopoly incumbents in the non-contestable market, ie DNOs are cross subsidising the competitive side of their business from charges recovered from the provision of non-contestable connections. It is important that competition is allowed to develop as this will provide the most effective protection to consumers. Ofgem will need to consider the available evidence – both from DNOs, consumers and ICPs before decisions are taken about any changes to the treatment of non-contestable connection charges. If there is evidence that DNOs are earning excess returns in the non-contestable market, Ofgem would expect to put in place arrangements that provided additional protection for consumers. At present, there are service standards covering a limited range of non-contestable connection services. Unless there are good arguments to the contrary Ofgem would expect to develop further standards for other elements of non-contestable services.

[10] The current connection charge for demand customers includes the cost of all reinforcement works triggered by the connection up to one voltage level above the point of connection, provided that the new connectee requires more than 25 per cent of the effective capacity.

[11] 'Structure of electricity distribution charges', November 2003, 142/03, paragraph 6.19

Other excluded services identified by DNOs

3.50. Some DNOs have identified additional items of revenue which they argue should be excluded from the price control, including electricity exported to embedded networks. If these are to be excluded from the price control Ofgem would need to understand why the costs recovered by these charges are outside the direct control of DNOs and therefore not subject to the same incentives as other costs that DNOs incur.

Business rates

3.51. The October update document suggested that if DNOs are able to influence the level of business rates, it may be appropriate to incentivise DNOs to manage rates more efficiently.

Views of respondents

3.52. Five DNOs argued that rates are not materially under the control of a DNO and should be treated as a full cost pass-through item. Two other respondents commented that Ofgem should explore the possibility to introduce a limited form of incentive to help ensure rates are incurred at an economically efficient level.

Ofgem's further thoughts

3.53. Ofgem understands that business rates for DNOs will be set by the Valuations Office in 2004. Since the calculation of business rates may be undertaken in a different way there is the possibility that it may change both their level and the ability of DNOs to manage these costs. DNOs will also have the right to appeal these charges before they are finalised. Ofgem intends to keep the issue under review until it has more detailed information available about the method for calculating rates. At that stage it will give further consideration as to whether DNOs should be subject to some form of incentive to manage the level of rates they are charged. This could include a partial pass-through as discussed for NGC exit charges.

Hydro-Benefit

3.54. The July document explained that the price control for Hydro-Electric (HE) presently includes a transfer of Hydro-Benefit which has the effect of reducing distribution charges for HE's consumers in the North of Scotland. The Authority has decided to take steps to remove this subsidy to ensure compliance with European Law.

3.55. The Secretary of State has proposed legislation which would result in distribution costs in the North of Scotland being subsidised at the same level as under the hydro benefit subsidy scheme but with the subsidy being recovered from all suppliers in Great Britain.[12]

3.56. Ofgem will take this into account when setting price controls for HE.

Dealing with uncertainty, new obligations and costs

3.57. The June 2003 document explained that Ofgem's preferred way of dealing with uncertainty is to provide a suitable degree of flexibility in the price control arrangements, including the use of revenue drivers (which is explained above). Frontier Economics and Ofgem developed a decision making framework for dealing with uncertainty which should be used to aid decisions at price control reviews and, where necessary, in considering how to address substantial new categories of costs, should they arise between reviews. Under the existing arrangements, where companies have been exposed to substantial new costs between reviews (or where they are expected to arise) these have been treated on a case by case basis. In certain cases, Ofgem has written to companies and/or made statements in final proposals documents about how costs will be treated if efficiently incurred.

Views of respondents

3.58. The majority of DNOs argued that there should be a more formalised approach to dealing with cost uncertainty between price control reviews. A number of DNOs have argued that although the framework for dealing with uncertainty is a

[12] 'New proposals to provide fair deal for Scottish Energy consumers', DTI press release, 11 December 2003

useful development it does not go far enough as it does not specify the process by which adjustments could be made to price controls (ie how the price controls could be re-opened). It was argued that the approach used by Ofwat, in the water industry, for dealing with uncertainty should be applied to the DNOs. DNOs suggested that using the Ofwat approach would be appropriate given that there is increasing uncertainty regarding future costs.

Ofgem's further thoughts

3.59. Ofgem has reviewed the Ofwat approach and whilst it does provide a formalised mechanism for dealing with cost uncertainty between reviews its applicability in electricity may not be appropriate for a number of reasons including:

- water and energy are quite different:
    - Ofgem and Ofwat have different statutory duties. In water, the Director shall exercise and perform his powers and duties in the manner that he considers best calculated to ensure that (i) companies can discharge their functions; and (ii) are able to finance their functions including earning a reasonable return on capital. In electricity and gas the principal objective of the Authority is to protect the interests of consumers, where appropriate by promoting effective competition; and
    - the magnitude of cost uncertainties differs;
- it is preferable to address uncertainty ex ante rather than assessing after the event whether adjustments should be made (eg in the case of distributed generation, pensions and bad debt); and
- it introduces a significant burden on both the regulator and the company as the process for an interim determination in water typically involves a significant amount of work.

3.60. However, Ofgem does recognise that there are some categories of cost which are currently very uncertain and dependent on decisions by third parties. One example would be lane rentals. In some cases the costs could be zero, or could be material, depending on future decisions. In general, it may not be desirable to pass through these costs, due to the impact on incentives – but neither would it be appropriate for consumers to pay for costs that may not arise. It may therefore be appropriate to provide comfort in relation to these specific areas that additional terms will be added to the price control (without reopening the main control) should these costs turn out to be material.

Duration of the main price control

3.61. The July document indicated that the duration of the price control should continue to be five years. The majority of respondents to the July document agreed and on this basis Ofgem confirms that the next price control period will be five years, ie from 1 April 2005 to 31 March 2010. As part of the next review, which should be carried out in 2008/09, Ofgem will need to consider the appropriate price control period.

Incentive framework

3.62. It was outlined above that the existing price controls are based on a RPI-X form which provides incentives to companies to operate and invest in the network on an efficient basis. This section sets out Ofgem's further thoughts on the incentives provided under RPI-X and in particular on:

- the strength of incentives to achieve efficiency savings;
- the balance of incentives between capex, opex and output delivery; and
- incentives to invest.

3.63. It also sets out Ofgem's further thoughts on how the rolling adjustment for efficiency savings could work both for this price control period (up to 31 March 2005) and in the next price control period (from 1 April 2005).

Views of respondents

3.64. Several DNOs raised concerns in relation to the strength of incentives. It was argued that if they were to continue to seek out efficiency savings in the future then the incentives for doing so would need to be strengthened. In their view, this is because the future scope for efficiency savings will be lower which means that the rewards for continuing to seek them out, will need to be higher. Another respondent argued that RPI-X extracts cash from companies and that this cannot continue forever.

3.65. One respondent generally supported the use of incentives and especially in situations where incentives could be linked to outputs that consumers want from the networks.

3.66. Respondents have broadly welcomed the proposal to allow DNOs to retain efficiency savings (both opex and capex) for a fixed period of time although further clarification was sought on how the mechanisms would work in practice. One respondent argued that the proposed eligibility test for the retention of capex savings should be extended to opex savings.

3.67. A number of DNOs argued that the rolling incentive mechanism proposed by Ofwat in its June 2003 document should be adopted in electricity. This included the use of multipliers to strengthen the incentives for 'frontier' (or best performing) companies in relation to those that are less efficient. Two DNOs did not support the use of multipliers in electricity because of issues of comparability of data across companies. One of these also argued that providing increased rewards for frontier behaviour may push companies towards more short-term decisions designed to maximise the extent of efficiency savings.

3.68. Some DNOs argued that the incentives to invest need to be clear and in particular suggested a need to clarify how any overspends against capex allowances would be treated. Two respondents argued that there should be interim determinations if there are major changes in capex requirements during the price control period.

Ofgem's further thoughts

3.69. The October 2003 document proposed a fixed retention period both for opex and capex efficiency savings for this price control period. This commitment for capex is conditional on DNOs meeting their quality and security of supply obligations. Ofgem has indicated that it will take a general view of DNOs' compliance with these obligations rather than a mechanistic link with the quality of supply targets for 2004/05, although DNOs' performance against these targets will be one input in the assessment.

3.70. For the rolling opex adjustment for this price control period Ofgem currently intends to:

- allow companies to retain the benefits of out-performance for a five year period from (and including) the year in which the saving was originally made;
- take into account the year by year incremental out-performance; and
- ensure that the opex incentive allowance will not be negative in any given year.

3.71. Given that it is difficult to define ex ante what qualifies as an exceptional/ atypical item, Ofgem is not intending to exclude these items from the rolling opex adjustment. Ofgem would like to hear stakeholders' views on this. If stakeholders think that such items should be excluded Ofgem would like to hear how these items could be defined ex ante.

3.72. The main aim of introducing a fixed retention period for efficiency savings is to remove the periodicity of incentives and to treat opex and capex savings in a consistent way. It is important that, where practicable, DNOs are provided with clarity about how their efficiency savings will be treated going forward and as such Ofgem will continue with some form of rolling adjustment for both capex and opex for efficiency savings made in the next price control period (ie after 1 April 2005).

3.73. Companies should be expected to pursue efficiency savings up to the point where the marginal benefits are equal to the marginal costs of doing so. Whilst it is important that DNOs have appropriate incentives to pursue efficiency savings it is also important that DNOs undertake investment in a timely and efficient manner. Incentives to invest and to deliver the outputs required need therefore to be balanced with incentives to pursue efficiency savings.

3.74. Strengthening incentives for cost savings could result in a change to the balance between efficiency and output delivery unless the incentives to achieve the latter are also increased. It is difficult to identify and incentivise a full range of outputs. There is also no evidence to suggest that the general strength of incentives need to be strengthened – companies are generally significantly outperforming the existing price control. In addition, a number of DNOs have argued that the incentives to invest need to be strengthened. Increasing the incentives to achieve efficiency savings would have the opposite effect. Ofgem therefore intends to retain a 5 year fixed retention period for all efficiency savings.

3.75. One respondent argued that Ofgem should link the fixed retention of opex efficiency savings to some form of 'eligibility' test – as for capex. Ofgem considers that whilst opex can have an impact on the quality of service delivered to consumers – as evidenced by the performance of DNOs in the October 2002 storms –it would not be appropriate to introduce an eligibility test for efficiency savings achieved during this price control period, as this was not indicated at the time the commitment was given in the June 2003 document. Ofgem considers that it may however be appropriate to introduce some form of test for the next price control period and would welcome views on the form that this should take. Also, if a full range of outputs could be identified and successfully linked to opex and capex, this may allow the incentives to achieve efficiency savings to be strengthened in the next price control period if deemed appropriate.

3.76. Two DNOs argued for the inclusion of a multiplier in the rolling opex adjustment to strengthen the incentives to be a frontier or least cost performing company. Ofgem has indicated above that it is not convinced that the general incentives for efficiency savings need strengthening, although it will consider whether the balance of incentives between companies needs to be changed. One input into this assessment will be the empirical evidence on how DNOs have performed during this price control period. Ofgem would expect the rate of return of companies clustered around the frontier to be higher than the rate of return of the other companies. If this is not the case, then this could be an indication that the balance of incentives between companies needs to be reviewed. Ofgem will set out initial results from this assessment in the March 2004 document.

3.77. During the existing and previous price control periods companies have typically outperformed Ofgem's assumptions of capex, and as such, the treatment of overspend has not been an issue.

3.78. However, a number of DNOs have argued that greater clarity is needed in relation to the treatment of overspend. It was argued that there is a need to increase the flexibility in the existing arrangements so that the capex allowance is not necessarily seen as the limit that a company can spend.

3.79. The potential risk of providing greater flexibility in relation to investment is that this could potentially result in inefficient investment decisions which could mean that prices to consumers would be higher than they otherwise need to be. One way of mitigating this possibility is by linking capex to well-defined outputs which consumers value. As part of the price review Ofgem would expect DNOs which propose large capex projects to put forward clear proposals, with definable outputs and point out how they provide additional consumer benefits, for example backed up by consumer research. However, Ofgem recognises that defining appropriate outputs might be difficult.

3.80. If DNOs do come forward with proposals for a significant increase in capex, Ofgem would need to consider whether the proposed capex savings retention mechanism would still be appropriate. For example, there is an increased risk, without definable outputs, that companies could underspend their allowances without delivering outputs that consumers value. If appropriate outputs cannot be identified, one option would be to identify intermediate outputs as a proxy for outputs which consumers value. An alternative would be to provide a smaller reward (but still some reward) per £ underspend compared to companies that have a lower level of forecast capex. This could further evolve into a sliding scale mechanism with the rewards for capex efficiency savings being linked to the size of the initial capex allowance. A further alternative could involve providing some reward for those companies with lower capex projections (to reflect total cost efficiency).

3.81. Another issue for consideration is when overspend should be included in the RAV. The capex efficiency incentive allows DNOs to retain the benefits of any savings for five years before they are passed back to consumers, ie they are reflected in the RAV. However, if capex overspends were treated in the same way (ie not included in the RAV for 5 years) this could provide a disincentive on a DNO to undertake investment that was not covered by the capex allowance. If there is a clear need for this additional investment, and Ofgem is confident that it is efficient, it may be possible to treat such an overspend in a different way to capex efficiencies, for example through backdating the return on this investment in setting the next price control. The aim of this would be to ensure that the company would be no better or worse off compared with the expenditure being incorporated in the RAV straight away.

3.82. It will be important, particularly in situations where companies have been given large capex allowances, to ensure that if the expenditure is subsequently deferred, it should not be paid for by consumers twice (for example both in this review and the next review).

3.83. The table below summarises the potential improvements that could be made to the existing incentive framework within which DNOs operate.

Table 3.1: Current incentive framework and potential improvements

	Current approach	**Potential improvement identified**
RPI-X price control formula	Revenue drivers: Under the existing price controls the revenue driver is 50 per cent weighted to the number of units distributed. The remaining 50 per cent is fixed as it is related to a predetermined projection of the number of consumers.	For large consumers costs are more closely related to capacity than to units distributed. Reduce the weight on units distributed and include a capacity (MW) term in the revenue driver.
opex	Companies keep opex efficiency savings for the duration of price control period.	Allow companies to retain benefits of opex efficiency savings for a fixed period of time (5 years). Possible eligibility test for efficiency savings for next price control.
capex	DNOs are allowed the projected capex, a return on RAV and regulatory depreciation based on the RAV and the depreciation assumptions. At the next review, RAV and depreciation are re-calculated using actual investments over previous control period and the benefit of any capex savings are passed onto consumers. Non-operational capex is treated as an operating cost item.	Allow companies to retain benefits of capex efficiency savings for a fixed period of time (5 years) subject to an eligibility test. Based on assessment on a case by case basis, in which it can be demonstrated that consumers have benefited, companies will be remunerated for efficient capex overspend through the RAV. For asset disposal, deduct proceeds of sale of assets (or where these have been transferred out of the licensee) from the RAV five years after the year in which the disposal was made.
Distribution losses	Marginal incentive scheme which rewards DNOs by 2.9p per kWh for reductions in the level of distribution losses below the average rate for the past ten years.	Under review – see 124/03 Electricity Distribution Price Control Review Update October 2003.

	Current approach	Potential improvement identified
Quality	IIP incentive scheme: Quality incentive scheme rewarding/penalising DNOs for performance on number and duration of interruptions to supply against individual targets and the quality of telephone response performance-incentive. Guaranteed and Overall Standards of Performance – under GSs compensation payments to affected consumers if DNOs fail to meet required level of service subject to certain exemptions. OSs specify an average minimum level of service that companies are expected to achieve but where it is not appropriate to provide compensation to consumers.	Revise requirements to include various categories of consumers. Move to symmetrical scheme on interruptions, with deadbands and rolling average performance. Weightings on scheme and telephone response methodology to be reviewed. Remove overall standards and replace with new output measures under IIP (as appropriate). New Guaranteed Standards for certain categories of priority consumers. Clarify scope of exemptions under GOSPs and improve protection for businesses.
Distributed Generation	Deep connection charges	Hybrid mechanism of cost pass through with a return lower than WACC combined with supplementary revenue driver to deliver premium return to the WACC.
RPZ and Innovation funding	n/a	R&D funding explicitly identified in the price control. Enhanced returns for innovative projects.
Financial	Pre-tax approach to cost of capital	Propose to adopt a post-tax cost of capital combined with company-specific tax allowances.

Price controls for metering services

3.84. In July Ofgem published "Electricity distribution price control review – metering issues: Initial Consultation" (July metering document). This document outlined the issues and Ofgem's views in relation to a separate price control for electricity metering services.

3.85. In this document Ofgem indicated that future work carried out on the price control would proceed on the assumption that a price control for metering, separate from distribution, would be introduced. Ofgem clearly outlined the reasons for its preference in the July metering document.

3.86. The July metering document also discussed which activities should be covered by price regulation. The scope section also illustrated which aspects of metering could be potentially covered by different types of control.

3.87. Several options were identified for the form of a metering price control and the July metering document indicated that the options under serious consideration were price caps and revenue caps.

Views of respondents

A separate metering price control

3.88. A number of DNOs were strongly in favour of the approach put to Ofgem and outlined in the July metering document as the "Distribution network operators' proposal". They argued that it protected the investment made by DNOs as a result of their licence obligations.

3.89. DNOs also expressed concerns about the possibility of "stranding" of operational costs in relation to those costs that a DNO would incur as a result of having obligations to provide metering services, being unavoidable even if a DNO lost significant amounts of market share.

3.90. Some DNOs have additionally expressed concern about those "fixed" costs of running a metering business, and argue that these should be guaranteed through the distribution price controls.

3.91. A number of other respondents were in favour of the proposal put forward by Ofgem to create a separate metering price control.

Scope and duration of the metering price control

3.92. In their responses to the consultation document many respondents referred to emerging competition in metering activities, in particular Meter Operation (MOp). It was the belief of a number of respondents that this emerging competition made a separate price control for MOp unnecessary.

3.93. A smaller number of respondents indicated that they felt there should be a separate price control for MOp.

3.94. Most respondents who addressed the issue supported the metering price control having the same duration as the broader distribution price control.

Form of the Price Control

3.95. Ofgem identified three basic forms that future price regulation could take and one alternative, ex post regulation. Therefore the options outlined in the paper were Revenue Caps, Price Caps, Cost pass-through and ex post regulation. Ofgem ruled out the option of a cost pass through approach.

3.96. Several respondents did not believe that a separate metering price control was necessary.

3.97. The majority of respondents who were in favour of a separate metering price control preferred the Price Cap approach over the other option of the Revenue approach. Two respondents supported ex-post regulation approach rather than that of a metering price control. A number of DNOs wanted a separate price control to be designed in such a way as to recognise unavoidable costs. One respondent was in favour of a revenue cap approach to price control.

Ofgem's further thoughts

A separate metering price control

3.98. Ofgem is of the view that valuing meter assets on a depreciated replacement values addresses the concerns of the DNOs in relation to risk of loss of value in relation to historic investment.

3.99. After receiving the views of the DNOs in responses to the July metering document, Ofgem has re-examined its proposal. This examination has resulted in Ofgem strengthening its support for a separate metering price control.

3.100. In order to advance thinking in relation to price controls and provide certainty to participants in the electricity industry Ofgem is now clearly stating that there will be a separate price control for metering services commencing on 1 April 2005.

3.101. Ofgem's approach to the other issues of "stranding" raised by the DNOs will be informed by the data gathered from the Business Planning Questionnaires.

Ofgem will be working with DNOs to examine their concerns and seek solutions (if any such are necessary) during 2004.

Scope and duration of the metering price control

3.102. Ofgem indicated in the July Metering document that the main determinant of the extent of price controls is whether there is sufficient competition in place to protect the interests of consumers. Ofgem has therefore decided that the scope and duration of metering price controls should be determined by the results of a Competitive Market Review. Additional detail on Ofgem's proposals in relation to a Competitive Market Review in metering can be found in Appendix 2.

3.103. However, until the conclusion of the Competitive Market Review is known, Ofgem will proceed on the basis that a price control will cover both Meter Asset Provision (MAP) and MOp for all non half hourly meters. The assumption will also be that the price control will run concurrently with the distribution price control review and last 5 years.

Form of metering price control

3.104. Currently, Ofgem is proposing to introduce a price cap for the provision of a "basic" domestic meter. A requirement would then be placed on DNOs to determine their charges for industrial and commercial meters in line with the calculations used to determine the price control for domestic MAP.

3.105. Ofgem considers a price cap to be more appropriate than a revenue control for MAP as it is an easily identifiable activity. It will also reduce the ability of DNOs to cross subsidise from MAP into MOp, something that may be an issue if competition in these two activities develops unevenly. A price cap will also send clear price signals into the developing competitive market.

3.106. In conjunction with the initial thinking on MAP, Ofgem is currently minded to introduce an average revenue cap for MOp. An average revenue cap is a revenue control that allows for variations in the volume of activities undertaken. An average revenue cap is preferable to a price cap for MOp as the diversity of activities involved in MOp make a price cap on each activity impractical.

Views invited

3.107. Views are invited on any of the issues raised in this Chapter and in particular on:

- the form of the revenue driver and whether it should include a capacity component. In case of the latter, Ofgem invites stakeholders to submit detailed and quantified proposals of how this would work;
- the appropriate treatment of NGC exit charges and wheeling charges, EHV charges, non-contestable connection charges and business rates;
- Ofgem's approach to dealing with uncertainty;
- the treatment of overspend and the balance between incentives to invest and incentives for cost efficiency; and
- the proposed approach to a separate metering control.

4. Quality of service and other outputs

Introduction

4.1. The October document set out Ofgem's thoughts in a number of areas covering quality of service and other outputs that DNOs may be required to deliver over the next price control period and beyond. This Chapter sets out Ofgem's further thoughts on:

♦ the treatment of Guaranteed and Overall Standards of Performance (GOSPs) including interim arrangements for payments under storms;

♦ the key issues that will need to be considered in reviewing the existing quality of service incentive scheme under the Information and Incentives Project (IIP);

♦ network resilience;

♦ incentives for telephone response; and

♦ environmental outputs.

Guaranteed and Overall Standards of Performance

4.2. The GOSPs cover a range of service areas including restoration of supply following unplanned faults, making and keeping appointments and the provision of new connections. The Guaranteed Standards provide protection to individual consumers. If the DNOs fail to meet the required level of service they must pay compensation to the consumers affected, subject to certain exemptions. Overall Standards require DNOs' average level of performance for particular services to be above a minimum level. The GOSPs framework has been place for over 10 years. Over this time some changes have been made to introduce new standards and tighten existing standards. This price control review provides an opportunity to review the role, scope and form of the standards.

Views of respondents

4.3. Most respondents do not support tightening the standards of performance regime, but do support increasing consumers' awareness of their rights under the framework through the Notice of Rights and incident specific publicity. A few DNOs suggested that a tightening of the guaranteed standards should be associated with higher levels of operating and investment costs.

4.4. One DNO considers that the overall standards should not be brought under the IIP framework arguing that they have merit in internal target setting. Another DNO set out that the existing combination of guaranteed and overall standards is an appropriate basis for managing performance in terms of quality of supply and consumer service.

4.5. One DNO notes that although the consumer survey indicates that a large proportion of business consumers prefer automatic compensation payments, there is a low willingness to pay for the system changes that would allow for this.

Ofgem's further thoughts

4.6. There are a number of issues that need to be considered in reviewing the role, scope and form of the GOSPs:

- **severe weather events -** the guaranteed standard of performance on supply restoration may not provide an appropriate level of protection for consumers following severe weather events. This has been addressed in the short-term through the introduction of the interim arrangements for storm payments but there is a need to put more robust longer-term arrangements in place as part of the price control review;

- **business consumers –** the balance of protection under the existing GOSPs framework may be biased towards domestic and some smaller business consumers – in comparison to larger business consumers. The results of Ofgem's consumer survey suggest that larger business consumers expect much shorter timescales prior to compensation and restoration of supply and a significant increase in the level of payments if guaranteed standards are not met;

- **automatic payments –** the survey results suggested that most consumers expect automatic payments under the guaranteed standards;

- **priority consumers –** the survey results suggested that there may be a need to provide some additional protection to priority consumers;

- **scope of exemptions –** the survey results suggest that the scope of the exemptions under the GOSPs is too broad and that consumers, as a result, do not view the standards as providing effective protection. Whilst consumers expect interruptions to supply when there is severe weather or other exceptional circumstances, they are less willing to accept interruptions caused by other reasons;

- **role of the overall standards of performance –** there may be overlap between the Overall Standards of performance and output measures incentivised under the IIP, as both focus on average (or overall) performance. Further, these standards seem to add little value although there may be some limited incentive effect through the publication of information on the Overall Standards.

4.7. There are a number of policy options that could be adopted to address the issues identified above. These options are not mutually exclusive and could include:

- replacing the existing standard on supply restoration with 2 standards:

    - a standard covering "normal weather" conditions – the trigger point for compensation and levels of compensation would remain unchanged (ie domestic consumers would be paid £50 compensation after 18 hours and a further £25 compensation for each subsequent period of 12 hours); and

    - a standard covering "severe weather" conditions – the trigger point for compensation would be later (ie the period of time before payments are due could be lengthened) to reflect the weather conditions and/or levels of compensation could be changed. Any changes in this area could build on the interim arrangements for storm payments that have been agreed with the DNOs. Some exemptions may need to be retained for extreme conditions such as where a very large proportion of DNOs' consumers have been affected or there has been widespread flooding or severe icing of overhead lines;

   - it may also be appropriate to make payments under these standards 'semi-automatic' (for example, all payments associated with interruptions, other than single phase LV faults, could be made automatic, whilst DNOs would be obliged to notify consumers who may have been subject to a single phase LV fault of their right to a payment). Ofgem will review the costs associated with making payments more automatic under this standard;

- the protection afforded to larger business consumers under the standards of performance could be strengthened by:

   - linking the size of payments made to the Distribution Use of System element of the bill of a larger business consumer. There are similar arrangements in place for the standard of performance for supply restoration in gas. Consumers who lose their supply for more than 24 hours recover a multiple of their daily transportation charges, depending on whether they have a firm or interruptible contract.

     An alternative would be for business consumers to rely, at least to some extent, on insurance;

   - specific or revised standards of performance could be introduced. For example, there could be a standard of performance on supply restoration for larger consumers who have a high voltage connection. The trigger point for compensation could be shorter than 18 hours. Business consumers have also indicated that they want more than 2 days notice of planned work so that they can put in place alternative arrangements such as temporary generation;

- the scope of the exemptions to the standards of performance could be reduced by:

    - tightening or removing the exemption for industrial action by a company's employees as this is, to a large degree, within a company's control;

    - clarifying and tightening the exemption for other exceptional circumstances. This has been used very broadly by DNOs in the past to cover a wide range of circumstances including too many poles being damaged in severe weather. This exemption should be designed to cover cases such as terrorism, war, unlawful or malicious acts by a third party, civil disturbances etc – not the impact of weather on the network;

- it may be appropriate to tighten the timescales for investigating voltage complaints as the consumer survey results suggest that the existing standards are not tight enough. Companies are currently required to make a visit within 7 days or make a substantive reply to the consumer within 5 days;

- it may be appropriate to remove all of the Overall Standards, and, where appropriate, replace these with data collection and monitoring under the IIP – ensuring that there is no unnecessary duplication. For example companies could be asked to provide:

    - a breakdown of the percentage of consumers' supplies that are restored within 3, 6, 12, 18, and 24 and 48 hours;

    - the number of connected consumers that experience more than a specified number of interruptions lasting 3 minutes or more in a regulatory year;

- the regular provision and publication of this information would provide additional incentives on the DNOs;

- the scope of the guaranteed standards – very few payments have been made against some of the guaranteed standards. If they are not providing much protection to consumers it may be appropriate to revise or remove them; and

- it may be appropriate to introduce a new or revised guaranteed standard of performance for certain categories of priority consumers - for example those that require special medical equipment. A standard focusing on priority consumers could have a shorter restoration target than for other consumers – DNOs could achieve this through prioritising permanent reconnection to the network for these consumers or through the provision of some form of temporary generations.

4.8. There is also a need to consider whether there are additional steps that could be taken to protect priority consumers. Ofgem is in the process of reviewing the operation of the Priority Service Register (PSR) and published a consultation document on this earlier this month.[13] There may be a need for additional licence requirements such as the provision of a priority helpline for these consumers in the event of an interruption to their supply.

Reviewing IIP

4.9. The quality of service incentive scheme under the IIP provides financial incentives to companies in relation to the number and duration of interruptions to supply and the quality of telephone response. DNOs can be penalised up to 1.75 per cent of their annual revenue if they do not meet their individual targets for the number and duration of interruptions. There is also a mechanism for rewarding companies that beat their 2004/05 targets based on their rate of improvements up to that date.

4.10. The July 2003 document identified the issues that need to be considered in reviewing the IIP incentive scheme including the form of the incentive scheme and assessing the target levels of performance and incentive rates.

Views of respondents

4.11. Most respondents argued that the existing incentive mechanism under the IIP is working effectively. One DNO specifically suggests that the arrangements should remain in their current form, subject to any price changes as a result of the willingness to pay assessment. Another DNO considers that the existing framework remains appropriate because it relates to the entire customer base. It suggests that focussing on subsets of consumers would create perverse or conflicting incentives within the framework.

4.12. Respondents generally consider that amendments to the incentives should be linked to consumer's willingness to pay. One DNO considers that the costs associated with any improvements under the incentive scheme should be assessed on a company specific basis and appropriately funded through price control allowances.

4.13. One DNO expresses support for establishing long term quality of supply targets, but argues that under the existing mechanism the incentive to invest in quality improvements weakens toward the end of the price control period due to uncertainty of targets in the next period. It suggests that this may lead to inefficient investment in the long-term.

Ofgem's further thoughts

Scope of the output measures and financial incentives

4.14. The results of the first phase of Ofgem's consumer survey suggests that the existing scope of the output measures incentivised under the IIP is broadly appropriate - although the survey results and discussions with consumers' representatives have highlighted several areas where incentives may be need to be strengthened including:

- protection of business consumers;
- incentives regarding un-metered supplies, eg streetlighting;
- information provision (discussed in paragraphs 4.32 – 4.36); and
- worst-served consumers.

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[13] 'A report on services to vulnerable consumers', December 2003, 165/03

4.15. There are a number of potential options for developing the IIP incentive scheme in these areas including:

- ♦ distinguishing between types of consumer - the existing reporting requirements under the Regulatory Instructions and Guidance (RIGs)[14] and incentives for the number and duration of interruptions do not distinguish between types of metered consumer and exclude all un-metered consumers. It may be appropriate to revise the requirements to include various categories of consumers. For example:

  - o domestic consumers;
  - o priority domestic consumers;
  - o small non-domestic consumers (ie those with a maximum demand of less than 100 kW);
  - o medium-size non-domestic consumers (100 kW – 1MW);
  - o large non-domestic consumers (1MW+); and
  - o un-metered consumers.

  This would have a number of advantages including providing more complete information on the impact of interruptions on different types of consumers. Ofgem would not envisage different incentives at present but this may be a viable option in the longer term.

  The additional costs to DNOs of reporting separately for domestic and types of non-domestic consumers should not be significant as companies should already hold the information for billing purposes. However, there may be higher costs of introducing reporting requirements for un-metered or priority consumers as this information may not exist on companies' connectivity models. Further work needs to be undertaken to understand the costs and benefits of any new reporting requirements in these areas.

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[14] 'Regulatory Instructions and Guidance, Version 3', October 2003, 126/03

- for the next price control period Ofgem would expect that this information would be primarily used for monitoring purposes although it would expect to publish the information in some form. However, it may also be appropriate to introduce some limited financial incentives ahead of the next price control in 2010 if the information is sufficiently robust.

- protecting worst-served consumers – The existing output measures that are incentivised under the IIP focus on the average (or overall) performance of the DNO rather than on specific consumer groups. It is important to consider whether this affords an appropriate level of protection to worst-served consumers or whether some additional incentives are required in this area. The first step would be to define a measure for a worst-served consumer. There are a number of possible options including:

    - the number of consumers experiencing more than *x interruptions* in a particular period (eg annually); and

    - the average number and duration of interruptions for consumers on the 10 worst performing circuits in each DNO's area.

  The practical issues and costs associated with introducing such measures will be discussed with the DNOs in the new year. It is important that the incentives provided to companies are balanced and as such Ofgem needs to consider whether additional incentives are required in this area based on minimum reasonable levels of performance for consumers.

- disaggregated performance - Ofgem and the DNOs have been undertaking a programme of work to compare performance at a more disaggregated level. The data required for this work, including performance information by circuit for high voltage networks, should now be included in the formal reporting requirements set out in the RIGs. This analysis will provide useful information on the main drivers of differences in performance between DNOs. Ofgem intends to publish information in this area in its document on quality of supply in the new year. The additional costs of providing this information on an annual basis should not be significant as it is already provided on an informal basis.

Form of the incentive for interruptions to supply

4.16. There are a number of potential problems with the form of the existing incentive for interruptions to supply under the IIP including:

- the treatment of annual variability in performance;
- residual data inaccuracies; and
- possible perverse incentives from the asymmetry of the scheme.

4.17. There are a number of options which could improve on the existing arrangements which should not be seen as mutually exclusive:

- **move to a scheme with rewards and penalties in each year** – when the IIP was introduced in April 2002 it was based on an asymmetric scheme (ie with potential penalties in each year but only a possibility of rewards in the final year of the price control period). This approach was taken because of concerns that the existing targets that were set as part of the last price control review in 1999 were not equally challenging and because there was a lack of clear understanding of consumers' willingness to pay for improvements in performance. A significant amount of work is being undertaken to gain a better understanding of consumers' willingness to pay (through the Ofgem survey) and on understanding differences in network performance across companies (through the work on disaggregating performance). As such, it should be possible to set targets that are broadly reflective of consumers' willingness to pay and that are more equally challenging across companies. On this basis, it may be appropriate to move to an incentive scheme with rewards and penalties in each year. This would have a number of advantages including:
  - providing stronger incentives to DNOs to outperform their targets;

- smoothing out the financial effects of annual variability in performance; and
- reducing perverse incentives to bring forwards or defer planned work in order to benefit from one-off outperformance rewards;

♦ **use of deadbands** – under the existing arrangements there are no deadbands applied to the targets for the number and duration of interruptions, ie DNOs are rewarded (or penalised) for every 'unit' by which they beat (or fail) their target. This results in 'spot targets' with no allowance for data errors, measurement errors and small variations due to unusual weather. There may be a number of advantages of introducing a limited deadband including:

- ensuring that rewards and penalties only reflect genuine and significant deviations in performance from the target; and
- reducing the effect of variations in the underlying weather performance during the year and thereby strengthen annual performance incentives.

The main drawbacks of using deadbands are that they may dampen incentives on companies to meet their targets and that their use introduces an additional (albeit minor) complication into the scheme. In considering whether it is appropriate to introduce deadbands it will be important to ensure that incentives are not weakened in this way;

♦ **rolling-average performance** – under the existing arrangements incentives are based on annual performance. When the incentive scheme was introduced in April 2002 it was not possible to assess performance on a rolling average basis as there was not a robust set of historical data on performance. For the next price control period there will be several full years of performance data which means that it would be possible to use a rolling average to determine performance. There are a number of possible advantages of using a rolling average including:

- o incentives would be more closely related to underlying trends in performance therefore smoothing out some of the annual variability; and

- o the impact of severe weather would be spread over a number of years which could mean that it would be easier to reduce the scope of any exemptions under the incentive scheme.

The main disadvantages are that:

- o it would dilute incentives particularly in the early part of the next price control period as it would include performance from the current price control period; and

- o poor performance in one year may make it difficult to meet targets for several years and possibly weaken incentives;

- ♦ **reviewing the weighting of incentives within the scheme** – the second stage of the consumer survey should provide more detailed information on consumers' willingness to pay including the relative importance they place on the number and duration of interruptions and between planned and unplanned interruptions. It will be important to review this information in deciding on the appropriate balance of incentives within the scheme.

Targets, incentive rates and financial exposure to the incentive scheme

4.18. The work on comparing quality of supply performance has been used to set indicative targets for each DNO for 2010 and 2020. The DNOs are now in the process of preparing information, as part of the forecast BPQ (see Chapter 6 for details) on the work and costs needed to meet these targets. The DNOs have also been given the option of presenting information based on their own view of appropriate quality of supply targets.

4.19. The next step in developing appropriate quality of supply targets will be to consider the information that DNOs submit. This will help to identify whether the indicative targets and the companies' alternative scenarios are realistic. The final step will be to combine this information with the results of the second phase of the consumer survey work on willingness to pay to determine the appropriate level of targets for each DNO.

4.20. The total exposure of revenue to the incentive scheme should take into account information on consumer's willingness to pay and consider the robustness of this information and the DNOs' targets. It may be the case that the existing overall level of revenue exposed to the scheme should be increased. If any changes are made in this area it will be important to consider any impact on the overall risk profile of the DNOs. The incentive rates for under and-over-performance should also reflect consumers' willingness to pay.

Planned interruptions in final year of the current scheme

4.21. The asymmetric nature of the existing scheme may create perverse incentives to bring forward or defer planned interruptions. It may be appropriate to introduce a change to the incentive scheme for *this price control period* to mitigate this incentive. There are several possible options that could be considered including:

- rolling forward planned interruptions - DNOs could be allowed to roll forward a proportion (eg up to 2 CIs and 3 CMLs) of their planned interruption performance for 2004/5 to the first year of the next price control period. DNOs could be required to decide whether or not they wish to take up this option by, say 31 March 2004, to minimise the scope for any gaming. DNOs could also have the option not to roll forward any planned interruptions (ie for the scheme to operate exactly as at present). An 'interest rate' could be applied to any CIs or CMLs rolled forward;

- excluding planned interruptions from the assessment of performance for 2004/5 - one DNO has suggested excluding planned interruptions from the assessment of performance for 2004/5 under the existing incentive scheme. This would remove the perverse incentive to delay planned interruptions but also the incentive to mitigate the impact of planned interruptions. It would also mean a loosening of the existing targets. On this basis this does not seem to be a viable option.

4.22. It is important to avoid creating perverse incentives and Ofgem welcomes views on whether any adjustments should be made during this price control for planned interruptions. It is likely that any changes would require a modification to the existing IIP licence condition, which Ofgem would only propose for those licensees that wished to make use of such an arrangement.

Network resilience

4.23. The October 2003 document explained that it is important that DNOs have appropriate incentives with respect to network resilience as well as quality of service. Network resilience is a multi-dimensional concept and that is best defined in terms of the:

- the ability of a network to withstand severe weather (ie the number of customer affected for given weather conditions);
- the ability of company to respond to a severe weather event – ie how quickly supplies are restored; and
- how well communications are managed during the event.

4.24. A report has recently been published by the Network Resilience Working Group (NRWG)[15] which was set up following the October 2002 storms to consider the recommendations put forward by British Power International (BPI) in their report to the DTI on companies' storm performance. Ofgem was represented on this group, which was chaired by the DTI, along with the DNOs and energywatch. Ofgem considers that the thoughts set out below are broadly consistent with the NRWG report.

Views of respondents

4.25. Most respondents broadly agreed that network resilience is a key issue, welcomed a longer term view on network management and supported the NRWG's recommendations. A number of DNOs suggested however that defining and measuring appropriate outputs in this area is very difficult, particularly given variability in the networks.

[15] 'Proposals for Improved Storm Performance for Electricity Distribution Networks', December 2003, DTI

4.26. Respondents were generally cautious about the potential for incentives in this area. Some DNOs suggested any mechanism should be output based in line with other incentives under the IIP, although two DNOs suggested that Ofgem should consider an input based incentive scheme, for example on vegetation management or storm preparation. Most DNOs argued that any incentive mechanism, irrespective of it being input or output based, should reflect consumers' willingness to pay for improvements in resilience.

Ofgem's further thoughts

Existing incentives relating to network resilience

4.27. The main existing incentives in relation to network resilience are the IIP incentive scheme and the GOSPs. In addition, Ofgem reviews the asset risk management processes and policies of the distribution businesses. DNOs are also subject to wider statutory and licence obligations including the need to operate a safe, economic, and co-ordinated network.

4.28. Under the existing arrangements for the IIP incentive scheme and the GOSPs the impact of exceptional events can be excluded if companies are found to have taken appropriate mitigating actions. In principle this should incentivise companies to take appropriate actions to improve network resilience but in practice the incentive may be weakened because of the backward looking nature of the required assessment of companies' performance. It may be possible to improve incentives in this area.

Improving the ability of the network to withstand severe weather

4.29. The ability of the network to withstand exceptional events is difficult to define and measure robustly because such events occur relatively infrequently and will vary in nature. For example, the impact of high winds will depend on whether trees are in leaf, soil conditions, whether high winds are localised and prevailing wind directions. Further work will be needed to develop appropriate measures before any incentives could be introduced in this area, although there are a number of broad options including:

- understanding and defining the statistical relationship between severe weather, faults and the number of consumers interrupted – at least two companies have made useful progress in considering the statistical relationships between wind speeds, the number of faults and the impact on consumers. Ofgem intends to review this work in more detail and undertake further analysis to define these statistical relationships for all of the DNOs. Once the historic relationship has been defined it may be possible to measure improvements or deterioration in the ability of the network to withstand severe weather through changes to these statistical relationships;

- an input based approach - if it proves impractical to develop output measures and incentives covering networks' ability to withstand severe weather an alternative could be to adopt a more input-based approach. There are several main drivers of the ability of the network to withstand severe weather including:

    - line construction (such as whether they are underground or overhead and specification of the lines);

    - tree management (for example whether trees are cleared within falling distance and whether branches are appropriately trimmed);

    - maintenance of lines to appropriate standards; and

    - automation of equipment and sectionalisation of circuits.

    However, this would represent a significant change of direction from output based towards more intrusive regulation and Ofgem is not convinced that this is appropriate. Any respondents in favour of this approach are requested to specify which measures they would propose, to explain how improvements in these measures represents value for money for consumers, and how regulatory arrangements could continue to promote innovative and flexible responses to meeting consumers' requirements; and

- removing exclusions - Another alternative would be to include the number of interruptions relating to most or all exceptional events within the IIP. This would significantly strengthen incentives for network resilience although if combined with a fairly low cap on overall exposure, may weaken annual performance incentives. For example, if a DNO experienced a severe event early in the reporting year which took its performance to the exposure cap under the incentive scheme, there would be a reduced incentive to improve performance for the rest of the year. This could be addressed by applying a reduced weighting to performance during exceptional events and or by increasing the cap on financial exposure.

Ability of a company to respond to a severe weather event

4.30. The response to a severe weather event in terms of restoration of consumers' supplies depends largely on short-term operational decisions. The interim arrangements for storm payments are a first step towards introducing incentives in this area. There are several policy options for strengthening incentives on restoration following exceptional events including:

- financial incentives related to a restoration time profile - each company could be set restoration targets for events within a certain range of severity (defined in a similar way to the interim arrangements for storm payments). For example, targets could be set for the number of consumers (or customer interruptions) restored within 6, 12, 24, 48 and 72 hours. Financial penalties could be imposed on companies that fail to meet the targets and financial rewards provided to those that beat the targets. Alternatively, targets could be set for the times by which certain percentiles of consumers are restored;

- ex-post performance assessment – one DNO has proposed an alternative ex-post mechanism for assessing companies' performance in response to exceptional events. Performance could be judged by technical consultants based on a number of criteria such as:

    - timely mobilisation of resources;

    - management of fault repairs; and

    - effectiveness of IT systems.

This approach would be similar to the approach used under the existing quality of service incentive scheme in assessing whether an event should be excluded. In the case of the October storms it was possible to make comparisons across companies which highlighted the weaknesses of the worst performers. However, for many events there will only be one or two companies affected, which would mean it would be difficult to judge companies' performance on a robust basis; and

- removing exclusions (as above).

Management of communications during an event

4.31. The results of the first phase of the consumer survey work have highlighted the importance of good communication with consumers during an event. Consumers expect to receive accurate information on when they will be restored and also to receive regular and up-to-date progress reports.

4.32. There are a number of options for incentivising communications following an exceptional event:

- allowing no exclusions from the general telephony incentives - in general consumers expect the same quality of telephony service and information from their distribution business following an exceptional event as any in other circumstances. The main difference for the company is that it is likely to be experiencing much higher levels of calls. It is important that companies have appropriate telephony systems in place that can handle such events including appropriate numbers of call handling staff and messaging systems. The October 2002 storms illustrated that some companies had appropriate telephony systems in place but a number of other companies' systems were not sufficiently robust. Including exceptional events with the strengthened annual incentives for telephony (see below) should provide appropriate incentives for companies to provide a good level of telephony service to consumers;

- ex-post performance assessment – one DNO has suggested that performance during an exceptional event could be assessed on the effectiveness of call handling, communication with consumers, energywatch and Ofgem. Companies would be scored against the selected criteria and good performers rewarded and poor performers penalised. This approach would have similar practical difficulties as the ex-post approach to assessing companies' performance in restoring supply.

Incentives for telephone response

4.33. Under the existing IIP incentive scheme DNOs are rewarded or penalised by up to 0.125 per cent of their annual revenue depending on the relative quality of telephone response they provide to consumers who contact the company and speak to a telephone operator. Companies' performance is assessed through a monthly consumer survey that is undertaken by Ofgem.

4.34. Ofgem also monitors the speed of telephone response provided by DNOs but this is not subject to financial incentives during this price control period due to the quality of information that was available when the incentive scheme was introduced in April 2002. In November 2003, the RIGs were amended to require DNOs to measure and report telephony statistics on a revised basis. This should improve the robustness and level of comparability that DNOs provide on this output which means it could be subject to some form of financial incentive in the next price control period.

4.35. This section sets out Ofgem's further thoughts on the incentives that DNOs may require for both the quality and speed of telephone response and the issues that will need to be considered.

Views of respondents

4.36. There was some concern with regard to the form of the existing quality of telephone response incentive. One DNO suggests that if performance under the survey converges toward a narrow band, the results could become highly volatile. It was also suggested that incentives for telephony should not encourage inefficient investment for which there is little willingness to pay.

Ofgem's further thoughts

4.37. There are a number of issues to consider in relation to the incentives provided to DNOs for telephone response:

- **scope of consumer survey –** DNOs' performance under the survey for both politeness and willingness to help has been relatively high for the period that the survey has been in place. This may suggest that there is little scope for the DNOs to improve performance in this area on an ongoing basis and as such it may be appropriate to consider reducing the financial exposure to these measures although they should continue to be monitored and companies' performance published on a regular basis;

- **form of the incentive under the survey -** if performance across the DNOs has converged and it is reasonable to expect that this will continue then it may be necessary to consider whether a different form of incentive would be appropriate. This could take the form of financial rewards or penalties depending on DNOs' performance against a pre-determined level or target – which could be based on their performance over the existing price control period. This would still require a regular consumer survey, but would mean that performance would be assessed on an absolute rather than relative basis;

- **survey bias** – a number of DNOs have argued that there is inherent bias in the consumer survey because the mechanism does not include recognition of differing customer expectations of the service provided by DNOs. Ofgem intends to undertake additional work in this area to inform incentives for the next price control period;

- **automated messaging** – at present, only calls that are answered by a telephone operator are included in the pool from which the sample for the consumer survey is selected. This may not provide a balanced view of the performance of DNOs particularly those that make greater use of automated telephone response. Ofgem intends to consider whether consumers that receive an automated response should be included in the scope of the survey, including any data protection issues that might arise;

- **incentive for the speed of telephone response** – experience has shown that it is difficult to collect comparable information in this area because of differences in DNOs' telephony systems. As such, Ofgem revised the RIGs for collecting speed of telephone response information earlier this year.

  These differences suggest that if incentives are introduced on the speed of telephone response that they should be based on DNOs' absolute performance. Developing DNO specific targets could include an assumed rate of improvement over the period of the next price control, with DNOs rewarded or penalised depending on their performance against their own targets; and

- **combining quality and speed of telephone response** – an alternative to having separate incentives for the quality and speed of telephone response would be to combine them in some way. This could be achieved by including a question on consumers' satisfaction with the speed of response within the monthly survey.

Environmental outputs

4.38. The first phase of the consumer survey revealed that a significant minority of consumers would be willing to pay more for undergrounding of overhead lines. The business plan questionnaire has requested DNOs to estimate the cost of undergrounding lines, which will allow a more robust assessment of willingness to pay in the second phase of the survey. If this demonstrates sufficient support, Ofgem will consider inclusion of specific undergrounding arrangements in the outputs framework.

4.39. In addition, Ofgem is mindful of its, and the DNOs', broader environmental responsibilities. While in no way wishing to cut across the role of the environmental regulators, Ofgem considers that the price control output framework can fulfil a useful role by beginning to monitor and provide a framework for reporting certain environmental outputs on a consistent basis across DNOs (for example management of SF6, solid waste management, control of pollution from oil filled cables and visual amenity, including heritage and landscape). It would not be Ofgem's intention to apply financial rewards or penalties to these measures as part of the next price control period.

Other issues

4.40. As explained in previous consultation documents, there are important advantages in moving to more transparent and predictable incentives which rely less on subjective ex post assessments. However, Ofgem is also very aware that focusing on a narrow range of measurable outputs brings its own risks. It is therefore important to consider whether any other measures are necessary to encourage DNOs to provide appropriate levels of quality of service to consumers. Views are invited on possible approaches in this area.

Views invited

4.41. Views are invited on any of the issues raised in this Chapter and in particular on:

- the options for revising the GOSPs;
- the development of the outputs framework and quality of service incentive scheme;
- the approach to network resilience;
- revising the telephony incentives; and
- introducing environmental outputs reporting.

5. Distributed generation

Introduction

5.1. The July 2003 document explained that the government has put in place specific targets for the amount of energy to be supplied by renewable generation and the capacity of combined heat and power (CHP) to be installed by 2010. The document outlined possible ways in which the regulatory framework could be developed to accommodate a significant increase in the amount of generation connected directly to the distribution networks.

5.2. This Chapter sets out Ofgem's further thinking in this area including the work that has been undertaken by Ofgem's consultants, Mott MacDonald and British Power International (MM-BPI) on the costs of connecting distributed generation. All figures set out in this Chapter, including those for the incentive rates, are subject to further analysis of the cost projections.

5.3. This Chapter also sets out Ofgem's further thoughts on Registered Power Zones and Innovation Funding which were the subject of a related consultation published at the same time as the July 2003 document.[16] Further evidence and analysis is now needed to allow Ofgem to decide whether or not to introduce these arrangements and to allow the preparation of Regulatory Impact Assessments.

Review of DNO information on distributed generation

5.4. MM-BPI has focused on assessing the cost information on distributed generation that the DNOs submitted to Ofgem in their distributed generation business plan questionnaires (DG-BPQ) in September 2003. This section sets out a summary of MM-BPI's key findings – Ofgem's intention is to publish a more detailed version in due course. As part of their work MM-BPI also visited each DNO to discuss their DG-BPQ submissions in more detail.

[16] 'Innovation and Registered Power Zones – discussion paper', July 2003

Assessment of cost and other information

5.5. MM-BPI consider that the information provided by DNOs was generally to a high standard although a number of inconsistencies were identified during the analysis and DNO visits. In particular the project specific information provided by DNOs varied due to the different approaches adopted by companies in forecasting future costs in relation to distributed generation.

5.6. MM-BPI also identified a number of differences in relation to connection design policy adopted by DNOs which impacts on the level of costs reported by companies.

5.7. In terms of information provided by DNOs on the shared costs of connection it was clear that these are highly variable across and within DNOs, driven largely by network capacity in the locality of the individual project. Whilst MM-BPI were able to identify some trends on the key cost drivers these were not strong enough to enable any meaningful bottom-up analysis of historic or future connection costs across all companies.

5.8. MM-BPI conclude that the requirement for reinforcement work in response to distributed generation is expected to increase considerably in the next price control period due to increased penetration of distributed generation and, specifically, local clustering of projects. Reinforcement is driven by a number of factors including fault level, voltage control and particularly to increase the thermal capability of systems.

5.9. A number of DNOs included significant costs for strategic investment in their networks in their DG-BPQ returns. It is envisaged that this investment would take place ahead of distributed generation development in order to realise the full potential in areas with high levels of natural resource and inadequate network infrastructure.

Incentive framework for distributed generation

5.10. The October Update confirmed that Ofgem intends to introduce an incentive framework for DNOs in relation to the connection of distributed generation, the broad characteristics of which were that:

- the costs incurred by the DNOs to provide network access to distributed generation would be given a partial pass-through treatment; and
- the DNOs would be given a further supplementary £/MW revenue driver (or incentive rate) to incentivise the connection of distributed generation to the network.

5.11. This objectives of the 'hybrid' incentive scheme are designed to:

- encourage DNOs to undertake the investment required to facilitate distributed generation connections (and generally be proactive and positive in responding to connection requests); and
- encourage them to invest efficiently and economically.

5.12. This section sets out Ofgem's further thoughts in this area including initial values for the proportion of pass-through and the incentive rate.

Views of respondents

5.13. Most of the DNOs who commented said that the data demonstrated significant variation and uncertainty in the growth of distributed generation and associated network costs. Other respondents encouraged Ofgem to make further publication of data and analysis in the future and pointed out that DNOs' forecasts need independent verification and, where possible, benchmarking on individual components.

5.14. Respondents commented on various aspects of the proposed hybrid mechanism:

- on the general framework, the majority of the comments were in broad support of the proposed hybrid mechanism. Most of the others found the mechanism suitable for application on at least some of the costs relating to distributed generation. Three of the eight DNO respondents expressed preferences for different arrangements: two preferred an arrangement based on forecasting the level of capex required for distributed generation (as for other capex), at least for a "baseline" level of costs; the other preferred the use of £/MW driver(s) together with a logging-up mechanism. Two respondents pointed out that the framework should treat all distributed generation consistently regardless of their sizes and technologies, whereas another argued for incentives only to be applied to high quality CHP and renewable generation plant;

- only the DNO respondents commented on the proportion of costs that should be passed through. Most of them believed that it should be equal or close to 100 per cent, at least for cost elements not controllable by DNOs;

- the respondents considered that the £/MW incentive, as a supplement to the pass-through, had a useful role in encouraging the DNOs to effectively and efficiently facilitate the connection. While some believed that it would be complex to develop multiple £/MW for different voltage levels or generation technology types, another pointed out that a single formula for all DNOs would be unsuitable;

- on the incentive for DNOs to provide network access to distributed generation on an ongoing basis, one respondent strongly supported the introduction of payment for unavailability of network access. Two DNOs opposed the payment scheme due to potentially increased complexity and risks to DNOs and the potential dissatisfaction of the demand customers. One preferred an alternative scheme based on the MWh availability agreed between the DNO and distributed generation. Other DNOs commented on issues that such a scheme needed to resolve, including: alignment with treatment in demand, clear exclusion of low-cost connections chosen by distributed generation, and making allowance in price control for increased costs for the DNOs;

- none of the responses received were supportive of applying the distributed generation arrangements to demand customers. The reasons given against developing similar arrangements for demand included: the need to gain sufficient experience of the distributed generation incentives, unjustified level of complexity, the remaining uncertainty regarding connection charging boundary, and increased regulatory intervention & uncertainty.

Ofgem's further thoughts

5.15. The most appropriate way of achieving a balance between the objectives outlined above is to use some form of hybrid incentive scheme that combines incentives for efficiency with protection against cost uncertainty.

5.16. In Ofgem's view encouraging DNOs to respond positively to distributed generation requires that they:

- on average can earn a return which is more than their allowed cost of capital for other investments – but which is not excessive;
- do not face a significant number of projects which provide very low returns; and
- do not face excessive risks of returns below the cost of capital on the overall investment in generation connections.

5.17. In terms of the incentives towards efficiency, the general capex incentive allows DNOs typically to retain about 40 per cent of any reduction in capex[17]. Given the higher variability that is likely to be associated with distributed generation connections and to encourage DNOs to change behaviour and be proactive (rather than just focusing on cost minimisation), it may be appropriate to allow for a slightly higher pass-through for costs associated with distributed generation and slightly lower strength of incentives – say 20-30 per cent (ie cost pass-through of 70-80 per cent).

5.18. As explained above, MM-BPI have found that the efficient level of connection costs per kW of distributed generation is very variable – both within and across DNOs - and sensitive to local network characteristics. This makes it difficult to generalise about efficiency comparisons between DNOs. MM-BPI have undertaken analysis to establish a link between costs and drivers such as voltage level and type of distributed generation, but this work has not yielded robust conclusions at the overall level – although at a project level it is possible to establish such relationships.

[17] 'Developing Network Monopoly Price Controls: Workstream B - Balancing incentives', March 2003 (www.ofgem.gov.uk)

5.19. In their responses to the DG-BPQ, the DNOs have provided Ofgem with costs for a selection of future projects and projected total costs for future scenarios of distributed generation development in their area. The costs submitted in the DG-BPQ have been grouped into three categories: "sole use", "shared", and "strategic". "Sole use" assets will be charged in full to the distributed generators so the analysis here focuses on "shared" costs for projects and "shared" and "strategic" costs for the portfolio of scenarios provided by the DNOs. The information provided by DNOs shows that, initially at least, many projects can be connected without reinforcement costs (slightly over 50 per cent have £0/kW shared cost), but that a small number of projects are potentially very expensive. The average costs across all specific projects identified by the DNOs is £40/kW.

5.20. Taking overall costs per DNO, including strategic (ie non-project specific costs) as part of the portfolio of costs, the average cost is £44/kW. Some DNO portfolios have costs outside this range, up to £90/kW, and as low as £10/kW, but some of the variation may be due to differences in categorisation of costs or connections policies.

5.21. The tables below provide further details of DNOs projections of the shared costs associated with future distributed generation connections.

Table 5.1: DNO projections of shared costs by percentage of project numbers

% of total number of DG projects	Unit cost less than or equal to
50% (median)	£0/kW
60%	£1/kW
70%	£20/kW
80%	£54/kW
90%	£148/kW
100% (maximum)	£1113/kW

Table 5.2: DNO projections of shared costs by percentage of total capacity

% of total DG capacity	Unit cost less than or equal to
50% (median)	£0/kW
60%	£14/kW
70%	£36/kW
80%	£40/kW
90%	£116/kW
100% (maximum)	£1113/kW

Pass-through

Financial assumptions

5.22. Conversion of capital costs as described above to annual incentive rates requires assumptions about asset lives, cost of capital and operating and maintenance (O&M) costs. From information provided by the DNOs and Ofgem's consultants, it appears that a prudent assumption about the regulatory lives of distributed generation connections would be of the order of 15-20 years. In the following analysis, a life of 15 years has been assumed although Ofgem notes that DNOs have been arguing for a 20 year regulatory life for other, non-distributed generation related capex, and if this were to be adopted there may be advantages in using the same assumption for distributed generation related capex.

5.23. Ofgem has not yet developed estimates of the cost of capital for use in this price control review. For illustrative purposes, this Chapter shows annuatisation based on the cost of capital from the last review of 6.5 per cent real pre-tax. If a different cost of capital is used at this review, or the methodology changed to a post-tax basis as suggested in Chapter 7, the figures set out here may need to be adjusted accordingly. In general, the annual figures set out here have been calculated as annuities[18]. O&M costs are discussed below.

[18] The numbers shown in this Chapter were calculated by using the relevant functions in Microsoft Excel, eg "PMT".

5.24. As explained above, comparison with RPI-X could suggest a pass-through level of 70-80 per cent for costs associated with distributed generation. The percentage pass-through can be converted to an equivalent minimum "guaranteed" rate of return which the distribution company would achieve, even if no generation is connected (ie no revenue is recovered through the £/kW incentive rate). Given that DNOs are unlikely to spend substantial amounts of money on a portfolio of investments if no generators are connecting, this would mean that when considering the DNOs' portfolio of investments, the overall minimum likely return will be higher than the worst case on any individual project – ie because of the additional revenue recovered through the £/kW incentive rate.

5.25. Ofgem's modelling has shown that 80 per cent pass-through is equivalent to a minimum or guaranteed real return of 3.2 per cent on any individual project.

5.26. 70 per cent pass-through is equivalent to a minimum real return of 1.4 per cent. This may encourage (relative to the 80 per cent pass-through) DNOs to delay major strategic reinforcement projects until there is strong confidence in substantial capacity of connections.

5.27. For avoidance of doubt, the costs to be passed through would not include capitalised O&M costs or allocations of general corporate overheads, which would be covered elsewhere. Connection charges paid by generators for the reinforcement or non-contestable element of connection costs would be netted off the partial pass-through prior to conversion to an allowed revenue allowance.

Incentive rate

5.28. The other component of the incentive mechanism is the £/kW incentive rate. As explained above it has not been possible to calibrate the £/kW rate for project characteristics and on this basis Ofgem's work has focused on a uniform national £/kW rate. This has the advantage of simplicity.

5.29. Based on the discussion above, the following table establishes £/kW figures for 70 and 80 per cent pass-through which meet the following criteria:

- for a typical DNO all-in costs of £50/kW, combined with the pass-through element, provides revenues that give an average return of not less than 7.5 per cent; and
- for a reasonably "expensive" project (taken to be £120/kW), where the distributed generation does materialize, provides a return not less than 5 per cent

5.30. The required £/kW/year amounts (on an annuity basis) are:

Table 5.3: £/kW/year amounts (on an annuity basis) for 70 and 80 per cent pass-through

Criteria	**£/kW/year**	
	80 % pass-through	**70 % pass-through**
£50/kW = 7.5 % return	1.4	1.9
£120/kW = 5 % return	1.4	2.6

5.31. The higher of the two figures needs to be taken in each column to satisfy both criteria. Rounding to avoid spurious precision, this might suggest £1.5/kW/year for 80 per cent pass-through and £2.5/kW/year for 70 per cent pass-through.

5.32. Bringing this together, Ofgem's initial view on the possible proportion of pass-though and incentive rate for distributed generation is set out in the table below.

Table 5.4: Ofgem's initial view on the possible proportion of pass-though and incentive rate for distributed generation

	Option A	**Option B**
Pass-through (%)	70	80
Incentive rate (£/kW/year)	2.5	1.5

Operating and maintenance (O&M) costs

5.33. The above figures only cover capital costs. Figures from the DNOs provide a range for O&M costs, generally in the order of 1-2 per cent of capital costs per year. Using the typical DNO portfolio costs of £50/kW, this implies O&M costs of the order of £0.5/kW to £1/kW per year. Adding these O&M cost estimates to the incentive rate would give an aggregate of £2/kW to £3.5/kW per year.

Other issues

5.34. The rest of this section sets out Ofgem's further thoughts on other aspects of the incentive framework:

- incentives for 'strategic investment' – some DNOs have argued that the hybrid mechanism would not provide appropriate incentives to companies to undertake strategic investment (ie investment ahead of realised generation connections) as the potential reward available would not be adequate to cover the risks faced by the DNO. Ofgem considers that the risk associated with a particular investment project should predominantly lie with those that are best able to manage them. It would be difficult for Ofgem to set specific capex allowances for strategic investment as this could expose consumers to significant risk that the investment was not undertaken. An alternative would be to incentivise the DNOs to manage some of the investment risk associated with strategic investment. One way of doing of this would be to increase the incentive rate under the hybrid mechanism (which would be paid as generators actually connect) for investment ahead of realised generation connections. This could provide a greater potential reward to DNOs, subject to connections materialising, recognising the protection provided by passing through 70 to 80 per cent of costs in any event;

- the October document outlined the possibility of providing each DNO with the option, under the hybrid incentive framework, to pick the risk-reward package that it viewed as most appropriate for its business. This could be achieved by providing DNOs with an option to pick for example either a 70 or 80 per cent pass-through (and the respective incentive rate) for all of its distributed generation projects. Once a DNO has chosen it would not be appropriate for it to switch to the alternative option during the next price control period;

- the October document raised the possibility of introducing incentives to DNOs in relation to ongoing network access. Linking such an incentive solely to the percentage of time that the network is available would provide relatively weak incentives – (if the incentive rate is say £2/kW/year then the penalty per hour of unavailability would be £2 divided by 8760 hours, ie virtually zero). It may be possible to provide a somewhat stronger incentive without imposing undue risks on DNO – for example by providing a higher compensation rate of £0.002/kW/per hour, ie about ten times the rate directly converted from the incentive rate, in the above example. As noted previously, it would be open to DNOs and generators to agree variations in these terms. This compensation mechanism needs to be seen in the context of the requirement for compensation provided by the Renewables Directive and as part of the distributed generation incentives. For example, comparisons with the arrangements for demand consumers need to consider the overall package and not just this one element;

- the October document also raised the interaction of the hybrid incentive framework for distributed generation with quality of supply and losses – Ofgem is not minded to make any changes to the incentives and arrangements for quality of service for distributed generation as none of the DNOs indicated that it would have an impact in their business plans. Ofgem is continuing to look at the impact of distributed generation on losses.

Registered Power Zones and Innovation Funding

Background

5.35. The Open Letter of January 2003[19] introduced the concept of Registered Power Zones (RPZ). In July, the "Innovation and Registered Power Zones – Discussion Paper"[20] was published concurrently with the Distribution Price Control Review (DPCR) Initial Consultation document. This Discussion Paper set out Ofgem's further thinking on RPZs and introduced the Innovation Funding Incentive (IFI).

5.36. The consultation period for the Discussion Paper closed on 22 August. A summary of the responses was provided in the October Update document. All of the responses and a more detailed summary have been published on the Ofgem website. The October Update document also gave some indication of Ofgem's further thoughts on the IFI and RPZs but did not offer any new proposals.

5.37. Following the October document, a workshop was held on 7 November. This included a discussion session dedicated to IFI and RPZ and the key points from this discussion have been recorded and will be published on the Ofgem website.

5.38. Ofgem has not reached a final decision on whether to proceed with the IFI and RPZs and wishes to undertake further work on the potential costs and benefits associated with these proposals before making a final decision. To help to take the process forward, the following section briefly summarises the objectives of the IFI and RPZs, provides a summary of the responses received following the October Update, sets out more developed proposals for the IFI and RPZs and highlights the remaining areas where further information is required.

Objectives of the IFI and RPZs

5.39. For clarity it is useful to concisely restate the primary objectives of these two mechanisms:

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[19] Open Letter of January 2003 from Callum McCarthy to the Chief Executive Officers of the Distribution Network Operators.

[20] Published 16 July 2003.

- **Innovation Funding Incentive –** to encourage DNOs to pursue network development R&D activities that deliver benefits to consumers by providing use-it-or-lose-it opex funding up to an agreed level; and

- **Registered Power Zones –** to encourage the demonstration of novel, more cost efficient distributed generation connection and operation strategies by offering returns appropriate to the risks involved.

Views of respondents

Innovation Funding Incentive (IFI)

5.40. There was strong support from respondents for the introduction of the IFI. Only one respondent expressed serious concerns about the incentive. The key issues that respondents commented on included:

- the need for a simpler approach;
- the appropriate pass-through rate for innovation funding; and
- the range of activities that would qualify.

5.41. Several respondents argued for a simpler mechanism. Only one respondent positively supported Ofgem's proposal to have three categories of R&D activities.

5.42. Ofgem initially suggested that the pass-through rate should be in the range 50-75 per cent for categories A and B and 0 per cent for category C. Several respondents argued that 100 per cent pass-through should be allowed to encourage DNOs to positively engage in new R&D and to justify the sharing of the outputs from this work.

5.43. There was also a strong view that category C activities should be fully integrated into the IFI and allowed pass-through funding.

Registered Power Zones (RPZ)

5.44. Consistent with the responses to the Discussion Paper the responses to the October Update demonstrated wide support for RPZs. The comments were also consistent with those from the previous consultation. A simpler mechanism was argued for with fewer restrictions; for example, the 50MW limit is seen as unhelpful.

5.45. One respondent argued that all innovative projects should be rewarded and that incremental improvements should be incentivised as well as discrete schemes. Concerns also remain about the potential impact of having to meet IIP and Guaranteed Standards in RPZs. One respondent suggested that the Balancing and Settlements Code (BSC) and Engineering Recommendation (ER) P2/5 could be relaxed in an RPZ.

5.46. Several DNOs indicated that they were already evaluating potential RPZ projects both on a generic and site specific level. One respondent commented that, while supporting RPZs, they should not be allowed to delay connections.

Ofgem's further thinking - IFI

5.47. The consultation responses demonstrate wide support for the Innovation Funding Incentive. However, Ofgem's decision must be based on consumers' interests and Ofgem's other statutory duties. Respondents should therefore bear this in mind in responding to this document.

5.48. The DTI's latest review of R&D expenditure in the UK[21] shows an average R&D Intensity (R&D expenditure expressed as a percentage of turnover) of 2.5 per cent in 2002-03. By contrast, the equivalent figure for the DNOs appears to be at least an order of magnitude below the UK average. Viewed in the context of increased investment in generation connections and asset renewal it is questionable whether this level of spending is appropriate.

5.49. In the July Discussion Paper it was proposed that an R&D intensity of 0.5 per cent might be of the right order and allowable under the price control. Further information is now required to confirm or re-assess this level. DNOs and other interested parties are requested to set out what R&D activities DNOs would or should undertake, how much these would cost and what the expected benefits would be. This would enable Ofgem to assess the likely take-up of the IFI within

[21] DTI's R&D Scoreboard

the proposed ceiling. Ofgem would further propose that there should be a review of the IFI after the second annual report in Q2-Q3 2007.

5.50. Ofgem has also given further thought to the best way of encouraging efficient use of IFI funding. This could be promoted in two ways:

- annual open reporting of IFI activities by the DNOs; and
- selective audit of IFI projects as part of Ofgem's periodic Asset Risk Management surveys.

5.51. Ofgem would specify at high level a framework for the annual report. By means of this report, each DNO would provide details of the projects being funded by the IFI, the potential benefits resulting from the work and the costs involved. These reports would be public domain documents.

5.52. Regarding the proportion of IFI funding to be passed through to consumers, Ofgem has noted the comments made. Ofgem had previously proposed that the pass through element should be in a range between 0-75 per cent depending on the nature of the research. Many respondents commented that this was a complex system and that even 75 per cent would not be high enough to encourage the DNOs to act, particularly when they are also being encouraged to share the benefits of their IFI activities with other parties. It is important that the correct balance should be achieved here. Ofgem is persuaded of the view that all three categories of research (A,B and C from the July paper) should be treated in the same way. If IFI is to be implemented, Ofgem would also give further consideration to the case for higher pass through levels. One option would be for the pass-through level to be set at 90 per cent for the first year reducing in equal steps to 70 per cent for the final year of the price control period. This approach would have the merit of rewarding the early movers. Respondents to this consultation, particularly DNOs, are asked to consider this proposal and offer their views. If higher levels of pass-through are proposed then a detailed justification should be provided.

5.53. Ofgem sees potential benefit in DNOs coordinating their R&D activities. Ofgem is aware that there are already programmes in place that achieve this. Ofgem would encourage further cooperation of this kind to avoid duplication of effort, improve overall efficiency and assist in the widespread adoption of successful projects.

5.54. The combination of the proposals set out here is intended to deliver a balanced approach to innovation funding that empowers the companies to make their own decisions as to where they direct their resources. Accountability would primarily be achieved by open reporting backed up by selective audit by Ofgem.

5.55. As R&D activities are at such a low level currently, there is a risk that good management practice in this area may not be a well developed capability in all DNOs. This issue was discussed in the July Discussion Paper. Ofgem therefore believes that DNOs should consider this and, if a weakness is identified, take the actions necessary to address it. This may well be most efficiently achieved by cooperation between the companies, perhaps by developing an industry good practice guide to innovation management. Ofgem intends to pursue this idea further, initially through the Distributed Generation Coordinating Group.

5.56. Regarding intellectual property rights (IPR), Ofgem has concluded that it should not attempt to impose rules regarding the management of IPR resulting from IFI activities.

Ofgem's further thinking – RPZ

5.57. A number of important questions remain to be resolved regarding RPZs. As Ofgem reported in the October Update, although there is wide support for RPZs in principle, there were many comments about the structure set out in the July Discussion Paper. In particular, many have argued for a simplified structure with less restrictions and the selective relaxation of standards in RPZs.

5.58. It is important to keep in mind the primary objective of RPZs. This would be to develop more cost efficient ways of connecting and operating distributed generation. RPZs could be able to help to meet this objective by encouraging the demonstration of novel network designs, new equipment and operating techniques. Successful demonstrations can lead to widespread adoption, reducing costs and potentially improving performance.

5.59. Ofgem is of the opinion that many of the key elements of the July proposals should remain in place. However, two fundamental issues need to be resolved before it would be possible to proceed with the RPZ initiative:

- how RPZ status is granted; and
- setting an appropriate financial incentive to balance the risks of innovation.

Granting RPZ status

5.60. In the July Discussion Paper Ofgem proposed that it would register an RPZ proposal in one of three categories – Gold, Silver or Bronze – subject to an assessment against agreed criteria. Ofgem accepts that this approach would introduce a level of complexity and require it to make judgements between proposals. These two issues therefore require further examination.

5.61. In the October Update Ofgem raised the issue of quality and quantity in an RPZ context. Ofgem would therefore like to receive views on whether RPZs should concentrate on connection schemes with a high level of innovation, effectively only Gold schemes, or whether the original three categories should be maintained with different incentive levels.

5.62. In order to ensure independence and a high level of objectivity in the RPZ selection process Ofgem is of the view that a useful way forward might be to establish an independent expert advisory panel that would consider all applications for RPZ registration. This panel could call for proposals, perhaps twice a year, and then meet to consider them in a structured way. The panel would advise Ofgem as to which projects should be registered but the decision to register a project would remain with Ofgem. Ofgem would like to receive views on this proposal and responses to the following questions:

- which bodies might be invited to be represented on the advisory panel recognising the need for both competence and independence?
- what terms of reference might be considered of particular importance for the panel?

- what other RPZ selection options could be considered?
- what are the most important criteria to be considered in selecting RPZs?

5.63. It is Ofgem's view that the most important selection criterion should be the potential benefit that an RPZ project would deliver into the future. A bespoke solution that offers little prospect of widespread adoption would clearly have less value than one that can be used in many situations. Ofgem would like to receive other views here.

The incentive level

5.64. Although Ofgem sought views on this issue previously very few were offered. This therefore remains as an outstanding issue of importance.

5.65. Considering this in the context of the distributed generation incentive described earlier in this chapter, it would seem appropriate that, for RPZs that demonstrate genuine technical innovation, defined previously as Gold projects, the £/MW element of the hybrid incentive should be doubled and that this should apply for a period of five years from commissioning. At the end of this period the £/MW element would return to the base level of the distributed generation incentive. This is shown in the table below.

Table 5.5: Illustration of potential RPZ incentive rates

Pass-through	Base DG Incentive	**RPZ Incentive (Gold)**	
	Years 1-15	**Years 1-5**	**Years 6-15**
70%	£2.5/kW	**£5.0/kW**	**£2.5/kW**
80%	£1.5/kW	**£3.0/kW**	**£1.5/kW**

5.66. The structure of this RPZ incentive should reinforce the drivers behind the base distributed generation incentive. It would reward DNOs for using innovation to reduce connection costs. Ofgem believes that its original proposals, which proposed lower incentives for Silver and Bronze categories, still have merit. However, Ofgem remains open to other ideas and would like to receive comments on the following points:

- ♦ should the RPZ incentive be fixed or variable (reflecting the technical and commercial risks of different proposals)?

- ♦ if a fixed incentive is adopted what should it be or alternatively what range should be adopted if the incentive is variable?

5.67. Ofgem would particularly welcome comments from generators (and their representatives), who are expected to bear the costs of RPZs. These views are likely to be particularly influential in deciding whether to implement RPZs or not.

Additional RPZ issues

5.68. Many respondents to the July Discussion Paper expressed concern about the MW limits and scheme number limits originally proposed. Ofgem understands this concern. However, in Ofgem's view, there should be a cap on the costs of the RPZ mechanism. Its initial proposal is that the incentive for RPZs should be set at a maximum of £0.5m total cost per year per DNO.

5.69. Comments were also made as to the compatibility of pursuing innovation and meeting all industry standards and be subject to potential IIP and Guaranteed Standards penalties. The issue here is essentially one of protecting consumers and as this is Ofgem's primary responsibility it is clearly needs careful evaluation. It could be addressed in the registration process. As part of the information required for an application, any necessary relaxations could be identified together with the likely risks to consumers and contingency measures to manage under performance. Assessment of the proposal could then take account of the risks involved as part of the decision process. Any relaxations would only be considered in exceptional cases where they could be fully justified and where measures were in place to protect consumers' quality of supply.

5.70. Consistent with Ofgem's suggested policy for the IFI, Ofgem would not attempt to impose rules regarding the management of IPR relating to RPZs but Ofgem would require open reporting of RPZ projects. The potential for widespread adoption should be one of the selection criteria.

Views invited

5.71. Views are invited on any of the issues raised in this Chapter and in particular:

- the approach for assessing and the actual level of the initial values for both the pass-through and the incentive rate under the incentive framework for distributed generation;
- whether incentives should be provided for strategic investment, and if so, the best way of doing so;
- whether DNOs should be given the option to choose the level of pass-through (and associated incentive rate) proposed by Ofgem;
- the provision of incentives for ongoing network access;
- the appropriateness of the IFI and RPZ initiatives, including whether the objectives are sound; and
- whether the IFI and RPZ initiatives will be cost-effective for consumers.

6. Assessing costs

Introduction

6.1. This chapter provides an update on Ofgem's work in assessing the DNOs costs and comments, specifically on:

- Ofgem's overall approach;
- the key issue of cost normalisation;
- the four components of Ofgem's analysis, namely:
    - review of actual costs – setting out a brief summary of the sector-wide issues; further explanation and analysis on a company by company basis is set out in the Data and cost commentary appendix;
    - review of forecast costs – where submissions are due from the DNOs in December and January;
    - bottom-up modelling – initial thoughts on the cost drivers to be included in the model; and
    - top-down analysis – discussion of the benchmarking models that are being developed and the study (by CEPA) of productivity growth.
- the approach to implementing policy statements on mergers that occurred prior to June 2002; and
- issues relating to updating the Regulatory Asset Value (RAV) for expenditure during the current price control period.

Overall approach to assessing costs

6.2. Ofgem set out its proposed approach to assessing DNO costs in DPCR4 in the July and October consultation papers.

Views of respondents

Overall approach to cost assessment

6.3. Respondents to Ofgem's October paper supported the use of a range of techniques for assessing costs and efficiency. Some DNOs reiterated the importance of transparency and welcomed the level of transparency shown by Ofgem to date. One DNO welcomed the commitment not to combine the approaches in an arbitrary and predetermined manner but felt this was weakened by Ofgem's need to exercise a degree of pragmatism. Another DNO welcomed Ofgem's commitment to judgement, pragmatism and transparency.

Information disclosure

6.4. Some DNOs discussed the information published in the October document. One DNO commented that the data was misleading as it had not been audited or standardised and urged Ofgem only to publish consistent information. One respondent commented that an inadequate amount of data was published to assess future DNO costs and was concerned that DNOs were sharing information amongst themselves which is not in the public domain.

Ofgem's further thoughts and progress to date

6.5. Ofgem welcomes the substantial degree of support for the proposed approach to cost assessment. Delivery of a robust assessment of costs will be facilitated by a transparent process. Ofgem has responded to this challenge and is trying to improve the transparency of the DPCR4 process by publishing consultants' reports, a draft of the financial model, holding price control workshops and holding regular working groups with the DNOs.

6.6. Ofgem have also recognised that in order for a review to be transparent it is important that the public have access to detailed information. It is of some concern to Ofgem that, although DNOs in responses to consultation papers support a transparent process, in practice several DNOs have objected on almost every occasion that Ofgem has proposed to publish financial information.

Cost normalisation

6.7. Comparison of the relative performance and efficiency of the DNOs depends on the quality of the data used, and it is important that the costs are, as far as possible, stated on the same basis. Ofgem is mainly focusing on 2003/03 information but is also looking at the information for 2000/01 and 2001/02.

Views of respondents

6.8. Most of the DNOs stressed the importance of having fully normalised data on which to base the comparative analysis. One DNO said it was important to recognise differences in accounting polices, operating environments, performance on quality and network risk profiles. Another DNO highlighted the importance of normalising for atypical costs and capitalisation policies which it believed accounted for the majority of the variation between the DNOs. Another DNO noted that care should be taken not to double count the removal of atypical items. One DNO thought normalisation of capitalisation was not complicated as it would only involve consideration of tree cutting, faults and overheads.

6.9. Other suggested items for normalisation included insurance costs (with relation to storm costs), regional factors, rural/urban customer mix, proportion of overhead lines, climate, lightning, tree coverage, engineering policies and construction standards.

Ofgem's further thoughts and progress to date

6.10. For DPCR4, Ofgem is undertaking substantial work to understand and, where possible, to normalise the cost data provided by the DNOs. This is proving to be a particularly challenging exercise.

6.11. As well as looking at total costs, Ofgem will look at separate categories of costs such as controllable costs, total fault costs and non-load related capex. Controllable costs exclude items such as depreciation, network rates, Ofgem licence fees, de-minimis costs and non-trading rechargeables. Fault costs are subject to a separate analysis to reduce the potential distortions introduced by the differences in accounting treatment (eg the extent to which these costs are capitalised) between DNOs.

6.12. Costs submitted by DNOs in their BPQs are not directly comparable because of differing accounting treatments, overhead allocations, outsourcing and atypical items. To produce comparable data to use as the basis for the efficiency analysis Ofgem needs to make normalisation adjustments to ensure consistent accounting treatments are applied and to remove any atypical items (which are non-recurring or unusual and which distort the level of costs in a particular year).

6.13. Ofgem will report further in the March document about its progress on cost normalisation.

Review of actual costs

Overview

6.14. Historic Business Plan Questionnaires (HBPQs) were submitted by the DNOs in September 2003 after a review by Ofgem most DNOs were requested to make resubmissions which complied with the Regulatory Accounting Guidelines as originally requested. This revised data was submitted in November 2003 and is now being analysed.

6.15. Work has commenced on assessing DNOs' actual costs in the HBPQs, this includes the assessment of historic performance and the DNOs' efficiency initiatives. Ofgem has made visits to each DNO to discuss their HBPQ submissions and historic performance. The objective of these visits was to gain an improved understanding of underlying cost drivers, each DNO's detailed accounting policies, overhead cost allocations, group recharges and atypical items affecting cost levels.

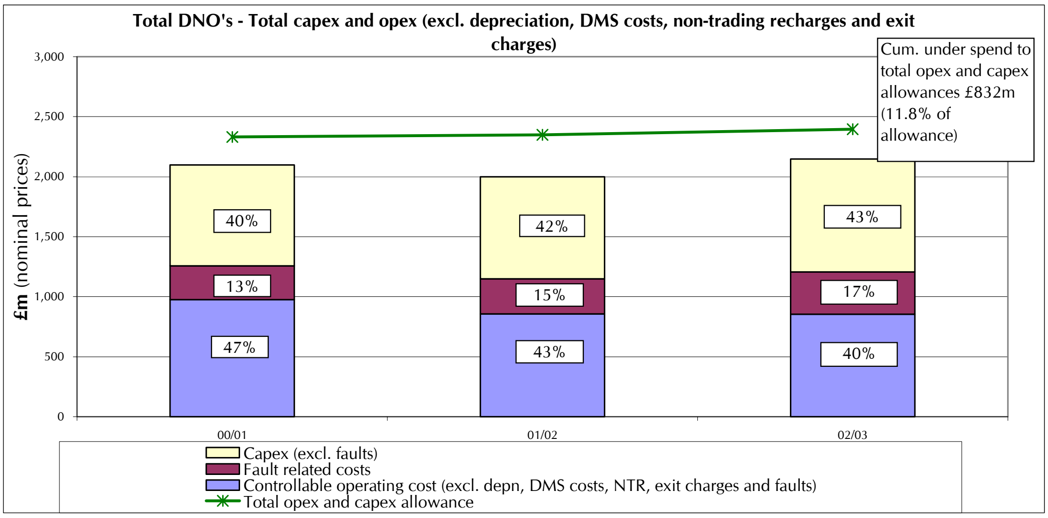
6.16. This work is still proceeding and consequently this paper does not contain normalised cost data for DNOs. Ofgem is still assessing the normalisation adjustments that will be required, in addition to removing atypical items, to achieve comparability and provide a base data set to be used for benchmarking and efficiency analysis.

Summary of Data and cost commentary appendix

6.17. Detailed financial data and commentary on the actual performance of each DNO has been included in a separate appendix to this document[22]. The data relating to DPCR4 controllable operating costs and total fault costs has also been included but is not normalised and gives an initial view of submitted controllable costs excluding atypical items. It should be noted that these costs are not on a comparable basis across DNOs as not all relevant adjustments have yet been made.

6.18. While DNOs vary in their classification of costs between opex and capex and record fault costs differently, in aggregate DNOs are operating at a level of combined opex and capex which is below the level of their total DPCR3 allowances for opex and capex. The aggregate cost performance for the DNOs in total is set out on the following graph.

Figure 6.1: Aggregate cost performance for DNOs in total during DPCR3



6.19. Most DNOs are showing aggregate savings against their allowances. DNOs have reduced their costs significantly from the start of the DPCR3 price control. The overall saving for the sector against the total DPCR3 allowances for opex and capex is approximately £832m (11.8 per cent of the allowance). DNOs have provided information on cost savings and these are included in the commentaries in the Data and cost commentary appendix.

[22] 'Data and cost commentary appendix', December 2003.

6.20. Cost reductions in the sector have been realised from merger related synergies, operational efficiency improvements and from developing asset management policies which are based on risk and condition assessment rather than frequency based maintenance and age related replacement. This has lead to leaner operations but has also resulted in asset maintenance intervals and lives being extended.

Asset management

6.21. Asset management policies have been introduced by the DNOs that require asset risk assessments to be carried out to consider their impact on business drivers such as network performance, safety, environmental performance and finance. These assessments are a primary input to the decision making process. In some instances, the assessment is based on analysis to determine the relative criticality of asset categories and in other cases, asset health indices have been developed. Condition and risk assessments prioritise replacement and maintenance activity, where the effect on risk is assessed as being manageable, asset lives and maintenance intervals have been extended.

Operational efficiency

6.22. Operational efficiency improvements have seen reductions in the layers of management within DNOs, a rationalisation and reduction in the number of sites, local depots and offices and more flexible working practices for field staff.

Capex

6.23. Capex reductions have been made possible by leaner organisational structures and improved procurement policies, rescoping and rephasing of projects to achieve lower cost solutions, and deferral of projects based on better asset condition information. In some instances lower load growth or reductions in customer driven expenditure have also resulted in significant savings.

Organisational changes

6.24. Organisational changes in the sector have seen the formation of service companies, in common ownership with the DNOs and providing them with engineering, asset management and a variety of other corporate support functions to varying degrees across the sector.

6.25. The service companies have a trading relationship with the DNOs and charge for the services provided. DNOs state that, by structuring operations and relationships in this way, efficiencies can be more easily achieved and costs in the DNO reduced, particularly when there is more than one DNO in the same group as the service company.

6.26. In a number of cases, the service companies charge a margin to the DNO for their services and the DNOs claim that these service company charges, including a margin where charged, are at or below market rates. Largely the DNOs have not carried out an open tendering process prior to signing contacts or service level agreements with these related parties and the majority of these service providers have minimal, if any, external business. Ofgem is considering how related party margins are to be treated in DPCR4, but generally expects to consider underlying costs (ie excluding margins).

Fixed Operating costs

6.27. The DNOs have been reasonably consistent in their views on the level of fixed operating costs provided to Ofgem in the HBPQs. The DNOs used different approaches to assess the level of fixed operating costs but most estimates fell within a range of £14-22m.

Review of forecast costs

6.28. Ofgem hopes to place more reliance on the DNOs' own forecasts than in previous price controls. However this will only be the case if the DNOs provide timely, sufficient and robust data and commentary to Ofgem. DNOs are submitting their Forecast Business Plan Questionnaires (FBPQs) during December 2003 and January 2004. On 19 December 2003 they are due to submit base case forecasts for the period from April 2003 to March 2020, on 16

January 2004 scenarios and sensitivities should be submitted and the DNOs own alternative scenario is due to be submitted by 30 January 2004.

6.29. Ofgem will be reviewing these forecasts and have arranged to visit DNOs in February 2004 to discuss them and will provide an initial report on these forecasts in the March paper.

Bottom up modelling

6.30. Bottom up modelling involves the construction of a model which analyses the amount of input required and the unit cost of providing that input. Ofgem is analysing the HBPQs and taking advice from PB Power to determine the inputs to be used in these models. Some of the model inputs being considered are:

- load related operational capital expenditure:
  - forecast load growth;
  - unit cost per unit of extra load.
- non load related operational capital expenditure:
  - age profiles;
  - expected life profiles (including effect of condition monitoring); and
  - unit costs of the various assets.
- fault costs:
  - fault rates; and
  - unit cost per fault.
- other repairs and maintenance costs:
  - numbers of towers;
  - length of line that requires tree cutting; and
  - unit costs of tower painting and tree cutting.

6.31. In addition, Ofgem will look at efficiency of the operational and organisational aspects of the DNOs eg, IT, procurement, operational and organisational structure etc. Ofgem will address the above issues in more detail in the March document.

Top down analysis

6.32. Ofgem appointed consultants Cambridge Economics Policy Associates (CEPA) to produce a report identifying issues that Ofgem could consider in developing its approach to benchmarking in DPCR4. CEPA's report was published on Ofgem's website on 30 September 2003. Ofgem discussed the main findings of CEPA's report in the October document.

Views of respondents (mainly to CEPA's benchmarking report)

General

6.33. Most of the respondents who commented on benchmarking welcomed CEPA's report as an opportunity to discuss the key issues around the use of benchmarking. A number of DNOs queried the quality of data CEPA used in the analysis in the report and those DNOs suggested that as a result some of CEPA's findings would have to be treated with caution or disregarded. Many respondents stressed that having fully normalised data would be critical to achieving a robust benchmarking analysis

Benchmarking techniques

6.34. There was general support for Ofgem's intention to use a number of benchmarking techniques and benchmarking a number of cost categories. One DNO said that the greater amount of analysis may not produce unequivocal, statistically more robust findings but it would inform the discussion on cost assessment. Two DNOs were concerned that transparency might diminish if a large number of techniques were used.

6.35. Most respondents said that they supported the use of Data Envelopment Analysis (DEA) although some DNOs were not supportive. A number of DNOs stated that DEA did not offer test statistics and therefore could not pick up defects in the data it used though one DNO said if a large amount of data was available a simulation technique called “bootstrapping” could be used to test the statistical robustness of the DEA frontier. One DNO thought that the sample was too small for regression to provide any statistical verification for DEA. One DNO said as it was possible to hypothesis test the error term in Stochastic Frontier Analysis (SFA) and it would be possible to achieve a robust analysis with the technique. The same DNO added that SFA could be used with two or three years of DNO cost data.

6.36. A number of DNOs commented on Ofgem's approach to regression analysis. In general the DNOs agreed that a statistical test should be used to select cost drivers, functional forms and overall models. One DNO said that no restriction should be placed on the intercept term. On the issue of returns to scale one DNO felt that regression using Ordinary Least Squares (OLS) with scale variables should capture the effect of scale.

6.37. All of the DNOs which commented favoured using input orientated models. One DNO said that the fact that different outputs and inputs had been chosen by regulators which used DEA, demonstrated the randomness of specifying DEA models.

Frontier or average benchmark

6.38. All the DNOs favoured using an average benchmark to set efficiency targets. Many of the DNOs felt the prospect of outperforming the average provided a strong incentive to improve efficiency and receive above average rates of return. In contrast the DNOs suggested that using a frontier benchmark imposed larger efficiency targets on the DNOs with little incentive to achieve them and possibly increases network risk. One DNO cited surveys of banking and farming sectors which suggested that the average firms were 80-90 per cent behind the frontier performers. On this basis the DNOs suggested that the average benchmark approach was more consistent with the competitive market.

Cost drivers

6.39. On the subject of cost drivers many of the DNOs commented on CEPA's analysis and selection procedure. Two DNOs disputed CEPA's process for selecting cost drivers because it was done on the basis of correlation tests with other cost drivers and then regression against efficiency scores. One of the DNOs said it would have been easier and more effective to select cost drivers on the basis of univariate regressions with the cost being benchmarked. Another DNO criticised CEPA for assessing cost drivers in isolation from the composite variable as the two together may have had greater explanatory power.

6.40. A number of DNOs criticised CEPA's decision to drop customer numbers from the composite variable on the basis of its high correlation with units distributed and some of the DNOs disagreed with CEPA's rationale that the efficacy of customer numbers was diminished by the separation of metering. One DNO cited analysis of US data that suggested that customer numbers remained a highly dominant cost driver even when customer related expenses were excluded.

6.41. One DNO suggested that the principal driver of network costs was network assets in terms of amount, nature and operating environment. This DNO thought network length was the best proxy for assets and therefore the most relevant of the variables in the composite scale variable.

Total cost analysis

6.42. A number of respondents commented on how total costs could be calculated for the purposes of benchmarking. Almost all of them agreed that the definition of capital consumption was crucial. Some DNOs criticised CEPA's use of RAV in its definition of total cost on the basis that the RAV was distorted by previous regulatory judgements. One DNO believed that the RAV would reflect the underlying asset base and could be used to develop a capital stock measure. One respondent believed RAV could be used providing common depreciation profiles were applied across the DNOs Another DNO stated it was important for any measure of total cost to reflect the different positions of the DNO in their investment cycle.

International and Panel Data

6.43. Almost all respondents who commented on the issue thought that there was insufficient time and resources to incorporate analysis of international DNOs into DPCR4. A number of DNOs thought it would be worthwhile to work on the normalisation of such data for use in DPCR 5. Most respondents agreed that panel data would strengthen the benchmarking analysis but didn't think that reliable data could be provided for use in DPCR4.

Ofgem's further thoughts

6.44. The purpose of CEPA's report was to initiate discussion on Ofgem's approach to benchmarking in this price review. CEPA have raised a number of issues for consideration. Ofgem will consider these issues together with the views of respondents and will undertake its own analysis before deciding on its approach to benchmarking and will provide a further update of its thinking in the March paper. The issues involved are discussed below.

Key principles

6.45. The benchmarking analysis will be undertaken using the following key principles:

- **comparability** - the analysis must be based, as far as possible, on comparable input data for all the DNOs, normalised as discussed above;
- **explanatory -** the benchmarking models must be intuitive and based on factors that actually influence DNOs' costs rather than an abstract combination of variables that happen to provide the best fit to the data. The models must be able to explain DNOs costs over time not just for a particular year. It is equally important that variables are not readily discarded on the basis of a single test; and
- **consistency -** the empirical results of the benchmarking analysis must be comparable between the different techniques used and against the other areas of the cost assessment. If there are differences the reasons behind them should be understood before the benchmarking results can be used in the overall assessment of costs.

Cost categories

6.46. Ofgem's work on benchmarking will consider various categories of costs, including:

- **controllable operating costs** – this is analogous to the base opex benchmarked in DPCR3 except that fault costs are removed;
- **fault costs** – this is fault costs included in opex plus any capitalised fault costs;
- **non load related capital expenditure** – much of this expenditure relates to the replacement of network assets; and
- **total controllable costs** – essentially this is controllable opex, faults plus a measure of controllable capex. There are a number of options for calculating controllable capex in a total costs analysis and these are discussed below.

6.47. Ofgem will also analyse costs by activity, although the risks of differences being due to different allocations of costs to activity rather than to efficiency are recognised. Overheads will also be separately analysed.

Benchmarking techniques

6.48. In the July and October documents Ofgem said it was considering a number of benchmarking techniques such as regression analysis (OLS and corrected ordinary least squares (COLS)); DEA, a linear programming technique; and SFA, a variant of regression analysis. Given a number of considerations, particularly the amount of reliable data that is likely to be available, Ofgem has decided to concentrate its focus on regression and DEA. CEPA in its report also recommended the use of both techniques together.

6.49. One of the strengths of this approach is that the two techniques can reinforce each other. Test statistics from regression can be used to establish the significance and efficacy of cost drivers which can also be used as outputs[23] in DEA models. As DEA derives the optimal combination of outputs the (shadow)

[23] For input orientated models.

weights it assigns to them can be used to determine the weights (coefficients) of the cost drivers in regression. Regression can also identify outliers and other data anomalies which DEA is not able to pick up. Furthermore the results of the two techniques are comparable as empirical studies have shown that the two techniques tend to produce consistent results. The reason for concentrating on regression and DEA rather than SFA is because SFA requires more independent data points than are available for DNO costs.

6.50. The regression models are developed using a two stage process:

- **firstly, testing individual cost drivers -** the dependent variable (cost being benchmarked) is regressed against single explanatory variables (cost drivers). The significance of explanatory variables is assessed using confidence interval tests and other criteria; and then

- **secondly, testing models -** a combination of explanatory variables under different functional forms are tested to assess goodness of fit to the data. Parsimony of variables is also an important consideration therefore Ofgem will consider a variety of indicators in addition to R-squared statistics. The models are also tested for other potential defects such as collinearity (correlation of explanatory variables) and heteroskedasticity (differing variances of the error term).

6.51. As the data is further normalised the models are retested to ensure their continuing robustness. Cost drivers will not be rejected easily but continually revaluated. Efficiency scores will be derived using both OLS and COLS (which have an implicit assumption of variable returns to scale (VRS)). Ofgem will also calculate efficiency scores using Constant Returns to Scale (CRS).

6.52. In relation to DEA, models can be constructed as either:

- **input orientated -** the input variable (the cost category being benchmarked) is minimised against a number of outputs; or

- **output orientated -** the outputs (eg revenue or quality) are maximised for a given level of inputs (factors of production).

6.53. Input orientated models are the most appropriate for assessing DNO costs and are consistent with the regression models. The dependent variables (cost categories) can be taken as the single input to be minimised against outputs (explanatory factors). Nevertheless output orientated models could be useful for incorporating other factors such as environmental and quality measures into the analysis. As discussed above Ofgem will develop its DEA models in conjunction with the regression models and any outliers or defects in the data can be identified in the regression. In addition significant cost drivers can be considered as possible outputs. Ofgem will run models assuming both CRS and Variables Returns to Scale (VRS) which can be compared to the OLS/COLS results.

Frontier or average benchmark

6.54. A key issue in comparative analysis is the benchmark that is used for comparisons. Ofgem will decide on the appropriate benchmark having fully considered the following factors:

- the robustness of the basis of the benchmark. As stated in the October document it is important to ensure that the benchmark is robust and not overly dependent on a single firm or unduly biased towards outlier firms;
- the sustainability of the resultant efficiency targets ie ensure that DNOs can continue to finance their activities and maintain an efficient, coordinated, economic and safe distribution network;
- the impact of resultant efficiency targets on the incentives to improve efficiency. Two important factors here are the degree of convergence between the DNOs and the position of the British DNOs in relation to the "true" efficiency frontier in electricity distribution; and
- the impact of the resultant efficiency targets on the overall incentive framework. It will be important to assess the overall effect of, and balance between, all the incentives discussed throughout this document.

Total cost analysis

6.55. Benchmarking total controllable costs will provide a useful cross check of the assessments of controllable opex, faults and capex. Furthermore analysis of total costs is useful given the range of capitalisation policies adopted by the DNOs. In March 2003 Frontier Economics (FE) published a report for Ofgem[24] in which they suggested two ways of calculating a measure of total costs:

- **cash cost approach** – on a very simple basis this involves adding together operating and capital expenditure in any given year. This measure could be calculated as an average over a number of years to smooth out the "lumpiness" in capital expenditure; and

- **capital stock approach** - as capital expenditure is related to long lived assets the benefits of such expenditure are realised over many years. Annual capital consumption is based on the return and depreciation on the capital stock. A key issue is how to estimate the value of the capital stock – alternatives could include the regulatory asset value (as used in CEPA's report on benchmarking) or modern equivalent asset value.

6.56. Each option has advantages and disadvantages; cash cost and capital stock based on RAV are relatively simple to implement but may not capture the different states of network inherited by the DNOs at privatisation and this may be a significant driver of expenditure. In light of these considerations Ofgem will continue to develop its approach to benchmarking total costs and further details will be set out in the March 2004 document.

International and Panel Data

6.57. The benchmarking analysis in previous price control reviews has focused on a single (base) year. This means that, with 14 DNOs, the analysis is based on 14 data points. Statistically, this is a small sample to analyse using regression techniques. For example, it limits the number of explanatory variables (cost

[24] Developing Network Monopoly Price Controls Workstream B Balancing Incentives, March 2003.

drivers) that can be included in the model[25]. CEPA recommended two ways the data set could be increased beyond 14 data points:

- **panel data** – additional years' data could be added. For each DNO, the HBPQ has three years of cost data (2000/01 to 2002/03), if all these years were used together this would involve 42 data points in the regression. Panel data is a combination of cross section and time series data therefore the regression models used have to be modified accordingly; and

- **international data** – international distribution companies could be added to the analysis to increase the number of data points. Further normalisation would be required between the British DNOs and international DNOs to account for differences in operating and physical environments, accounting, tax etc.

6.58. Ofgem expects to include analysis of panel data in the cost assessment. However, it is recognised that the work to normalise costs across companies has focussed on the 2002/03 data and that this data is therefore likely to be more robust than other years. Ofgem also intends to use 2003/04 data as a cross-check.

6.59. Ofgem will investigate the possibility of using data from appropriate countries, but it is expected that any analysis will only be used as supporting evidence to inform the cost assessment work, eg understanding network cost drivers.

Inclusion of quality of supply in the analysis

6.60. The assessment of efficiency should not consider the level of a DNO's costs in isolation. It is also important to consider the key outputs DNOs are expected to deliver which will have an impact on a DNO's cost base. One example is quality of supply.

Views of respondents

6.61. Most of the DNOs who commented on this issue thought it was important to include quality of supply in the benchmarking analysis. These DNOs were

[25] In regression analysis there cannot be more unknown parameters than observed values.

concerned that CEPA had dismissed inclusion of quality (on the basis of significance from second stage regression against efficiency scores). Two DNOs argued that quality of supply should not be included in the benchmarking analysis and one of the DNOs stated that costs and quality of supply should be subject to separate incentives therefore they should not be analysed together.

Ofgem's further thoughts

6.62. Ofgem's assessment of quality of supply in DPCR4 is described in Chapter 4. In addition, the DNOs have provided information on the costs associated with quality of supply in the HBPQs. To the extent that DNOs are achieving differing levels of quality, relative to the characteristics of their service area, this could potentially impact on their costs. Clearly there is a two way interaction between quality of supply and efficiency and Ofgem will have to carefully consider how these interactions can be captured. This will also require a clear understanding of the combined effect of the incentives on quality of supply and efficiency.

6.63. In the light of the assessment of quality of supply, Ofgem will therefore consider whether this should be taken into account:

- directly in the modelling, which would require selection of an appropriate measure and weighting; or
- indirectly as one of the factors to be taken into consideration in projecting the overall level of costs.

Productivity Growth

6.64. Productivity is the relationship between a firm or an industry's inputs (factors of production), eg capital, labour, raw materials etc, and its outputs, ie goods produced or services provided. Productivity improves if more output can be produced for the same level of inputs (or the same level of output is produced with a lower level of input). Projections of productivity growth can therefore provide an indicator of the scope for efficiency savings in the future.

CEPA's productivity study

6.65. Ofgem appointed consultants Cambridge Economics Policy Associates (CEPA) to undertake a study to determine expected growth in productivity for the DNOs as a sector over the next price control. A report of CEPA's study and conclusions was published on Ofgem's website on 2 December 2003. Views on any issues raised in CEPA's report should be included as part of the responses to this document.

6.66. CEPA's study comprised two elements:

- **historic productivity trends –** CEPA have calculated trends (indices) for the DNOs, other privatised utility sectors and international distribution sectors. CEPA have included the impact of quality and scale in calculating the trends; and

- **expected (future) productivity growth -** CEPA have supplemented their historical analysis with forward looking estimates of productivity through surveys of industry analysts and selected comparator companies.

6.67. CEPA have analysed Total Factor Productivity (TFP) which means all the factors of production ie productivity in relation to a firm's total costs. CEPA have also examined Partial Factor Productivity (PFP), ie productivity in relation to a single input. In this area CEPA have focused on operating costs (PFP opex).

6.68. Ofgem will use the productivity study together with the other elements of the cost assessment and it will be important to understand how the productivity growth figures translate into allowed revenue figures.

Mergers

6.69. In the October document Ofgem acknowledged that mergers between DNOs would have an impact on the benchmarking analysis and therefore it would analyse the eight company groups in addition to the 14 DNOs. Ofgem also said it would apply its merger policy that was applicable at the time of each relevant merger. This is discussed below.

6.70. Mergers occurring after May 2002 are subject to a total revenue reduction of £32m [26] (2001/02 prices) over five years which is applied from the beginning of the merger. In determining the next price control commencing 1 April 2005, Ofgem will not alter the merger term in the price control formula and will apply the outstanding balance of this revenue reduction on top of any assessment of efficiency of the DNOs concerned.

Views of respondents

6.71. A number of respondents supported the analysis of company groups though one DNO did not think such analysis would be useful and that DNO said company groups would be marked down under DEA. Another DNO thought it would make no difference as all DNOs were part of wider corporate groups. Two DNOs expressed concerns that the comparative analysis may discriminate in favour of merged DNOs and said that merger savings could be achieved in both opex and capex. One respondent suggested that comparability between DNOs could be achieved by adding £12.5m to the opex of each DNO in the benchmarking.

6.72. A number of respondents commented on the interaction between Ofgem's policy on merger savings and its approach to benchmarking in DPCR4. One respondent felt that Ofgem may have to revise its merger policy to be consistent with its approach on benchmarking. A couple of DNOs stated that applying separate revenue reductions and determining the DNOs efficiency through comparative analysis would "double count" merger savings.

Ofgem's further thoughts

6.73. Since the October document Ofgem has considered its policy on the treatment of mergers before June 2002. There are two ways Ofgem can approach the issue of revenue reductions:

- **continue to reduce revenues by £12.5m p.a. (in 1997/98 prices) for each merger** – this is the policy applied in DPCR 3 (based on expected merger savings) and which Ofgem had generally said would apply to all

[26] The loss of an independent comparator valued at £32m in 2001/02 prices, see Mergers in the electricity distribution sector - policy statement, Ofgem, May 2002 (Ref: 35/02).

mergers up to May 2002. Such revenue reductions would not be applied until the fifth anniversary of the merger. Ofgem estimates the total amount of revenue deducted from the DNOs concerned could total approximately £300m, depending on how any interactions with the benchmarking were taken into account; or

- **deduct merger savings to offset the loss of a comparator (£32m per merger over five years)** – this would treat all mergers on a consistent basis. This would generally result in lower revenue reductions, in the order of £100-150m depending on how mergers already bearing revenue reductions in DPCR 3 were treated.

6.74. In addition to the issue of merger savings, Ofgem will have to consider its expectation of merged DNOs being on the efficiency frontier. It may be possible that enough time has elapsed for merger savings to be reflected in the DNOs' present cost base.

6.75. As noted above, decisions on the treatment of previous mergers interact with the cost assessment and benchmarking analysis. Ofgem will therefore consider these issues together, along with any views expressed in responses to this consultation, and set out its further thinking in the March 2004 document.

RAV Roll forward

6.76. In the July consultation document Ofgem said that the roll forward of the RAV from 31 March 1998 to 31 March 2005 would be based on the definition of capital expenditure used in DPCR 3, together with an adjustment for meter re-certifications which was mentioned in the DPCR 3 final proposals. This approach is necessary in order to avoid consumers paying twice, or not at all, for particular categories of expenditure. For example, if expenditure allowed as opex in DPCR 3 were to be re-classified as capex and included in the RAV this would involve consumers paying twice.

6.77. Ofgem also highlighted in the July document that this would require detailed examination and verification of the information provided by the DNOs. To facilitate this process the DNOs were asked, in the HBPQ, to supply such information on the basis of the accounting policies used in DPCR 3. In essence, this meant that the DNOs were asked to supply the information on the basis of the accounting policies used in 1997/98, amended for various normalisation adjustments applied by PKF (Ofgem's DPCR3 consultants), and set out in the Ofgem document 'Summary of Updated PKF Reports' also published in December 1999. These normalisation adjustments were intended to restate the DNOs' accounting data on to a comparable basis.

6.78. One significant adjustment made by PKF concerned the accounting treatment of cable and overhead line repairs. This was necessary because the extent of capitalisation of these costs varied substantially amongst the DNOs. PKF stated clearly in their report that 'all cable and overhead line repairs' were treated as operating costs since fault costs were intended to be allowed as an operating cost allowance. PB Power also said in their reports that they had transferred cable and overhead line repairs out of capex in their analysis of the companies' submissions.

6.79. Ofgem therefore intended that the RAV should be rolled forward from March 1998 on the basis that all cable and overhead line repair costs ('fault costs') incurred from 1998/99 – 2004/05 would be expensed and would therefore not be included in the RAV. Ofgem regards this approach as a consistent application of the method used in DPCR3 without any changes to those rules.

6.80. Ofgem after discussing the issue with PKF and the DNOs have agreed that PKF were referring to 'fault costs' when they said 'repair' but some of the DNOs have a different interpretation of some aspects of the DPCR3 methodology. They argue that, as far as they were aware at the time, the adjustments made by PKF were intended to expense the costs of making the repair, but not the cost of any assets installed to replace existing assets as part of that repair, with the latter cost being capitalised. One of the DNOs has provided evidence and others have asserted that it was their policy at the time to capitalise some fault costs; that PKF should have been aware of this; and that PKF did not seek to make an adjustment in respect of these costs. Further, some DNOs argue that their understanding was that PKF was trying to adjust the data of each DNO back onto the accounting policies that the DNO had used in 1994/95, irrespective of whether this would lead to consistency across the DNOs.

6.81. Ofgem has asked the companies concerned to provide a clear and detailed explanation of what these capitalised fault costs represent, why they were not included in the PKF normalisation adjustment, and whether the company raised this as an issue with Ofgem or PKF at the time.

6.82. These differences of interpretation have become evident in the data submitted by the DNOs on the treatment of fault costs and on the roll-forward of the RAV. In the cases where the normalisation adjustment applied by PKF in DPCR3 did include all capitalised fault costs the DNOs have adopted the approach anticipated by Ofgem and the RAV has been rolled forward by them on this basis.

6.83. For some other DNOs the information provided by them indicates that the normalisation adjustment applied by PKF in DPCR3 did not include all capitalised fault costs, that an element of fault costs was therefore still included in capex in the adjusted DPCR3 base year numbers, and that, in these cases, those DNOs have included capitalised fault costs in their roll-forward of the RAV. Some DNOs have also said that they had significant problems going back to 1997/98 to obtain this data.

6.84. Some of these variances are material. In the majority of cases, the DNO's assessment of the RAV is higher than the figure which would be reached under the DPCR3 methodology.

6.85. It is an essential part of the regulatory process that Ofgem should be able to rely on information provided by the companies. It is also part of the regulatory process for companies to comment on consultation papers. Ofgem will examine the evidence provided by the companies but does not take the view that there should be a general presumption that apparent inaccuracies or misunderstandings in data provided by the companies should necessarily be corrected to the benefit of the DNOs concerned.

6.86. It will therefore be necessary for any DNO seeking inclusion of capitalised fault costs in their RAV to provide a convincing rationale for the inclusion of these fault costs in the RAV and also provide reliable documented evidence of those fault costs on the accounting basis they think was applied in DPCR3 (after their normalisation adjustments).

6.87. It should also be noted that those DNOs that have expensed all fault costs (ie those who share Ofgem's and PKF's interpretation of the intent of the DPCR3 normalisation adjustments) consider that, if some companies are allowed to capitalise fault costs, they should receive similar treatment.

6.88. Another issue for consideration in the roll-forward of the RAV is that some DNOs have changed their accounting policies since 1997/98 and they now capitalise a greater proportion of fault costs than they used to. Ofgem is looking at this issue and will also report on it in the March 2004 paper.

6.89. Ofgem would welcome comments on the roll-forward of the RAV. Ofgem will take these comments and any evidence provided by the DNOs into consideration and will indicate its view of the appropriate approach to the roll-forward of the RAV in its March 2004 Paper.

6.90. Both Ofgem and the DNOs recognise that it would be highly desirable to avoid such debates over detailed interpretations in future and intend to work towards greater transparency in DPCR4.

Views invited

6.91. Views are invited on any issues set out in this chapter and in particular on:

- publication of DNO information;
- cost normalisation issues;
- Ofgem's approach to benchmarking;
- Ofgem's approach to bottom up modelling;
- CEPA's TFP productivity study;
- approach to the price control treatment of mergers that occurred before June 2002; and
- Ofgem's approach to the roll-forward of the RAV.

7. Financial issues

Introduction

7.1. The July document outlined Ofgem's broad approach to financial issues including the assessment of the Regulatory Asset Value (RAV) and the approach to depreciation, the assessment of the allowed cost of capital and the use of financial modelling and ratios to assess the financial impact of price controls on companies. The July document also outlined Ofgem's proposed guidelines for the treatment of pension costs. Following this consultation, the pension guidelines were confirmed in the October update document.

7.2. This Chapter sets out Ofgem's further thinking on a number of financial issues.

The financial ring-fence

7.3. The June 2003 consultation paper raised the issue of whether there is a need to strengthen the financial ring-fence provisions that are included in companies' licenses.

Views of respondents

7.4. The DNOs argued that the existing ring-fencing licence conditions were adequate and that there is no need to tighten the arrangements. One DNO pointed out that tightening the ring-fence could increase the perception of regulatory risk. Another DNO was concerned that tightening the ring-fence might affect the financing options of other companies, eg restrictions on dividend distributions, which could result in that DNO being disadvantaged relative to any companies that have restructured.

7.5. The majority of respondents accepted that there was a case for introducing a Special Administration regime, as proposed in the government's Energy Bill, but warned that it should only be used in extreme circumstances, such as insolvency. One DNO argued that introduction of a Special Administration regime would mean that there was no reason to change the financial ring-fence. Several DNOs argued that the introduction of a Special Administration regime could increase the perception of regulatory risk. It was argued that Ofgem should be put under a statutory duty to take account of the functions and duties of the Special Administrator.

Ofgem's further thoughts

7.6. The existing financial ring-fence arrangements have generally worked well, although the electricity sector has seen the emergence of some very highly geared structures. The average level of gearing in the electricity distribution sector is high relative to both the majority of UK companies and other utility sectors – both in this country and abroad.

7.7. This increase in gearing raises questions in relation to the existing ring-fence licence conditions:

- do the existing arrangements provide sufficient protection from companies transferring debt from very highly geared holding companies to the regulated licensee with potential adverse consequences for consumers? and/or
- does borrowing from within the group take place on an arm's length basis and on normal commercial terms?

7.8. The positive aspects of debt in a company's capital structure have been well documented although there are some concerns in relation to very high levels of debt, as this could reduce the flexibility of companies to cope with shocks and unforeseen circumstances – a risk which would be systemic to the sector if many companies had very high levels of gearing. It may also increase the costs to a company of accessing funds for new investments, which may be more of a concern if overall investment levels were rising.

7.9. Ofgem has looked at whether the existing financial ring-fence provisions are able to address these concerns. It has looked at options to strengthen the financial ring-fence, for example by proposing a maximum gearing level or through strengthening the credit rating requirement in Standard Licence Condition (SLC) 46.

7.10. It is Ofgem's view that the market is best placed to determine the appropriate capital structure for companies. An important consideration in Ofgem's thinking has been the proposed introduction of a Special Administration regime as part of the Energy Bill - as this would help address concerns in relation to security of supply in the situation where firms become insolvent.

7.11. Ofgem therefore does not intend to propose substantial strengthening of the existing financial ring-fence arrangements.

7.12. Nevertheless, it is important to clarify how the existing financial ring-fence conditions of companies' licenses would be enforced in the event of a marked deterioration in the credit position of a licensed network operator.

7.13. In December 2002, the credit rating of the UK parent of the DNO Aquila Networks was reduced to a level which was below investment grade. This led to concern that Aquila Networks would also lose its investment grade rating. There were specific arrangements in place at Aquila which enabled Ofgem to put in place a requirement that the company gain Ofgem's consent before making any distributions out of the licensed entity, with certain exceptions. Aquila Networks maintained its investment grade credit rating, but fell to the minimum rating consistent with investment grade.

7.14. Similar arrangements to those applying in the case of Aquila could be used for all DNOs when the licensee's credit rating falls below, or to the minimum, investment grade credit rating. Licence conditions could be developed to require that, once this trigger level is reached, the licensee would require Ofgem's consent to make further distributions. Codifying a contingent 'cash lock up' mechanism of this type in all DNO licences would improve consistency across DNOs, increase transparency and clarify the regulatory regime.

7.15. The mechanism would only become active in very specific circumstances once a pre-defined trigger has been reached. The cash lock up would operate by restricting the freedoms in sub-paragraph 1 (b) of SLC 47 (to pay dividends and make certain other transfers to affiliates) at any time when the licensee's issuer credit rating is at risk of falling out (or has fallen out) of investment grade.

7.16. There are a number of options in relation to the level of the trigger, including:

- actual loss of an investment grade issuer credit rating (whether or not this involves breach of SLC46);

- evidence emerging of a potential downgrade which, if it occurs, would result in loss of investment grade status (eg one or more credit rating agencies indicating that it has assigned a negative outlook to the rating of a company holding the weakest level of investment grade rating, or has placed such a rating on watch with negative implications or under review for possible downgrade); or

- downgrade to the minimum rating consistent with investment grade.

7.17. Ofgem would like to hear views on the proposal not to strengthen the financial ring-fence substantially in the light of the introduction of a Special Administration regime. Ofgem would also like to hear views on the proposed introduction of a more explicit mechanism to apply in cases where the retention of an investment grade rating is in doubt and the type and level of trigger that would be appropriate in these circumstances.

The cost of capital

7.18. In running its business, a company will incur financing costs in the same way as it incurs operating and capital costs. Regulators have tended to make an allowance for the efficient financing costs that a company will incur by estimating a return on the value of capital employed in the business (the regulatory asset value, or RAV) equal to the expected return required by providers of finance – both debt and equity (the cost of capital). The cost of capital makes up a significant proportion of the overall costs that a company needs to meet in order to be able to operate effectively and invest in its networks.[27]

7.19. The cost of capital is the level of expected return required by the financial markets – both debt and equity - in order to provide capital to a company. It should be considered in a risk-return framework and as part of the overall regulatory framework within which monopoly companies operate.

[27] The July 2003 document showed that for 2001/02 financing and tax costs accounted for 26 per cent of

Views of respondents

General method

7.20. Several DNOs supported the continued use of the capital asset pricing model (CAPM) to estimate the cost of equity. There was also some support for using an approach that focused on the average return on equity. There was also recognition that the results from CAPM should be cross-checked against other estimates of the cost of equity derived from alternative methods of calculation.

7.21. EDF submitted a report produced by National Economic Research Associates (NERA) on the cost of capital as part of its response to the July 2003 document. The NERA report argues that, under the aggregate return on equity approach, the adjustment to the average market return would be an arbitrary amount which would be difficult to support with objective evidence. It also argues that it might not be reasonable to assume that the beta value for the DNOs is close to one (ie equal to the market average) because in the case of highly leveraged companies, DNOs might be higher risk than the market average.

Forward looking data v historical data

7.22. In response to the July consultation document, two DNOs supported the use of forward looking data although both pointed out that the costs of historical debt should be taken into account.

7.23. The NERA report submitted by EDF argued that the use of both historical and forward looking data is inconsistent and fails to take into account that the CAPM parameters for the cost of equity and the cost of debt are inversely related. The latter is based on the view that in times of market volatility the equity risk premium increases, whereas the cost of debt decreases.

7.24. The NERA report supports the general principle that cost of capital estimates should be forward-looking although it recommends that estimates of all the parameters should be evaluated over a period of time to ensure that they are consistent. It argues that Ofgem should use the long-term average of a historical

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price control revenue – using an assumed cost of capital of 6.5 per cent consistent with the existing price control.

time series. The report also argues that, given current market volatility, the use of historic data could underestimate the forward-looking cost of equity.

Embedded debt

7.25. Several DNOs argued that efficiently incurred historic debt should be remunerated. It was suggested that to do otherwise may encourage companies to use more short-term financing arrangements.

Treatment of tax and gearing

7.26. Several DNOs favoured a common assumption on gearing for estimating the cost of capital. One DNO argued that Ofgem should use an assumed level of gearing level of 50 per cent. Another respondent argued that a common assumption on gearing is inconsistent with the use of company-specific tax allowances.

7.27. The NERA report stresses that the gearing assumption used for estimating the cost of capital should be consistent with the gearing assumption in the financial ratio tests. It argues that an efficient and prudent capital structure is consistent with a single A credit rating.

7.28. The majority of the DNOs supported moving to a post-tax approach to the cost of capital. One DNO argued that the cost of capital should reflect the incremental change in expected tax, to continue what they considered to be the previous policy of overly generous tax allowances. Several respondents argued that a pre-tax approach to the cost of capital encourages companies to be highly geared irrespective of what an efficient capital structure might be.

7.29. However, two DNOs were opposed to a post-tax approach to the cost of capital. It was argued that a pre-tax approach provides incentives for companies to finance themselves efficiently.

Ofgem's further thoughts

General method

7.30. CAPM is one of most widely used models to estimate the cost of equity. However, its inputs are subject to some uncertainty. As indicated in the June

2003 document, Ofgem would see merit in using the aggregate return on equity approach alongside CAPM. Ofgem also indicated that the relative weight placed on these approaches would depend on the robustness of the estimates ie the extent to which the equity risks of DNOs are consistent with the return for the market as a whole.

7.31. One of the main difficulties of using CAPM is the lack of directly observable market data for DNOs. CAPM requires share price data for each individual DNO to estimate the equity betas. In the absence of share price data for individual DNOs, estimates could be derived from data at parent company level although this may need to be adjusted to reflect the different risk profiles between the regulated licence holder and the parent company. Another approach would be to use share price data from comparative companies, either in the same industry or a similar industry - either in the UK or abroad.

7.32. Estimates also have to be made of the equity risk premium (ERP) and the risk free rate of return (RFR). Both are subject to uncertainty and are sensitive to the methodology adopted and chosen timeframe. Substantial academic literature is devoted to the empirical difficulties in reconciling independently derived estimates of the ERP and RFR to total market returns (the "ERP puzzle"). The joint regulators' report on the cost of capital[28] noted that this puzzle could be solved by basing regulatory cost of equity estimates on total market returns (ie by assuming that the non-diversifiable risk faced by regulated businesses is not materially different from the market average).

7.33. Equity beta is a measure of the level of non-diversifiable risk faced by a specific company. A beta value of one means that the market perceives a company as having average market risk – a figure above (below) one means that the market perceives the company as more (less) risky than the market average.

7.34. Since the last price control review the equity betas of regulated utilities appear to have been falling. This raises the question of whether this reflects a fall in the underlying risk of utilities or other market factors which could mean that equity betas for utilities are biased downwards.

[28] 'A study into certain aspects of the cost of capital for regulated utilities in the UK', Smithers & Co, February 2003, 08/03

Other methods

7.35. There have been several developments to the CAPM model but these still require data at the DNO level – which is not readily available. They have also not been used extensively by regulators either in the UK or abroad. Ofgem therefore intends to focus on the traditional CAPM and the aggregate return on equity approach. It will also use the dividend growth model (DGM) as a further cross check on the cost of equity, although it recognises that this approach also has disadvantages. Ofgem might also consider survey evidence as part of the overall assessment.

Forward looking data v historical data

7.36. The aim of estimating the cost of capital is to establish the *expected* cost of capital that investors require in order to provide funds to the DNOs during the next price control period. CAPM is based on *expected* returns and should therefore use forward looking market data where this is available as it provides the best estimate of future market expectations.

7.37. Estimates of the ERP tend to be based on historical data unless investor surveys are used. For estimation of the risk free rate forward looking data is available. Where possible Ofgem will focus on forward looking (or most recent) market information although it recognises that, at least for the ERP, a longer time frame will need to be considered. Ofgem will potentially also consider survey data.

Cost of historic debt

7.38. Ofgem indicated in the July document that it did not intend to make an adjustment for the cost of historic debt although it would consider evidence from DNOs in individual cases. Ofgem will estimate the cost of capital based on an efficiently financed company. It is for companies to manage their debt portfolios to achieve an efficient cost of debt.

7.39. This is not simply a matter of minimising short-run costs or maximising tax efficiency. In Ofgem's view, an efficiently financed company is one that takes a balanced approach to the management of its borrowings, which diversifies its risks cost-effectively (especially its refinancing, interest rate, inflation and duration risks) and which aims at achieving a broadly stable real interest cost over time. Such a company will be most likely to maintain flexibility to adapt to future developments.

7.40. In Ofgem's view, this remains the most appropriate approach to adopt as consumers should only have to pay for efficient financing costs incurred by companies.

Pre-tax or Post-tax approach

7.41. In the July document, Ofgem signalled its intention to consider the expected tax position of each company as part of its financial modelling. The main reasons for this are:

- ♦ the change to the Inland Revenue's treatment of network capital expenditure, which will increase effective tax rates for most companies;
- ♦ consistency with other aspects of the regulatory framework (eg in providing benefits to consumers if costs are reduced, albeit after a delay) - a company specific tax approach would include passing to consumers the benefits of lower tax costs after a period of time; and/or
- ♦ to reduce the incentives to increase gearing.

7.42. It was argued by one respondent that Ofgem should increase the cost of capital by the incremental change in expected tax to continue with what they considered to be the previous policy of overly generous tax allowances. However, it is not Ofgem's approach to be deliberately overly generous on some parts of the cost of capital to compensate for harshness elsewhere. It is Ofgem's objective to use the best estimates for all components.

7.43. The tax allowance would be based on the position of the licensed entity as if it were taxed on a standalone basis (disregarding group relief). Tax projections would be based on the company's actual gearing, or on the level of gearing assumed in assessing the cost of capital if that is higher. However, in relation to debt guaranteed by the licensee, the question arises whether the licensee should retain the tax benefits of any interest payable on this debt.

7.44. Company specific tax allowances could either be directly incorporated in the financial model, like other projected costs, or could be incorporated through the cost of capital estimation by incorporating a company specific tax rate. The latter would result in different cost of capital figures for the different licensees. The net effect of the two methods would be the same.

7.45. In Ofgem's view, a move towards a post-tax approach to the cost of capital, as supported by the majority of respondents, for the reasons given previously, may be desirable. However, before coming to a final view on this, Ofgem would have to complete the process of estimating tax allowances. Ofgem would also propose to adopt an industry-wide post-tax cost of capital figure rather than presenting a cost of capital on a company by company basis, given that the latter could be perceived as more complex and less transparent.

7.46. Views are invited on whether Ofgem should adopt a post-tax approach to the cost of capital and whether this should be an industry wide cost of capital with company specific tax allowances directly incorporated into the financial model.

Gearing

7.47. In order to estimate the cost of capital, Ofgem has to make an assumption about gearing. In the July document, Ofgem stated that, for its cost of capital estimation, it intends to use a level of gearing that is consistent with companies maintaining a credit rating that is comfortably within the investment grade category.

7.48. Several DNOs have considerably higher gearing levels than the assumed gearing level for estimating the cost of capital for DPCR3 (50% debt:RAV). Once upstream guarantees are taken into account, the average level is now close to 70 per cent. Nevertheless, with only one exception (which results from special circumstances) all DNOs have issuer credit ratings of BBB+/Baa1 or better. Moreover, recent evidence[29] indicates that one of the leading credit rating agencies considers that debt:RAV gearing in the range of 60-65 per cent is consistent with target A3 (A-) ratings for comparable regulated network businesses.

[29] 'UK Water Industry Sector Update', Moody's, December 2003

7.49. Views are invited on whether Ofgem should adopt an assumed level of gearing for all DNOs and whether this should reflect the increase in average gearing level in the electricity distribution sector and if not, why not.

Next steps

7.50. In the March 2004 policy paper, Ofgem intends to publish an initial range for the cost of capital of the DNOs. Over the next few months, Ofgem will be examining market data to come to a view on the cost of debt and equity. Ofgem would welcome empirical, as well as academic, evidence with respect to the inputs to the cost of capital from interested parties.

Financial modelling and indicators

Financial modelling

7.51. To improve the transparency of the price control review, Ofgem published a draft of the financial model in November 2003 for comment. The draft financial model calculates allowed revenues for each of the fourteen DNOs and also analyses the financial position of each DNO. The main analysis is for the five years to 31 March 2010 but the draft financial model also includes forecasts to 31 March 2020.

7.52. Nothing in this model represents a policy stance taken by Ofgem and the relevant price control documents should be consulted where information is sought on Ofgem policies.

7.53. Ofgem intends to publish a revised draft of the financial model in April 2004, to take account of developments in the proposed approach to setting the price controls. This will be in advance of initial proposals being made in June 2004. If you would like to comment on the financial model, please respond by 10 February 2004.

7.54. To request a copy of the financial model, please send a blank email with the subject "Financial Model" to Samuel.kwafo@ofgem.gov.uk and a copy will be sent to you.

Financial indicators

7.55. In the light of Ofgem's duty to have regard to the need for licence holders to be able to finance the continuing conduct of their licensed activities, Ofgem will undertake supporting checks on the prospective financial position of each DNO under the proposed new price controls, to ensure that it is able to maintain access to requisite finance on reasonable terms.

7.56. For this purpose, Ofgem will utilise the financial model (a draft of which has been published) to project financial outcomes for each DNO (profit and loss account, balance sheet and cash flow statement) on the basis of the forecasts of revenues, costs, tax payments and capital structure assumed in calculating the proposed price controls. These projections will mainly cover the five years commencing on 1 April 2005 and will be expressed in both real and nominal (money-of-the-day) terms. The model will also present some projections to 2020. Ofgem will discuss its projections for each company with the company concerned.

7.57. Where a company's actual capital structures differs from Ofgem's assumption, its opening balance sheet will be adjusted for the purposes of this modelling to bring it into line with the price control assumption. Interest expense and dividends will be modelled on a basis consistent with Ofgem's estimates of the cost of debt and equity respectively. Tax payments will be modelled using a forecast of each company's expected actual tax liabilities on a stand-alone basis, ie reflecting its actual capital structure, where this is at or above the gearing assumed in estimating the cost of capital, and disregarding group relief.

7.58. The projections will be used to calculate certain key financial indicators. These will be assessed, and companies' revenue requirements adjusted where necessary, to ensure that each company is able to maintain an appropriate level and trend of these indicators if outturn results are in line with the forecasts assumed.

7.59. In selecting which financial indicators to use and the appropriate minimum or, as the case may be, maximum level of each indicator, Ofgem will be guided by the need to ensure that companies are able to maintain stand-alone issuer credit ratings that are comfortably in the investment grade range (AAA+/Aaa1 to BBB-/Baa3) and to provide a reasonable return to shareholders.

7.60. It is important to emphasise, however, that the capital structures companies choose, and the resulting risk profiles faced by investors, are matters for each company to decide for itself within the constraints of its statutory duties and the conditions of its licence. The levels selected by Ofgem as appropriate for the purposes of these financial checks should not be seen as targets which Ofgem expects companies to achieve. Rather, they represent 'floor' values which serve to inform the setting of price controls – no more or less.

7.61. Ofgem will consult the leading credit rating agencies and other financial market participants before deciding which indicators, and the appropriate definitions and minimum/maximum levels of each, to use for these purposes. Nevertheless, Ofgem expects to be guided principally by indicators that measure real stocks and flows, ie cash-based measures rather than other measures.

7.62. In line with this, Ofgem presently expects to use all or some of the following indicators:

- Funds from operations (FFO) (Cash flow from operations – current tax) / Gross interest expense)
- Adjusted funds from operations (FFO – maintenance capex) / Gross interest expense)
- Retained cash flow (Cash flow from operations – interest expense – current tax – dividends) / total capex)
- FFO / total debt
- Retained cash flow / total debt
- Total debt / RAV

7.63. Ofgem will need to consider further how best to model dividends and retentions and which indicators would be most appropriate in assessing these. Nonetheless, it is recognised that it will be important to ensure that the conditions necessary for the formation of sufficient equity to finance future capital expenditure without unacceptable deterioration in credit quality will prevail.

Treatment of pension costs

7.64. The October document set out an update on the treatment of pension costs and said that Ofgem would publish a detailed methodology statement in December 2003. This section sets out Ofgem's further thoughts on the guidelines and in particular outlines Ofgem's initial views on the methodology statement. The comments in this section refer to the broad framework for the treatment of pension costs and therefore also apply to NGC and Transco.

Responses to the October update

7.65. In the October paper, Ofgem responded to the points made by respondents to its initial consultation on the principles to be applied to the treatment of pension costs for the purpose of setting network price controls.[30] In the October paper, Ofgem concluded that the arguments and evidence presented by respondents to the June paper did not indicate that the principles should be altered and that, accordingly, it intended to adopt them without revision. It noted, however, that application of the principles to the establishment of a starting position at DPCR4, from which the principles could then be applied in a straightforward fashion at future reviews, would require a pragmatic and proportionate approach.

7.66. Responses to the October paper are outlined in the summary of responses to that paper, published alongside this document. Some of the responses provided constructive suggestions for taking forward the application of the framework. Most of the responses focused on the principles themselves, but did not raise new arguments or adduce additional evidence. Ofgem therefore sees no reason to reconsider the decision set out in the October paper. Accordingly, Ofgem intends to move forward to the next stage of development of its framework for the treatment of pension costs.

Methodology statement

7.67. In order to provide a methodology that will enable calculation of the pension costs for which allowance is to be made in setting future network price controls, Ofgem is developing a framework of rules that can be applied in all cases.

[30] Set out in Ofgem's June 2003 publication, "Developing Network price Controls: Initial Conclusions".

Ofgem intends that this framework be used to determine an explicit ex ante allowance for pension costs. For the purposes of setting price controls, DNOs' costs will continue to be benchmarked to determine an efficient level. Pension costs will not be benchmarked separately.

7.68. The allowance for pension costs at each price control review will be based on the cash funding rate recommended by the most recent full actuarial valuation then available for each company's scheme, adjusted for the items referred to below. Provided that valuations are based on reasonable assumptions, in line with prevailing best actuarial practice, Ofgem does not intend to challenge them. As set out in the October paper, this assumes that deficits will be recoverable over periods no shorter than the average remaining service life of the active membership of any scheme.

7.69. Typically, actuarial valuations of pension funds are carried out triennially. In contrast, price controls are typically set for periods of five years. Accordingly, it is possible that funding rates may change during the period of a price control. There are four options for dealing with such changes:

- to leave the impact of changes within a review period with the company (so that the company bears any increase in cost and gains from any reduction);
- to provide for an interim adjustment to the price control to reflect the change in the pension funding rate;
- to "log up" the cumulative effect and pass the impact through to consumers when setting the price control at the next following review; or
- to provide for an automatic pass-through to consumers on an ongoing annual basis.

7.70. The first of these options is not consistent with the principles. The other three, depending on the details in each case, could have a similar economic effect and the choice is largely a matter of process and cash flow risk.

7.71. In general, it seems appropriate to follow the third option (taking account of a deviation from expectations at the next price review). It is recognised, however, that, in exceptional circumstances, an adverse change in the required funding rate may cause significant financial difficulties unless an immediate adjustment is made. In these cases, Ofgem will review the position and consider whether an interim adjustment would be justified. The additional complexities of defining an automatic pass-through do not appear to bring additional benefits.

7.72. To a greater or lesser extent, many if not most network monopolies rely on contractors for the provision of services necessary for the proper discharge of their duties in relation to the price controlled business. Employment costs typically represent a substantial proportion of the overall cost of providing such services. Where the contractor is an affiliate or related undertaking of the licensee, Ofgem will generally require evidence of the underlying costs incurred by the contractor, and treat these in the same way as costs incurred directly by the licensee for the purposes of determining price controls. This applies equally to pension costs.

7.73. Adjustments are likely to be needed to ensure that the allowance for pension costs is consistent with the principles set out in the June and October papers. In particular, adjustments will be necessary to ensure that the costs for which allowance is made:

- do not include costs that are properly attributable to activities that do (or did) not form part of the price controlled business, to avoid cross-subsidies;
- appropriately reflect differences (if any) between the allowances made in setting previous price controls and the actual employer contributions made to pension funds in the same periods, to prevent over- or under-provision;
- do not include early retirement deficiency costs arising from redundancy and re-organisation which have not already been matched by additional employer contributions; and
- do not include excess costs arising from a material failure of stewardship.

7.74. These are discussed in turn below.

Allocation between price-controlled and non-price-controlled activities

7.75. The principles set out in Appendix 3 require that network monopoly price controls allow for pension costs relating to the network monopoly business and not to any other. In considering the practical application of this principle, it is useful to consider separately the allocation of scheme liabilities and assets, and to distinguish between different categories of scheme members – active members who are still employed by the group and pensioners and deferred pensioners who have left.

7.76. It will then be necessary to divide each category of liability into two classes: those that relate to the network monopoly business, and the remainder. For this purpose, Ofgem's view is that the liability relating to active members should be allocated according to their present employment, and the liability relating to post-privatisation leavers should be allocated according to the employment in which they served immediately prior to leaving service.

7.77. In principle, a similar approach could be taken for members of the scheme who left prior to privatisation, based on their last employment. Some companies have said that this data is not available or that it would be time consuming and costly to allocate every individual member to one or other part of the business. As a pragmatic approach, Ofgem is willing to consider allocating the liability relating to pre-privatisation leavers between the network monopoly business and the remainder of the group in the same proportion as the ratio of employment costs in the year of privatisation, subject to verification that these figures do not provide a materially misrepresentative result.

7.78. To determine the surplus or deficit attributable to the network monopoly business, it will also be necessary to allocate pension fund assets to the same categories of scheme member. Ofgem is considering two options for this purpose:

- allocation in proportion to the allocation of liabilities; or
- allocation based, so far as practicable, on matching assets to the respective maturity profile of each category of liability (such that, for example, fixed income securities would first be allocated to pre-

privatisation leavers, with any excess allocated to post-privatisation leavers, and so on).

The choice could, depending on each fund's overall asset allocation strategy, have a significant bearing on the resulting proportions in which the overall surplus or deficit is allocated. For example, the concentration of equity assets to the less mature categories of member might have the effect of weighting the allocation of present deficits disproportionately to the active members.

7.79. Pension costs attributable to the metering activity will be considered alongside other operating costs associated with the metering business (see Chapter 3).

Over or under provision

7.80. The principles set out in Appendix 3 require that, where actual employer contributions have been more or less than the allowance made in the preceding price control, the allowance in the succeeding price control should reflect, as nearly as practicable, the position that would have existed had contributions exactly matched the allowance. Where there was an explicit allowance for pension costs in the preceding price control (as for the last Transco price review, for example), this provides the benchmark. In other cases where the pension component of operating cost allowances was not explicit (as in the last distribution price controls), it will be necessary to make an assumption as to what was allowed.

7.81. Where such an assumption is required, Ofgem is considering three options:

- assume companies were allowed, in each price control period, an allowance equal to the same percentage of total actual salary costs incurred in the period as the accounting charge for pension costs in the base year for the relevant price control review bore to total actual salary costs in that year (as shown in the BPQs submitted by companies);
- assume each company was allowed, in each price control period, an amount equal to the contributions actually made by that company in the same period (i.e. no adjustment would be made to the future funding rate). This option would have differential impacts on companies

according to the level of their actual contributions and will thus potentially be inequitable; or

- assume each company was allowed, in each price control period, an amount equal to the the average level of contributions actually made in the same period by all companies. This option would enable companies whose actual contributions were above the average to recover the excess (and vice versa), which could be held to provide a more equitable approach, with the same aggregate effect on consumers as assuming allowances equal the contributions actually made.

7.82. It is also necessary to consider whether it would be appropriate to apply this rule to all periods since privatisation, or only to a more recent period. This needs to be taken together with the choice among the options in the previous paragraph, to ensure that, overall, the result is proportionate.

7.83. To the extent that actual contributions in any period fell short of or exceeded the assumed contribution, the amount of the shortfall or excess needs to be rolled forward to the date of the actuarial valuation on which the future price control allowance is based. Ofgem considers this should be done by assuming a total return in line with the ex post returns typically earned by pension funds in the relevant period(s). For this purpose, it would seem appropriate to use the median returns for the universe of comparable UK pension funds (for example, those published by The WM Company).

7.84. In setting the future price control, the allowance for pension costs would be set to reflect the position that would have arisen had contributions in the preceding period equalled the level assumed in setting the price control for that period. This would require addition of the rolled forward amount of any excess contributions and deduction of the amount of any shortfall to/from the value of the scheme assets assumed by the actuarial valuation, and re-projecting future costs accordingly. This will have the result of logging up or down variances resulting from changes in contribution rates occurring between price control reviews. To avoid double counting, this amendment will need to be carried through to subsequent reviews.

Early retirement deficiency costs

7.85. The principles set out in Appendix 3 require an adjustment to be made to the allowances for future price controls to exclude the impact of early retirement deficiency costs resulting from redundancy and re-organisation which have been offset by use of surpluses, rather than being funded by increased contributions. This provides for consistent treatment with other restructuring and rationalisation costs.

7.86. For this purpose, it will be necessary to roll forward the amounts of unfunded early retirement deficiency costs arising in each year of a previous price control period using the method described in paragraphs 7.83 and 7.84 above.

7.87. Companies have argued that the way in which early retirement deficiency costs were to be treated at future price controls was not clear, and that they should therefore be able to recover the associated pension costs in full from consumers. They have also argued that consumers are benefiting from the reduction in overall employment costs that have been achieved. Ofgem acknowledges that the treatment of these costs was not separately exposed in the past. However, Ofgem is not aware of any commitment or basis for expectation that these costs could subsequently be recovered from consumers as part of the next price control review. Ofgem would be prepared to consider any evidence that the affected companies or other interested parties can provide to clarify this issue.

7.88. Ofgem intends to apply this principle at all future price control reviews. In relation to DPCR4 (and the next reviews of other network price controls), the principle suggests this adjustment should be carried back to the relevant privatisation date. It is for consideration how far this would be proportionate, for the reasons discussed in the October paper. However, as noted by some of the DNOs, application of this principle from any point in time other than privatisation would have differential effects between companies, without clear justification. Ofgem is not convinced that a different approach is needed, but will consider any constructive proposals put forward in response to this consultation.

Stewardship

7.89. In seeking to establish whether there are any excess costs arising from material failure of stewardship, Ofgem intends to compare companies according to the scale of any increase in funding rate recommended by periodic actuarial valuations. In general, Ofgem would not expect substantial differences between companies. However, if in any case there is one or more marked outlier, Ofgem will investigate the reasons for this. If these investigations reveal evidence that a material breach of stewardship has contributed to the increase in funding required, Ofgem will adjust the recommended funding rate for the purposes of setting the next price control so as to bring it into line with the average.

Views invited

7.90. Views are invited on any of the issues raised in this Chapter and in particular on:

- the proposal not to strengthen the financial ring-fence in the light of the introduction of a Special Administration regime;
- the type and level of trigger that would be appropriate for the cash lock-up mechanism;
- whether Ofgem should adopt a post-tax approach to the cost of capital and whether this should be an industry-wide cost of capital with company specific tax allowances directly incorporated into the financial model; and
- whether Ofgem should adopt an assumed level of gearing which reflects the increase in average gearing, and if not, why not.

7.91. Ofgem would also like to hear the views of stakeholders on the proposed treatment of pensions, and in particular in relation to:

- the allocation between price-controlled and non-price-controlled activities;
- the options in relation to the treatment of over/under provision; and
- the treatment of early retirement deficiency costs.

Appendix 1 Developing the RIAs for Distributed Generation, IFI and RPZs

Introduction

It was explained in the July 2003 document that, where appropriate, Ofgem would produce a RIA for significant new policies introduced as the price control review progresses. In the October update document Ofgem discussed the components of an initial high-level RIA for incentives for DNOs in relation to distributed generation. Ofgem explained that the estimates of costs and benefits will depend critically on quantified information provided by respondents to the consultations and encouraged the respondents to provide quantitative assessments in their comments where possible.

Three DNOs made comments on the initial RIA in their responses to the October document. They were all supportive of the development of a full RIA for distributed generation. One specifically agreed with the categories of costs, benefits and risks identified, and believed further work would be required on assessing the impact on quality and security of supply as well as potential distributional effects. Another one pointed out that the initial RIA indicated Ofgem's focus still being on efficiency and that the assessment should include wider social and environmental factors such as emission levels.

Here Ofgem sets out the questions that need to be answered in developing full RIAs for distributed generation, IFI and RPZs – and in particular to assess the relative costs and benefits of the various incentives to decide whether they should be introduced and, if so, the strength of incentive required. Full RIAs will be produced for the March 2004 document and to assist Ofgem in this process respondents are asked to provide comments on ***each*** of the proposed incentive mechanisms including, where appropriate, quantified responses to the questions that have been identified.

Objectives and key issues

The objectives and key issues behind the proposed incentive framework for distributed generation, the IFI and RPZs are outlined in the main document and also in the October update.

Options

Due to the complicated nature of the issues involved, the options considered for the various incentives have been discussed in detail in the main body of the relevant consultation documents.

For distributed generation the broad options that have been considered are:

- "Do nothing" – No special treatment is given to the costs relating to distributed generation. Under the assumption that the generation connection charges will become shallower in the next price control period, this option relies on the current price control mechanism of setting revenue allowance based on forecast expenditure required; and

- "distributed generation incentive" – Incentives are set up in various areas of DNOs' activities in relation to distributed generation: access to network including reinforcement, and operating the network. The approaches considered included a hybrid mechanism combining a pass-through element and incentive elements, and an incentive based on network availability for network operation.

The initial ranges of values for the relevant parameters are proposed in the main body of this document.

For IFI, the broad options are:

- to rely on the incentives for efficiency under RPI-X to encourage DNOs to seek out innovative approaches to running/operating the network and for engaging in efficient R&D activity; or

- provide a substantive allowance (eg 0.5 per cent of revenue per year per DNO), with a "use it or lose it" mechanism such as IFI, and with requirements for best practice transfer and transparent reporting.

For RPZs, the broad options are:

- "do nothing" – rely on the incentives provided by the proposed arrangements for distributed generation to encourage DNOs to introduce new approaches/technologies in relation to distributed generation; or
- introduce an extra incentive, in the form of the RPZs, designed to be consistent with the proposed incentive framework for distributed generation, providing additional incentives to encourage the development of new, potentially lower cost, approaches to connecting and utilising distributed generation.

Costs and benefits

In developing the RIAs for the incentive framework for distributed generation, IFI and RPZs it is important that the main costs and benefits are identified, and where possible, quantified, to ensure that the introduction of the new policy is appropriate.

In assessing the costs and benefits arising from the incentive framework for distributed generation, the IFI and RPZs, Ofgem will consider the impact on consumers, distributed generators and the DNOs. Specific questions on which respondents are requested to comment are set out below although Ofgem welcomes any other information (preferably quantified) that will assist in the development of the RIAs. Any assumptions that respondents make in answering these questions should be clearly identified.

Questions for developing the RIAs

- **what would be the impact of each of the:**
    - **distributed generation incentive;**
    - **IFI; and**
    - **RPZ mechanisms**

  on the volume (or capacity) of distributed generation connecting to the distribution networks?

- **what would be the additional expected costs of the incentive framework to distributed generators for connecting to the network? What benefits would it provide?**

- **what would be the impact of IFI and RPZs on research and development and network innovation? What benefits would these provide to generators and other connected consumers in comparison to the associated costs that would be incurred?**

- **what would be the impact of each of the proposed incentive schemes on the costs of connecting distributed generation in the period to 2010 and in the longer term – both in terms of £/kw and total system costs?**

- **how would you expect new technological developments to reduce the £/kW cost of connecting distributed generation over that period?**

- **to what extent does the connection of distributed generation require new R&D by the DNOs?**

- **what would be required to do to administer each of the proposed incentive schemes and what would be each of the associated costs?**

- **what would be the impacts of changes in the volume of distributed generation on**

  - **quality and security of electricity supply; and**

  - **losses?**

- **will distributed generation provide benefits in these areas,**

  and if so, can they be quantified?

One of the main benefits of setting appropriate incentives for the DNOs in relation to distributed generation will arise through facilitating progress towards the government's energy policy targets. In addition to the questions above, Ofgem would welcome any views on the following questions:

- **how much of the increased volume in distributed generation would be of environment friendly types (eg renewables)? By how much would this be expected to replace electricity from non-renewable sources? Would such generation contribute to the reduction of emission levels and, if so, how should these benefits be quantified?**

These questions should also apply to IFI and RPZs if they are expected to have an impact in this area.

Distributional effects

When considering the distributional effects of the distributed generation related regulatory framework, it is expected that costs should be borne by those that incur them. Exceptions may arise if investments are made to accommodate distributed generation which does not then materialise or subsequently disconnects or where innovation and R&D provides benefits to other consumers connected to the network.

- **would there be significant costs outstanding if expansion of the network was not taken up by distributed generators? Could the additional capacity be utilised in another way, and if so, how should any costs be treated?**

- **are the IFI and RPZs likely to provide benefits to all consumers connected to the network, and if so, how would these compare to the benefits realised by distributed generators and DNOs?**

- **the incentive framework for distributed generation assumes an asset life of 15 years for infrastructure assets required for connecting distributed generation. Is this appropriate and how does it compare to the assumed lives for other network assets?**

Risks and unintended consequences

There could be a number of risks and unintended consequences associated with each of the incentive mechanisms. Some of these will be influenced by the value (or strength) of any incentive provided. For example, if an incentive is too strong it may encourage inefficient expenditure, but if it is not strong enough, it may not have the desired impact on DNOs' behaviour and the expected benefits may not be realised. Answers to the questions that have been identified above will help in assessing the appropriate level of any incentive, but it is important to consider whether there are any other potential risks or unintended consequences. For example, for IFI there may be a risk that expenditure incurred by DNOs does not realise any benefits for consumers or that the transfer of best practice is not facilitated. **Ofgem would welcome views in this area, including, where possible, quantification of the likely impact.**

Competition

The proposed incentive framework for distributed generation does not relate to particular types of generation technologies and hence are not expected to have major impact on competition amongst new distributed generation. Whilst Ofgem expects the increased volume of distributed generation to have a positive effect on the general competition in the generation sector, it will examine and limit any scope for distortion in competition between existing and new distributed generation, as well as between distributed generation and generation connected directly to the transmission network. Ofgem does not expect that the IFI and RPZs will give rise to any competition issues. **Views are invited on the impact of the incentive framework for distributed generation on competition in the generation sector.**

Review and compliance

Ofgem will set up appropriate monitoring system to review the effectiveness of the adopted regulatory framework in the next price control. Monitoring for IFI and RPZ is discussed in the relevant section of the paper. **Views are invited on the likely costs of any monitoring that would be required for each of the incentive framework for distributed generation; the IFI; and RPZs.**

Appendix 2 Scoping of Competitive Market Review

In Chapter 3 Ofgem explained that a competitive market review (CMR) of the electricity metering market would be undertaken to help establish which metering activities should be price controlled. This Appendix discusses the general methodological approach Ofgem will take to carrying out this CMR. It is not the intention at this stage to produce a draft questionnaire for the CMR, but rather to indicate the issues that will be examined.

Ofgem would welcome views on the approach to the CMR and in particular on aspects of the metering market which respondents feel have been missed in this preliminary scoping exercise.

Background

In 2000 Ofgem carried out a survey of the electricity (and gas[31]) metering markets ('the 2000 metering CMR')[32]. The 2000 metering CMR also gathered data on the gas and electricity meter reading industries. It is not Ofgem's intention to include meter reading in the scope of this CMR. The results of this survey led to the development of Ofgem's strategy for metering[33]. Copies of these documents can be found on Ofgem's website.

Ofgem has kept abreast of developments in the metering markets but has not carried out any subsequent competitive market reviews of metering markets.

Ofgem has also carried out CMRs in the retail gas and electricity markets[34] and the gas and electricity connections markets[35].

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[31] Whilst respondents to the forthcoming CMR are welcome to comment on links between the gas and electricity metering markets it is not Ofgem's intention to carry out a CMR of the gas metering market at this stage.
[32] 'Review of competition in metering and meter reading services - Survey document', Ofgem, September 2000
[33] 'Ofgem's strategy for metering - A consultation paper', Ofgem, March 2001
[34] 'Review of competition in the non-domestic gas and electricity supply sectors', Ofgem, July 2003 and 'Domestic gas and electricity supply competition - Recent developments' Ofgem, June 2003.

Quantitative Data

An important part of a CMR is gathering quantitative data on the activities in the market to date. This was an important part of the work carried out as part of the 2000 metering CMR. For this CMR, Ofgem would gather information on the following subjects:

- market participants;
- level of activity;
- market shares;
- market entrants; and
- prices charged.

Qualitative Data

In addition to the quantitative data it is important to gather qualitative date from participants in the metering markets. This data will be used to find out what barriers participants perceive to the development of competition in metering and to test their understanding of, and ability to engage with, the market.

Qualitative data is an important aspect of the CMR and this will be considered alongside the quantitative results in deciding on the appropriate approach to metering activities.

Next Steps

This consultation closes on 10 February 2004. Ofgem would intend to issue a draft questionnaire by 9 March 2004. Ofgem would intend to circulate this draft for comments to a representative group of industry players (including DNOs, suppliers, meter manufacturers and possibly I&C consumers or representative groups). Ofgem would then intend issuing the questionnaire by May 2004.

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[35] 'Connections industry review – New entrants questionnaire', Ofgem, March 2003 and 'Connections industry review – Customers questionnaire', Ofgem, March 2003

Appendix 3 Pension guidelines

The following guidelines were published in the June document:

- consumers 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;

- in principle, each price control should make allowance for the ex ante cost of providing pension benefits accruing during the period of the control, and similarly for any increase or decrease in the cost of providing benefits accrued in earlier periods resulting from changes in the ex ante assumptions on which these have been estimated;

- pension costs should be assessed using actuarial methods, on the basis of reasonable assumptions in line with current best practice;

- increases or decreases in the future costs of providing accrued benefits resulting from under- or over-funding in prior periods will need to be considered on a case-by-case basis;

- increases or decreases in the future cost of providing accrued benefits resulting from differences between ex ante and ex post investment returns in prior periods will also need to be considered on a case-by-case basis;

- liabilities in respect of the provision of pension benefits that do not relate to the regulated business should not be taken into account in assessing the efficient level of costs for which allowance is made in the price control;

- companies will also be expected to absorb any increase (and may retain the benefit of any decrease) in the cost of providing enhanced pension benefits granted under severance arrangements which have not been fully matched by increased contributions.