Conclusions on the review of the structure of gas distribution charges

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Overview:

This document sets out Ofgem's conclusions on the review of the structure of gas distribution charges. It also sets out a timetable to develop the reform of interruptions arrangements for gas distribution networks.

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Target Audience: This document is addressed to gas transporters, gas shippers, gas suppliers, gas users and other interested parties

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Context

This document sets out Ofgem's conclusions on the review of the structure of charges for connection and use of the gas distribution networks (GDNs). The structure of distribution charges affects the behaviour of a wide range of consumers and, for this reason, it is important for it to provide appropriate incentives to use GDN assets effectively. Distribution charges account for approximately one fifth of an average domestic gas bill. Improvements to the charging models have the potential to lead to a more efficient use of GDN assets, thus reducing the costs of developing and maintaining them. These lower costs would then be reflected in reduced distribution charges for all consumers.

The review of the structure of gas distribution charges started in spring 2004 with the aim of clarifying Ofgem's views in this area. Ofgem's views on gas distribution charges had become especially important for Independent Gas Transporters (IGTs) in light of the implementation of Relative Price Control (RPC) charging arrangements in January 2004. The sale of National Grid Gas[1] (NGG)'s GDNs (GDN sales) and the intended reforms of the exit and interruptions arrangements for both the National Transmission System (NTS) and the GDNs added further significance to this review.

Ofgem had previously postponed any change in the proportion between capacity and commodity related charges (the capacity/commodity split) due to its interactions with the existing interruptions arrangements. As part of GDN sales, Ofgem restated the importance of reforming the existing GDN interruptions regime by October 2007 in line with the implementation of enduring offtake arrangements for the NTS.[2] For this reason, changes to the capacity/commodity split have now become feasible. Due to these interactions, this document sets out the work programme for both the capacity/commodity split and the reform of GDN interruptions.

Associated Documents

- Gas Distribution Price Control Review. Initial consultation, December 2005 http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/13055_259_05.pdf?wtfrom=/ofgem/work/index.jsp&section=/areasofwork/gasdistpriccon
- Structure of gas distribution charges. Initial proposals, July 2005 http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/11945_17305.pdf?wtfrom=/ofgem/work/index.jsp&section=/areasofwork/gasdistcharges
- Reform of Distribution Network Interruption Arrangements, 12 July 2005 http://ofgem2.ulcc.ac.uk/temp/ofgem/cache/cmsattach/11864_16805.pdf
- Review of Transco's structure of distribution charges. Consultation paper, May 2004 http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/7068_10104.pdf?wtfrom=/ofgem/work/index.jsp&section=/areasofwork/gasdistcharges

[1] Transco plc changed its name to National Grid Gas plc on 10 October 2005. The name NGG is used throughout the document including where referring to NGG's predecessor organisations.
[2] Ofgem's open letter Reform of Distribution Network Interruption Arrangements, 12 July 2005.

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Summary

This document sets out Ofgem's conclusions on the review of the structure of gas distribution charges. It also sets out Ofgem's proposed work programme for the reform of interruptions arrangements at the GDN level.

Ofgem's conclusions on the review of the structure of gas distribution charges are:

- **Cost-reflectivity of use of system (UoS) charges:** the benefits of moving away from the current charging model do not seem sufficient to justify introducing distance related charging at present, particularly as lessons are expected to arise from improved locational signals emerging from the separation of the gas distribution price control;

- **Capacity and commodity split:** increasing the weighting of the capacity component of UoS charges would encourage a more efficient use of distribution assets, nonetheless this change should be introduced alongside GDN interruption reforms due to the interactions between interruptions arrangements and the capacity/commodity split;

- **Economic test (ET):** it would be beneficial to update some parameters used to calculate the ET and for GDNs to publish a full description of the ET as part of their statement pursuant to standard licence condition 4B (Connection charges etc.) of their licence;

- **Connected system exit point (CSEP) administration charge:** the CSEP administration charge should be kept under review to assess the benefits of switching from the existing labour-intensive administration process to an automated system;

- **Customer charge:** GDNs should review the costs underlying this charge and design a more cost-reflective charging function; and

- **Surveys and auditing:** GDNs should review a number of key data sources which underpin the gas distribution charging models within the timetable for the Gas Distribution Price Control Review (GDPCR).

This paper focuses on any further developments of Ofgem's views with respect to those outlined in its July 2005 document. For a more detailed description of Ofgem's initial views and the analysis underlying such views, please refer to the July 2005 paper.

It is also important to note that standard special condition A5 (Obligations as Regards Charging Methodology) of the GDN licence requires GDNs to keep their charging methodologies under review. Based on this review, GDNs should propose any charging methodology changes that they consider necessary to better comply with the objectives set out under standard special condition A5 and their wider statutory obligations.

1. Summary of responses

Chapter Summary:

This chapter summarises Ofgem's initial proposals and the views of respondents to its July 2005 initial proposals document.

Introduction

1.1. Ofgem received 17 responses to its July 2005 initial proposals document on the structure of gas distribution charges. There was one response marked confidential and 16 non-confidential responses. The respondents comprised a broad range of industry participants including gas shippers, gas suppliers, gas transporters and representatives of large industrial gas users. [3] Respondents were asked to provide their views on any aspect of the document and, in particular, on the following areas:

- cost-reflectivity of UoS charges;
- capacity/commodity split;
- Economic test (ET);
- CSEP administration charge;
- customer charge; and
- surveys and auditing.

Ofgem's initial proposals and the views of respondents are summarised below.[4]

Cost reflectivity of use of system charges

Ofgem's initial proposals

1.2. Currently, distribution UoS charges do not depend on customer location within a GDN but on customer size, which acts as a proxy for the distribution assets a customer uses.

1.3. Ofgem considered that the advantages of moving away from the current charging model would not be sufficient to justify moving to distance/location related charges at present. Further, lessons could be learnt from improved locational signals emerging from the separation of the gas distribution price control.

[3] The non-confidential responses have been placed on the Ofgem website. The list of respondents is reported in appendix 1.
[4] The details of Ofgem's initial proposals are outlined in the following document: Structure of gas distribution charges. Initial Proposals, July 2005.

Respondents' views

1.4. A large majority of respondents supported Ofgem's views and stated the need of keeping a consistent charging model across GDNs. One of the respondents supporting Ofgem's initial proposals added that the reformed NTS offtake arrangements would introduce substantial changes to the GDN cost structure which may need to be reflected in new charging models in the future.

1.5. Many representatives of gas shippers and suppliers remarked that a change from the current arrangements would require significant changes to billing and registration systems. These changes would be costly and complex to implement and would be likely to have an adverse impact on consumers in general and, in particular, on those situated in rural areas. Respondents were generally of the view that the current charging model provides an appropriate balance between cost-reflective charges and low administrative costs.

Capacity and commodity split

Ofgem's initial proposals

1.6. Ofgem considered that increasing the proportion of the capacity component of UoS charges would encourage a more efficient use of the distribution assets. Views were sought on two possible options which include a 70:30 and a 99:1 capacity/commodity split.

Respondents' views

1.7. Views were generally divided on the capacity/commodity split, with several respondents stating that the impact assessment (IA) should be further developed to reflect GDN interruptions reforms and the effects on standing charges.

1.8. As regards to the specific options available, some respondents added that independent GDNs should examine their cost structure before finalising any options. Amongst respondents who advocated an increase in the capacity weighting, there was a clear preference for the 99:1 spilt. One respondent warned that the options for the capacity/commodity split should better assess the most appropriate treatment of indirect costs.

1.9. Several respondents stressed the benefits in terms of more stable charges that a higher proportion of capacity-related charges would bring. However, one respondent claimed that stability of charges will be achieved via an increased capacity/commodity split only to the extent that the revenue sensitivity to throughput variations is the same for collectable revenue and allowable revenue. This respondent therefore suggested introducing an interim change in the split in September 2007 to be finalised in October 2008 when the structure of the GDN price control is known.

1.10. All respondents who commented on the timescale for implementing changes to the capacity/commodity split stated that it was best to delay. A majority of these

respondents agreed with Ofgem's proposal to implement any change to the capacity/commodity split in conjunction with GDN interruption reform.

1.11. Some respondents considered that the options presented by Ofgem in the initial proposals were too limited. One respondent felt it was hard to comment on parts of the IA since the form of the interruption arrangements had yet to be developed. In addition, one respondent commented that Ofgem's IA should take into account the combined impact of changing the capacity/commodity split and introducing a customer charge based solely on capacity.

1.12. Some respondents who were against the increase in the capacity weighting noted that a move to higher capacity weighting could undermine energy efficiency. Further, the demand by daily metered (DM) customers would not be greatly affected by this change, since other influences such as market demand are more relevant.

1.13. Respondents in favour of the increase in capacity weighting argued that this may promote more economic and efficient use of distribution assets. One of the respondents supporting a higher proportion of capacity-related charges argued that the reintroduction of standing charges for domestic users was unlikely, since the annual consumption for these users is small and capacity charges in respect of domestic supply points would continue to reflect their size.

1.14. A number of respondents claimed that a higher capacity weighting would lead to the re-introduction of standing charges in the bill of domestic consumers, thus penalising low demand users and, especially, the fuel poor. Other respondents highlighted that existing domestic bills usually exhibit two-tier tariff structures, which effectively operate as alternatives to the more traditional standing charges.

1.15. One respondent argued that IGTs could receive a windfall gain if the capacity weighting increased, while the GDNs would be neutral to such a change. The gain would arise from applying the RPC formula when both the final domestic charge and the CSEP charge increase by the same percentage.

Economic test

Ofgem's initial proposals

1.16. Ofgem proposed to update a number of parameters currently used to calculate the ET. We also asked GDNs to publish a full description of the ET as part of their statement pursuant to standard licence condition 4B (Connection charges etc) of their Gas Transporters (GT) licence.

Respondents' views

1.17. Respondents supported Ofgem's initial proposals, however one respondent stated that the need for the ET should be reviewed as part of the GDN interruption reforms. They highlighted the difficulties of finding a robust definition of process and non-process loads, the risk of gaming as the ET becomes more transparent and the need for consistency across GDNs.

1.18. There were mixed opinions amongst respondents about the potential risk of gaming. In general, GDNs were concerned of this risk whilst other parties did not recognise it. A few respondents suggested that a way to mitigate the risk of gaming would be through connection agreements (such as ARCAs[5]) or some form of customer guarantee.

1.19. There was divided support with regard to distinguishing between process and non-process loads. A few were concerned over the number of disputes which could arise as a result, whilst others thought a reasonably robust definition could be established. A few respondents discussed the possibility of other possible proxies to distinguish process and non process loads, including load size, whether the load is DM or non-daily metered (NDM), standard industrial classifications and annual consumption.

1.20. One respondent did not support reducing the asset life from 65 to 45 years as it claimed that the asset life of polyethylene pipes is much longer. A few respondents stated that more analysis was needed to determine the most appropriate appraisal period. One respondent suggested that for mixed sites which fall neither into process or non-process loads a mid-way appraisal period of 30-35 years could be used. Another respondent argued that the asset life and appraisal period should be set at 15 years.

1.21. One respondent requested an explanation of how the capitalisation factor is calculated.

CSEP administration charge

Ofgem's initial proposals

1.22. Ofgem considered that this charge had accurately reflected the costs incurred by the GDNs in managing CSEP information under existing labour intensive processes; however it has concluded that this charge should be kept under review to assess the net benefits of switching to an automated process.

Respondents' views

1.23. A majority of those respondents who commented on this issue supported Ofgem's initial proposals. However, one stated that the costs to automate the services would be worthwhile and should be spread across all shippers through general distribution charges. Another maintained that the issue of automation should be considered in the upcoming price control review where Agency arrangements and, in particular, IGT registration arrangements should be reviewed.

1.24. One respondent commented that although the charge has been decreasing in recent years, these costs could have been handled more efficiently through an automated process rather than the existing labour intensive off-line systems.

1.25. One of the respondents who supported Ofgem's proposals expressed concern at the frequency and quality of information being sent from Xoserve to shippers with

[5] ARCAs are defined in appendix 4.

no verification that IGTs are submitting the necessary information on supply point activity. This was of particular concern for nested CSEPs[6] whereby the downstream IGT fails to provide adequate information to the upstream IGT.

Customer charge

Ofgem's initial proposals

1.26. Ofgem proposed a review by GDNs of the costs underlying this charge with the aim of introducing a more cost-reflective charging function based solely on capacity.

Respondents' views

1.27. Seven respondents commented on this issue, the majority of which objected to the proposal. These objections were mostly based on the concern that a greater proportion of capacity related charges would increase bills for small domestic customers including the fuel poor.

1.28. Some respondents who supported Ofgem's proposal commented that the proposal would imply more predictable revenue and reduced frequency and size of price changes. This is illustrated in tables 1 and 2, as reproduced from one of the responses.

1.29. Specifically, under the current system, 63 per cent of billed revenue is related to throughput and is therefore sensitive to weather (table 1). After the proposed change only 35 per cent of revenue would depend on throughput (table 2). The fixed proportion of allowed revenue in the price control is 65 per cent, while 35 per cent is weather sensitive. The proposed change in the customer charge would align weather sensitivity of billed and allowed revenue.

Table 1 Proportion of revenue recovered by current charges

	LDZ System Charges	Customer Charges	Total
	per cent	per cent	per cent
Capacity	35	2	37
Commodity	35	28	63
Total	70	30	100

Table 2 Proportion of revenue recovered after proposed change

	LDZ System Charges	Customer Charges	Total
	per cent	per cent	per cent
Capacity	35	30	65
Commodity	35	0	35
Total	70	30	100

1.30. Another respondent in favour of Ofgem's proposals recommended implementing the change in line with any changes to the capacity/commodity split due to their interlinked net effect and ease for shippers who would need to implement only one change to tariff structures.

[6] A nested CSEP is where an IGT adjoins another IGT network.

1.31. One respondent suggested that the customer charge should have two elements: one capacity related component and one customer based component. This would make this charge more cost-reflective, as the capacity component would be a reasonable proxy for the cost of service pipes, while supply point emergency services are on a customer basis.

1.32. A couple of the respondents were concerned about the current timetable and requested a delay to allow more time to undertake the necessary review of costs.

Surveys and auditing

Ofgem's initial proposals

1.33. Ofgem proposed to review a number of key data sources which underpin the gas distribution charging models.

Respondents' views

1.34. All respondents who commented on this issue supported Ofgem's proposals. There was general agreement that a review of the data underlying the charging functions is necessary and, in light of the GDN sale, it was timely to do so.

1.35. GDNs indicated that there will be extensive analysis of costs at the upcoming price control review, so it was suggested to delay these reviews and align them with the GDPCR timetable to avoid duplication of work.

1.36. A number of respondents stated that any reviews should be performed on an GDN basis.

Other issues

1.37. A number of respondents were concerned about fragmenting charging methodologies across GDNs, the short timescales for implementation of most proposals, and ensuring that sufficient information on the operations of the GDNs is provided to the industry.

1.38. Two respondents suggested that Ofgem should host a seminar to discuss the main proposals. Another respondent stated that it was important to consider charging issues for the statutory independent undertakings and Scottish independent networks.

2. Ofgem's views

Chapter Summary:

This chapter outlines Ofgem's views on the issues raised by respondents and sets out its conclusions on the review of the structure of gas distribution charges. Please refer to the July 2005 initial proposals document and the May 2004 consultation document for a full description of gas distribution charging arrangements and the ET.

Cost reflectivity of use of system charges

Ofgem's views

2.1. In broad terms, UoS charges are currently designed to reflect the costs associated with an average load for each specific end user category. They are derived by using a model that is simple and easy to manage.

2.2. As respondents have not raised new issues in this area, we reiterate the reasons set out in Ofgem's July 2005 document for not recommending a move to more cost-reflective UoS charges at this time. These included:

- the costs and practical difficulties of introducing some form of distance-related charges;
- the benefits of first considering the impact of the increased locational signals that are expected to emerge from the separation of the GDN price control and the divergence of charges across GDNs;
- the benefits of first considering any useful lessons resulting from the charging models that are being developed within electricity distribution; and
- the adverse impact that a move from the current system could have on vulnerable customers, including individuals residing in rural areas.

2.3. We refer to the July 2005 document for the analysis underlying Ofgem's views.

Conclusions

2.4. Ofgem considers that the net benefits which could arise from moving away from the current charging model to more cost-reflective charges may not be sufficient to justify supporting a major reform of UoS charges at present. However, pursuant to their licence obligations, GDNs should keep the model underlying UoS charges under review and propose any changes they consider necessary to better serve the relevant charging methodology objectives under standard special condition A5 of their licence and their wider statutory obligations.

Capacity and commodity split

Ofgem's views

2.5. As indicated in its initial proposals, Ofgem would consider an increase in the proportion of capacity related UoS charges only alongside GDN interruptions reform. Doing otherwise would exacerbate Ofgem's concerns with the existing interruptions arrangements, since a higher proportion of capacity charges would automatically increase the administrative discount to interruptible users irrespective of the value of their services to GDNs.

2.6. Specifically, at present, interruptible customers do not pay any capacity charges (even when they are not interrupted), which may over state the true value of interruptible services being provided. Charging more on the basis of capacity and less on commodity would tend to exacerbate any discrepancy between the true value of interruptions and the discount afforded to interruptible customers.

2.7. For this reason, Ofgem considers that changes to the capacity/commodity split should not be progressed independently of GDN interruptions reform.

2.8. The initial IA outlined in the July 2005 document was intentionally simple in applying only a high level idea behind GDN interruptions reform, whereby all users were assumed to be deemed firm and interruptible services are contracted out between GDNs and interested users.

2.9. Ofgem is aware that reforms of GDN interruptions arrangements may affect the IA on the capacity/commodity split. We will be updating the IA for the capacity/commodity split to reflect the developments of GDN interruptions reform.

2.10. Respondents have highlighted that the uncertainty about the nature of indirect costs is a potential weakness of NGG's analysis underlying the allocation of costs between capacity and commodity. Ofgem therefore considers it worthwhile to give further consideration to different treatments of indirect costs and assess alternative options for the capacity/commodity split based on this.

2.11. In the next months, Ofgem will also take the opportunity to speak to the new GDNs to understand their views on how the analysis used in the initial IA still applies to their individual networks.

2.12. The options for the split between capacity and commodity charges are also potentially linked to the revenue driver embedded in the GDN price control formula. Currently, this revenue driver establishes that 65 per cent of allowed revenue within a formula year is fixed, while the remaining 35 per cent varies with throughput.

2.13. Some respondents have highlighted that the benefits in terms of stability of charges that a higher capacity/commodity split could bring will depend on the extent to which the revenue sensitivity to throughput variations is the same for revenue collected through charges and allowable revenue.

2.14. Ofgem recognises that some of the benefits arising from increasing the proportion of capacity-related charges could be affected by discrepancies between

the capacity/commodity split and the revenue driver. For this reason, Ofgem will assess the interactions between different capacity/commodity splits and the relative proportion of the fixed and variable components of the revenue driver before finalising its proposals in this area of the structure of charges.

2.15. As regards the introduction of standing charges in the bills of domestic customers, Ofgem recognises that further analysis could be included as part of the final IA on the changes to the capacity/commodity split. In response to the concerns about the potential re-introduction of standing charges it is important to highlight that a number of gas suppliers already have standing charges in domestic bills.

2.16. Nevertheless, Ofgem agrees that an increase in the fixed element of the gas bill is likely to be unfavourable to the lower users within the category of domestic customers. For this reason, we will give more consideration to the impact of an increase in the capacity/commodity split on these consumers.

2.17. Finally, in developing a final IA on the capacity/commodity split, we will further consider the impact that changes to the split could have on RPC charges.

Conclusions

2.18. Ofgem still considers that there is a strong case for increasing the proportion of capacity-related UoS charges as outlined in the initial IA set out in our July 2005 paper. The higher capacity weighting would better reflect the actual balance of capacity and commodity related costs of gas distribution. More cost-reflective charges can have a significant impact on the efficient use of the distribution assets and help reduce future investment costs. These savings would eventually be reflected in lower UoS charges to all customers.

2.19. However, for the reasons outlined in the previous section, Ofgem also considers that this change should only be introduced alongside a reform of GDN interruptions arrangements.

2.20. The responses, together with the change in industry structure, have raised a number of issues. Before finalising its final thoughts on the capacity/commodity split, Ofgem intends to:

- consider further options for the capacity/commodity split, including different assumptions on indirect costs; and

- produce a final IA once GDN interruptions reform is better defined, taking also into account any interactions between the proportion of capacity charges and the revenue driver.

2.21. Table 3 outlines the proposed timetable for developing final thoughts and implementing a new capacity/commodity split.

Table 3 Finalising work on the capacity/commodity split

Time	Ofgem's deliverables	Industry's deliverables	GDN interruptions (from Table 4)
Sept / Oct 2006	Update views alongside the proposals paper on GDN interruptions reform	-	Proposals paper and initial IA
Jan 2007	Final proposals and IA	-	UNC modification to implement reform is underway
Feb / June 2007	Ofgem decision on changes to charging methodology	GDNs develop new charging methodologies, consult and plan system changes	Ofgem's decision on UNC mod; Ofgem's decision on changes to charging methodology
Oct 2007	Implementation	Implementation	Implementation

Economic test

Ofgem's views

2.22. Ofgem considers that the ET can provide useful locational signals on the cost of connecting new loads which are currently not offered by UoS charges. More generally, the ET can identify loads for which there is a higher risk that they will not pay sufficient distribution charges to cover the costs of connecting them to the GDNs. This could result from atypical profiles, premature disconnection from the network or location in areas where it is significantly more expensive to transport gas. As a consequence, other customers may be required to pay higher distribution charges to fund the shortfall between the distribution charges paid by a specific load and the costs of the capacity investment that such load has required.

2.23. Currently, new GDN supply points are usually not required to make financial commitments to paying a certain level of distribution charges for more than one year. There could therefore be a risk that some loads will not be able to repay, through distribution charges, the costs of the investment they have required from GDNs.

2.24. The reform of the GDN interruptions arrangements may lead to a framework whereby alternatives to the ET (such as longer term financial commitments to holding firm exit capacity rights for certain users) are introduced. Ofgem will review

the appropriateness of the ET as part of the development of GDN interruptions reform.

2.25. In its initial proposals, Ofgem suggested distinguishing between process and non-process loads. However, responses to the July 2005 paper highlighted the difficulties of introducing these two categories. In particular, distinguishing between process and non-process loads could lead, at times, to a non-transparent attribution of a load to one of the two categories. This could, in turn, result in increased disputes being raised with Ofgem for a determination.

2.26. Nonetheless, Ofgem still supports the principle of having different appraisal periods for certain types of loads to reflect differing risk profiles. Based on suggestions from respondents, we considered that a distinction based on the size of the load would be transparent and easy to manage. The size of a load would provide a simple proxy for broadly distinguishing between process and non-process loads.

2.27. Specifically, we propose that:

- loads with an annual consumption of 58.6 GWh or less should have an appraisal period equivalent to the most recent estimate of the average economic life of assets (i.e. 45 years); and

- loads with an annual consumption of more than 58.6 GWh should have an appraisal period of 25 years.

2.28. It is relevant to note that 58.6 GWh represents the boundary between DM and NDM users. When compared to the current ET, this change would imply a higher likelihood of a load passing the test as a consequence of an increase in the capitalisation factor used in the ET. The impact on the capitalisation factor is reported in appendix 5.

2.29. In light of the degree of uncertainty implicit in any new distinction between loads, it is important that GDNs keep this change under review by monitoring the performance of a sample of sites which have been subject to the ET.

2.30. As regards Ofgem's proposal to use the cost of capital allowed as part of the price control, one respondent suggested that a premium should be allowed to reflect the higher risk profile of these projects. In this respect, we consider that the appraisal period for different load types should capture the risk profile of new connectees.

2.31. Some respondents criticised the proposed length of the depreciation period as being too short. Ofgem considers that 45 years is the most recent estimate of the average economic life of distribution asset as determined in the review of the gas distribution and transmission price control from 2002.[7] We consider that this figure should be updated based on the outcome of the current GDPCR.

2.32. Ofgem considers that an increase in the transparency of the ET will better inform potential connectees about whether it is economic for them to connect. This

[7] Review of Transco's Price Control from 2002. Final Proposals, Ofgem, September 2001.

could result in more effective investments by the GDNs and, eventually, lower distribution charges.

2.33. Ofgem recognises that there is some risk of gaming, whereby new connectees might have the incentive of declaring higher expected gas demand in order to pass the ET or at least reduce the upfront payments that they could be required to pay. However, even the most detailed description of the ET would include some uncertainty about the costs of specific reinforcement which depends on a number of factors including types of pipe work required, location of the load (e.g. urban or rural area), timing, need for permits to undertake the work and so forth. This uncertainty would make it more difficult to game.

2.34. Further, GDNs could require new connectees to provide more detailed information about the expected load profile in order to formulate better estimates of the actual demand that could be expected from the potential new load.

2.35. In order to address the request of a respondent, appendix 5 describes the calculation underlying the capitalisation factor under the current ET.

Conclusions

2.36. For the reasons outlined above, Ofgem has concluded that:

- GDNs should publish a description of the ET in line with the information provided in appendix 2 of Ofgem's July 2005 initial proposals document, including a description of the capitalisation factor and the general additional costs for a new load;
- it would be desirable for GDNs to adopt consistent methodologies for calculating the ET or demonstrate that alternative models would better serve their statutory and licence obligations;
- consistent with Ofgem's initial proposals, the discount rate should be set equal to 6.25 per cent and revised on the basis of the prevailing cost of capital at each price control review;
- consistent with Ofgem's initial proposals, the depreciation period should be set equal to 45 years and be revised based on the outcome of GDPCR as regards to any new estimate of the average economic life of distribution assets;
- due to the costs and difficulties of managing a different ET for process and non-process loads, we concluded that
    - loads with an annual consumption of 58.6 GWh or less should have an appraisal period equivalent to the most recent estimate of the average economic life of assets (i.e. 45 years); and
    - loads with an annual consumption of more than 58.6 GWh should have an appraisal period of 25 years;

- GDNs should review whether this distinction between customers with different load sizes is appropriate by monitoring the performance of a sample of sites which have been subject to the ET; and

- the need for the ET will be reviewed in the light of any reform of GDN interruptions arrangements.

CSEP administration charge

Ofgem's views

2.37. As part of its initial proposals, Ofgem considered whether the CSEP administration charge is cost-reflective and whether the manual processes which currently underlie this charge have been efficient.

2.38. While there are some concerns about the costs of handling the current labour intensive off-line systems, it is also important to highlight that the costs of moving to an automated system could be high. Ofgem is still of the view that these costs seem too high at present to generate net benefits from such investment.

2.39. However, it is important for GDNs to undertake regular cost-benefit assessments of switching to an automated system as the CSEP market continues to grow and, as a consequence, the benefits of moving away from manual processes increase.

2.40. Ofgem also considers that the industry is currently working toward introducing common standards across IGTs with regard to customer registrations, metering, connections, invoicing and governance of the network codes. As work in this area progresses, there is an expectation that managing IGT information could be dealt with by one entity using practices and formats common to all IGTs. This would reduce the costs underlying the CSEP administration charge and possibly lead to the introduction of standard automated processes.

Conclusions

2.41. Consistent with our initial proposals, Ofgem considers that this charge has accurately reflected the costs incurred by the GDNs in managing CSEP information under existing labour intensive processes. However, this charge should be kept under review to assess the net benefits of switching to an automated process.

2.42. As indicated in the July 2005 document[8], the unit costs underlying the charge have been decreasing since the charge was last revised. Ofgem would therefore expect GDNs to review and change the level of the charge as soon as practicable after the publication of this document to reflect the lower unit costs.

[8] Table 3.1, page 23 of the July 2005 initial proposal document.

Customer charge

Ofgem's views

2.43. Ofgem has considered respondents' concerns that introducing a customer charge based solely on capacity would adversely affect domestic consumers by increasing the proportion of overall capacity charges and, in turn, the fixed component of their bills.

2.44. However, we also consider that the costs underlying the customer charge are not related to throughput. The charge was meant to reflect the costs to GDNs of undertaking emergency services and installing service pipes. There seems no clear justification to charge domestic consumers on a throughput basis, while all other gas consumers are charged solely on a capacity basis.

2.45. Furthermore, the existing customer charge exhibits a large discontinuity for customers with a consumption of 73.2 MWh per annum and higher. Specifically, customers with just slightly less than 73.2 MWh of annual consumption pay only commodity charges, which are significantly lower than the capacity charges levied to customers with a consumption of exactly 73.2 MWh and higher. This discontinuity does not seem to be justified by a difference in costs of servicing a load of exactly or slightly more than 73.2 MWh and a load consuming only slightly less than 73.2 MWh.

Conclusions

2.46. The costs underlying the customer charge should be reviewed and GDNs should design a new charging function to reflect these costs. Although Ofgem still considers that a cost-reflective customer charge is more likely to be based solely on capacity, proposals which incorporate two components - one capacity-related and one customer related - may be appropriate.

2.47. On this basis, GDNs should develop a more cost-reflective customer charge by:

- reviewing the costs underlying the customer charge;
- developing a common charging function which reflects these costs; and
- submitting to Ofgem and consult on proposals for the new charging function no later than October 2006 for implementation with effect from 1 October 2007.

2.48. Ofgem will carefully consider the outcome of the review of the costs underlying the customer charges that GDNs will undertake. Similarly, we will assess the effects of the specific charging function that GDNs propose based on their cost review. Interested parties will have the opportunity to comment on the specific design of any proposed new customer charge and suggest alternatives as part of the consultation process that is required before any proposed change to the existing charging methodology can be implemented.

2.49. In particular, any proposed charging methodology change will be required to comply with the charging methodology objectives under the GDN licence. Standard

special condition A5 of the GDN licence states that the charging methodology should be cost-reflective, take account of developments in the distribution business and facilitate competition between gas shippers and gas suppliers.

2.50. Ofgem therefore considers that the interests of all gas users will be fully represented and taken into account as part of the consultation process that will be necessary before any new customer charge is introduced.

Surveys and auditing

Ofgem's views

2.51. A number of data sources underlying the charging functions need to be updated. Following the separation of the GDN price controls and ownership, it is even more important that key data sources are reviewed and updated to reflect the operations of individual GDNs.

Conclusions

2.52. We consider that the initial request for updating the relevant data sources be carried out on a GDN basis. As indicated in the July 2005 paper, these sources include: cost of growth figures for the ET, the connection by pressure survey, and the Activity Based Cost (ABC) analysis or any alternative cost-allocation model the new GDN owners intend to adopt.

2.53. In order to avoid any duplication of work, Ofgem would like to allow the GDNs to undertake the necessary reviews and audits within the timetable for GDPCR.

2.54. The new data should therefore be available no later than 1 April 2008 and be included in the charging functions with effect from 1 October 2008. This should provide sufficient time to comply with the notification requirements for changes to charges pursuant to the GT licence and the Uniform Network Code (UNC).

Other issues

Fragmentation of charging methodologies

2.55. Ofgem has considered the concerns raised by respondents with respect to diverging charging methodologies.

2.56. Ofgem will assess the merits of any proposals to change charging methodologies raised by GDNs in light of the charging methodology objectives included in the GDN licence.

2.57. To the extent that a proposed pricing methodology change could lead to divergent charging methodologies across GDNs, Ofgem will also need to determine whether its implementation would facilitate effective competition between gas shippers and gas suppliers.

2.58. An advantage of the GDN sales process is the possibility that the new management teams will deliver new and innovative proposals. Set against this is the benefit of retaining common charging methodologies across all GDNs, reducing complexity and hence costs for shippers interacting with GDNs.

2.59. The merits of any such change in gas distribution will thus need to be carefully assessed, taking account of the costs of introducing divergent charging methodologies in gas distribution for gas shippers and gas suppliers.

Statutory independent undertakings and Scottish independent networks

2.60. Distribution charging arrangements for gas users connected to statutory independent undertakings and Scottish independent networks were considered by Ofgem as part of the sale of NGG's GDNs. Following discussions with the DTI, Ofgem decided to require from the NTS and GDNs certain undertakings to ensure that customers connected to these networks pay no more than the average charge in GB and that the costs of achieving this are recovered from NTS customers.

2.61. This policy was put in place as a result of the Secretary of State determinations to this effect and the undertakings in favour of the Authority were included to address the mechanism of recovering the costs involved. This issue is outside the original scope of the review of the structure of gas distribution charges. It will be considered as part of the price control reviews for the gas transmission and gas distribution companies.

3. GDN interruptions reform

Chapter Summary:

This chapter outlines the work programme for the development and implementation of the reform of GDN interruption arrangements.

Rationale

3.1. GDN interruptions reform is an important part of the overall reform of exit arrangements in gas. It aims to create a framework for GDNs to make informed trade-offs between interruptions, capacity investments, storage and other forms of flexibility. This framework would complete the reform of NTS offtake arrangements by assisting GDNs in making efficient decisions about their required levels of NTS offtake capacity as well as investment on their own networks.

3.2. The cost of purchasing interruption services and any changes to such cost has a direct effect on the amount of investment that DNs will want to carry out on their network. Any reform of the interruptions arrangements will need to be taken into account as part of GDPCR.

Timetable

3.3. The timetable and a brief description of the work programme are outlined in table 4.

3.4. As part of GDN sales, Ofgem committed to carrying out an IA on any reform of GDN interruptions arrangements. Our timetable seeks to finalise the IA as part of the UNC modification process, i.e. the mechanism which will ultimately implement any reform.

3.5. Ofgem will set up a GDN working group with the remit of opening discussions on the GDN interruptions regime and ultimately developing the UNC modification proposal that will be required to implement GDN interruptions reform.

3.6. We consider that from October 2007 new interruptions arrangements would be introduced for the allocation of interruptible rights from 2010. This would be consistent both with the timetable of NTS offtake arrangements, whose transitional regime is scheduled to continue until 2010, and with the timetable for GDPCR. This view might change in the light of any decisions on the reform of NTS offtake arrangements.

Table 4 Timetable for GDN interruptions reform

Time	Ofgem's deliverables	Industry's deliverables	GDPCR and NTS offtake arrangements
April / May 2006	Publish initial thoughts including principles, high level options, request for data to be used in IA, skeleton and scope of IA	Following initial thoughts paper, consultation and data gathering	GDPCR develop the BPQ to be issued in June; NTS offtake team publish minded to position on structure of incentives in March
Sept / Oct 2006	Issue proposals paper and initial IA, including proposals on DN incentives	Following the proposals paper, industry to raise UNC modification proposal	BPQ responses from GDNS due
November 2006	-	Further development of UNC modification	GDPCR issue third consultation including impact of proposals for GDN interruptions
Dec 2006 / Jan 2007	Consultation on licence drafting for DN incentives	UNC modification to be voted to consultation	NTS offtake team publish final proposals in December
Jan / Feb 2007	-	Consultation on UNC modification and final report due	GDPCR issue summary BPQ; NTS offtake team draft and consult on licence modifications
March 2007	Ofgem's decision on UNC modification and final IA; licence modification for DN incentives to take effect from April	GDNs raise proposals to change charging methodologies, consult and issue final proposals	GDPCR publish fourth consultation; NTS offtake team in implementation stage with licence modifications to take effect from April
June / July 2007	Ofgem's decision on charging methodology changes	-	Following initial proposals in May, GDPCR issue paper on licence drafting
October 2007	Implementation of new arrangements: tender for interruptible rights for 2010	Implementation of new arrangements: tender for interruptible rights for 2010	Implementation of changes to charges due to NTS offtake arrangements and allocation of rights for 2010

4. Concluding remarks

4.1. This document has outlined Ofgem's conclusions on the review of the structure of gas distribution charges. On the basis of the responses to the May 2004 and July 2005 consultation paper, Ofgem has focussed its analysis on the following main areas:

- cost reflectivity of UoS charges;
- capacity/commodity split;
- CSEP administration charge;
- ET;
- customer charge; and
- other issues, including fragmentation of charging methodologies and auditing.

4.2. In broad terms, from its analysis, Ofgem has concluded that:

- a change to the capacity/commodity split would be desirable; and
- a number of marginal improvements within the remaining areas of work would be beneficial and could be implemented at minimal cost.

4.3. Having recognised the interaction between the development of a new capacity/commodity split for UoS charges and GDN interruptions reform, Ofgem has concluded that any changes to the capacity/commodity split should be undertaken alongside the progress of GDN interruptions reform. Table 3 and Table 4 have outlined the proposed timetable for these two projects.

4.4. As regards the remaining areas of the structure of gas distribution charges, Ofgem expects that, following the publication of this document, GDNs will:

- update the ET according to Ofgem's conclusions with immediate effect;
- review the level of the CSEP administration charge and immediately change the level of the existing charge as appropriate;
- undertaking a review of the costs underlying the customer charge with the purpose of submitting to Ofgem and consult on a new charging function no later than October 2006 for implementation from 1 October 2007; and
- undertake surveys and auditing of the cost of growth figures to derive the ET, the connection by pressure survey and the ABC analysis (or any successor of this model), with a view of completing this work within the GDPCR timescale for inclusion in the charging function from 1 October 2008.

Appendices

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Appendix 1 - Consultation Questions

1.1. In its two consultation documents on the structure of gas distribution charges, Ofgem sought the views of respondents on a number of issues as set out below.

1.2. In its May 2004 paper on the review of the structure of gas distribution charges, Ofgem sought views on the following issues:

Issue 1: whether gas distribution UoS charges should be made more cost-reflective and, if so, what sort of changes would be appropriate;

Issue 2: whether the capacity/commodity split should be changed;

Issue 3: whether a more shallow distribution connection charging boundary should be adopted and ongoing distribution charges increased to recover the additional costs of reinforcement;

Issue 4: whether the ET should be reviewed, for example to consider the potential asymmetry of the test and potential asymmetry of the sharing efficiency savings when upsizing occurs;

Issue 5: whether the impact of Relative Price Control regulation of IGTs should be considered;

Issue 6: what are the implications for this review, if any, of the separation of the gas distribution price control and the potential sale of National Grid's GDNs; and

Issue 7: any other matters of concern regarding gas distribution charging arrangements.

1.3. In its July 2005 document on Initial proposals for the Structure of gas distribution charges, Ofgem sought views on the following issues:

Issue 1: whether NGG estimate that marginal cost charging would allow GDNs to recover only 40 per cent of their costs is robust;

Issue 2: which one of the proposed options would be more appropriate for the capacity/commodity split;

Issue 3: what are the risks and consequences of all suppliers introducing a standing charge in the bills of final consumers under Ofgem's initial proposals for changing the capacity/commodity split;

Issue 4: whether and how it would be possible to make a robust distinction between process and non-process loads under the ET;

Issue 5: whether the publication of additional information on the ET in the format outlined in appendix 2 would be helpful;

Issue 6: whether such information on the ET would lead to gaming by potential new connectees; and

Issue 7: any other aspects of its initial proposals.

List of Respondees to the May 2004 document

List	Name
1	AEP (Association of Electricity Producers)
2	British Gas Connection Limited (BGCL)
3	Centrica
4	Corus UK Ltd
5	EDF Energy
6	Energy Intensive User Group (EIUG)
7	Energywatch
8	International Energy Group (IEG) and Gas Transportation Company (GTC)
9	Independent Pipelines Limited (IPL) and Quadrant Pipeline Limited (QPL)
10	Powergen
11	Scottish and Southern Energy
12	Shell Gas Direct
13	National Grid Transco
14	NPower

List of Respondees to the July 2005 document

List	Name
1	Centrica
2	Chemical Industries Association
3	Corus UK Ltd
4	EDF Energy
5	Energywatch
6	Eon UK plc
7	Gaz de France
8	Independent Pipelines Limited (IPL) and Quadrant Pipeline Limited (QPL)
9	National Grid Gas Distribution
10	National Grid Gas Transmission
11	Northern Gas Networks

12	RWE npower
13	Scottish Power
14	Shell Gas Direct
15	Scottish and Southern Energy
16	Total Gas & Power Limited
17	Wales and West Utilities

Responses received by Ofgem which were not marked as being confidential have been published on Ofgem's website www.ofgem.gov.uk. Copies of non-confidential responses are also available from Ofgem's library. Responses to the May 2004 consultation paper were summarised in chapter 2 of the July 2005 Initial proposals document. Responses to the July 2005 document are summarised in chapter 1 of this paper.

Appendix 2 - Ofgem's Statutory Responsibilities

1.1. Ofgem is the Office of Gas and Electricity Markets which supports the Gas and Electricity Markets Authority ("the Authority"), the regulator of the gas and electricity industries in Great Britain. This Appendix summarises the primary powers and duties of the Authority. It is not comprehensive and is not a substitute to reference to the relevant legal instruments (including, but not limited to, those referred to below).

1.2. The Authority's powers and duties are largely provided for in statute, principally the Gas Act 1986, the Electricity Act 1989, the Utilities Act 2000, the Competition Act 1998, the Enterprise Act 2002 and the Energy Act 2004, as well as arising from directly effective European Community legislation. References to the Gas Act and the Electricity Act in this Appendix are to Part 1 of each of those Acts.[9]

1.3. Duties and functions relating to gas are set out in the Gas Act and those relating to electricity are set out in the Electricity Act. This Appendix must be read accordingly[10].

1.4. The Authority's principal objective when carrying out certain of its functions under each of the Gas Act and the Electricity Act is to protect the interests of consumers, present and future, wherever appropriate by promoting effective competition between persons engaged in, or in commercial activities connected with, the shipping, transportation or supply of gas conveyed through pipes, and the generation, transmission, distribution or supply of electricity or the provision or use of electricity interconnectors.

1.5. The Authority must when carrying out those functions have regard to:

- The need to secure that, so far as it is economical to meet them, all reasonable demands in Great Britain for gas conveyed through pipes are met;
- The need to secure that all reasonable demands for electricity are met;
- The need to secure that licence holders are able to finance the activities which are the subject of obligations on them[11]; and
- The interests of individuals who are disabled or chronically sick, of pensionable age, with low incomes, or residing in rural areas.[12]

1.6. Subject to the above, the Authority is required to carry out the functions referred to in the manner which it considers is best calculated to:

- Promote efficiency and economy on the part of those licensed[13] under the relevant Act and the efficient use of gas conveyed through pipes and electricity conveyed by distribution systems or transmission systems;

[9] Entitled "Gas Supply" and "Electricity Supply" respectively.
[10] However, in exercising a function under the Electricity Act the Authority may have regard to the interests of consumers in relation to gas conveyed through pipes and vice versa in the case of it exercising a function under the Gas Act.
[11] Under the Gas Act and the Utilities Act, in the case of Gas Act functions, or the Electricity Act, the Utilities Act and certain parts of the Energy Act in the case of Electricity Act functions.
[12] The Authority may have regard to other descriptions of consumers.
[13] or persons authorised by exemptions to carry on any activity.

- Protect the public from dangers arising from the conveyance of gas through pipes or the use of gas conveyed through pipes and from the generation, transmission, distribution or supply of electricity;
- Contribute to the achievement of sustainable development; and
- Secure a diverse and viable long-term energy supply.

1.7. In carrying out the functions referred to, the Authority must also have regard, to:

- The effect on the environment of activities connected with the conveyance of gas through pipes or with the generation, transmission, distribution or supply of electricity;
- The principles under which regulatory activities should be transparent, accountable, proportionate, consistent and targeted only at cases in which action is needed and any other principles that appear to it to represent the best regulatory practice; and
- Certain statutory guidance on social and environmental matters issued by the Secretary of State.

1.8. The Authority has powers under the Competition Act to investigate suspected anti-competitive activity and take action for breaches of the prohibitions in the legislation in respect of the gas and electricity sectors in Great Britain and is a designated National Competition Authority under the EC Modernisation Regulation14 and therefore part of the European Competition Network. The Authority also has concurrent powers with the Office of Fair Trading in respect of market investigation references to the Competition Commission.

[14] Council Regulation (EC) 1/2003

Appendix 3 - Feedback Questionnaire

1.1. Ofgem considers that consultation is at the heart of good policy development. We are keen to consider any comments or complaints about the manner in which this consultation has been conducted. In any case we would be keen to get your answers to the following questions:

- Does the report adequately reflect your views? If not, why not?
- Does the report offer a clear explanation as to why not all the views offered had been taken forward?
- Did the report offer a clear explanation and justification for the decision? If not, how could this information have been better presented?
- Do you have any comments about the overall tone and content of the report?
- Was the report easy to read and understand, could it have been better written?
- Please add any further comments?

Please send your comments to:

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Appendix 4 - Glossary

A

Advanced Reservation of Capacity Agreement (ARCA)

An agreement between GDNs and shippers relating to future pipeline capacity for large sites. This enables shippers to book exit capacity in accordance with UNC provisions to meet gas requirements of large projects at a later date. It usually introduces a financial commitment on shippers to pay a minimum level of distribution charges for a limited time (e.g. one year) regardless of whether gas is consumed or not.

C

Capacity charges

These charges account for 50 percent of the revenue recovered from UoS charges. Capacity charges are applied to the peak-day demand (in pence per peak day kWh per day).

Commodity charges

These charges account for 50 percent of the revenue recovered from UoS charges. Commodity charges are applied to the annual demand (in pence per kWh).

Connected System Exit Point (CSEP)

A CSEP is a point on the distribution system that comprises one or more individual offtakes that are not metered supply points. These include connections to IGTs.

CSEP administration charge

The CSEP administration charge (£ 1.20 per connection) is levied on IGT shippers to cover processes used by GDNs in managing information relating to them. It was introduced in 1997. The charge has decreased over time from an initial £6.

Customer charge

This charge reflects general supply point and customer related costs, including installation of service pipes and supply point emergency services.

D

Daily Metered (DM)

Supply points with meters which read volumes of gas consumed either on a continuous or on a daily basis.

Distribution Use of System (UoS) Charges

Distribution UoS charges are levied by GDNs to gas shippers for the use of the distribution system to trasport gas to the end user. They comprise capacity and commodity charges. Approximately 50 percent of the revenue recovered from UoS charges comes from capacity charges and 50 percent from commodity charges.

E

Economic Test (ET)

The ET is a financial assessment tool that was introduced by NGG in 1998 to identify whether a new load should pay a contribution towards the reinforcement required for its connection. It compares the incremental cost of connecting a customer to the gas distribution network with the expected revenue from distribution charges associated with that customer, using NPV calculations. A full description of the ET is contained in Ofgem's July 2005 initial proposal paper.

G

Gas Distribution Network (GDN)

GDNs transport gas from the NTS to final consumers and to CSEPs. There are currently eight GDNs in Great Britain which comprise twelve LDZs.

Gas shipper

Gas shippers arrange for the conveyance of gas over the distribution network to final consumers. Shippers pay distribution charges to the relevant gas transporter.

I

Independent Gas Transporter (IGT)

IGTs own and operate small local gas networks and levy distribution charges on shippers.

L

Local Distribution Zone (LDZ)

LDZs are low pressure pipeline systems which deliver gas to final users and IGTs. There are twelve LDZs which take gas from the high pressure transmission system for onward distribution at lower pressures.

N

National Transmission System (NTS)

National Grid's high pressure transmission system consists of more than 6,400 km of pipe carrying gas at pressures of up to 85 bar (85 times normal atmospheric pressure).

Non-Daily Metered (NDM)

An exit point that does not have a meter recording daily flows.

R

Reconciliation by difference (Rbd)

Rbd operates at the LDZ level and is a method of reconciling the difference between allocated and actual energy for small supply points which have an Annual Quantity (AQ) of up to 73,200 kWh.

Relative Price Control (RPC)

RPC came into effect in January 2004 for all new properties connecting to an IGT network. RPC requires that IGT distribution charges to domestic and industrial and commercial properties should be capped at a level broadly consistent with the GDN-equivalent charge.

U

Uniform Network Code (UNC)

As of 1 May 2005 the UNC replaced NGG's Network Code as the contractual framework for the NTS, GDNs and system users.

Appendix 5 – Capitalisation factor in the Economic Test

Use of the capitalisation factor in the ET

1.1. Under the ET, the capitalisation factor is a short hand method to calculate the expected income from a new connection. More specifically, the capitalisation factor is applied to the ongoing costs and income in order to convert them to an equivalent one-off cost or revenue. This allows for a comparison of on-going costs and income with the one-off costs.

1.2. Ofgem's proposal to update a number of parameters of the ET will have implications for the capitalisation factor. This is because the capitalisation factor is determined by the:

- length of the depreciation period of the asset;
- length of the appraisal period; and
- discount rate.

1.3. For example, lowering the discount rate will increase the capitalisation factor all things being equal. While increasing either the depreciation or appraisal periods will increase the capitalisation factor all things being equal. Consequently, the combined impact of Ofgem's proposal to decrease the discount rate from 7% to 6.25% and increase the appraisal period for both processed and space heating loads to 25 years and 45 years respectively increases the capitalisation factor for both types of loads. This is illustrated in the table below.

Change in parameters of the ET and impact on Capitalisation Factor

	Process Loads	**Space Heating Loads**
Current	CF: 12.63 DP: 65 years AP: 15 years DR: 7%	CF: 12.33 DP: 65 years AP: 10 years DR: 7%
	Loads > 58,600 Mwh	**Loads < 58,600 Mwh**
Final Proposals	CF: 13.84 DP: 45 years AP: 25 years DR: 6.25%	CF: 14.96 DP: 45 years AP: 45 years DR: 6.25%

Note: DP: Depreciation Period, AP: Appraisal Period, DR: Discount Rate, CF: Capitalisation Factor

1.4. An increase in the capitalisation factor for both types of loads will make it easier for a new connection to pass the Economic Test.

Calculating the capitalisation factor

1.5. The capitalisation factor is related to the present value of the income stream that the DN will earn from shippers for transporting gas to the new load. This income stream is:

$$\sum = \frac{x}{(1+d)} + \frac{x}{(1+d)^2} + \frac{x}{(1+d)^3} + \ldots + \frac{x}{(1+d)^{45}}$$

where x is the annual income and d is the discount rate (e.g. 0.0625 for a rate of 6.25 per cent). This can be rewritten as:

$$\sum = x\left(\frac{1}{(1+d)} + \frac{1}{(1+d)^2} + \frac{1}{(1+d)^3} + \ldots + \frac{1}{(1+d)^{45}}\right)$$

1.6. The capitalisation factor is defined as the sum of the series (Σ) divided by one annual payment (x). Therefore:

$$\frac{\sum}{x} = \frac{x\left(\frac{1}{(1+d)} + \frac{1}{(1+d)^2} \ldots \frac{1}{(1+d)^{45}}\right)}{x}$$

1.7. This simplifies to:

CF=

$$\frac{\sum}{x} = \left(\frac{1}{(1+d)} + \frac{1}{(1+d)^2} + \ldots + \frac{1}{(1+d)^{45}}\right)$$

1.8. If the series is long enough, the capitalisation factor can be approximated by using the following formula:

CF=

$$\frac{1}{(1+d)-1}$$

1.9. This formula applies to loads of less than 58.6 GWh where the appraisal period and the depreciation period are both set at 45 years. For loads exceeding 58.6 GWh where the length of the depreciation period will exceed the appraisal period a residual value should be taken into account. The residual value would correspond to the non-depreciated residual value of the investment amount once the appraisal period has ended.