Office of Utility Regulation

Investigation into Wholesale Broadband Pricing

Final Decision

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1. Summary

The level of wholesale broadband charges is a key factor in the retail price for broadband services in Guernsey. ISPs have indicated concerns about the level of the wholesale charges made by Cable and Wireless Guernsey ("C&WG"), while the Office of Utility Regulation's ("OUR") benchmarking study[1] also highlighted a number of issues within the broadband market that required further examination. C&WG's subsequent announcement in 2005 of their intention to double broadband capacity added to ISP concerns. The OUR therefore commenced an investigation into the level of wholesale charges imposed by C&WG for its wholesale broadband services to establish whether these charges were reasonable.

A number of factors need to be considered by the Director General ("DG") in any such assessment including the nature of costs to include in the assessment and the period over which such an assessment should be made. The nature of C&WG's investments will of course have implications for the time period over which the benefit of those investments to C&WG are realised. C&WG intend to invest in a new network (Next Generation Network or 'NGN') underpinning future broadband as well as other non-broadband services. Whether these costs should be taken into account in the DG's analysis has been a major consideration. C&WG has argued that all NGN costs required for broadband services should be recovered from broadband services. However, the benefit of these NGN investments are not specific to broadband and therefore the extent to which broadband wholesale charges should be set to recover all of these NGN costs is an issue.

Due to uncertainty with forecasting the uptake of other non-broadband services that will utilise this NGN technology there are understandable difficulties in accurately attributing the costs of this investment to broadband. In general it would be expected that any investment would be justified by a case for the additional benefits produced, either in the form of additional revenues or cost savings. C&WG is however not in a position to provide such a case at this stage of its investment plans. It has argued that there is a general case that NGN investment will provide the underpinning platform for new services. Evidence that the existing network which presently supports broadband service provision is facing limitations is a further consideration in terms of efficient investment. Given this position, the DG has allowed for the inclusion of the full NGN costs proposed by C&WG in his assessment of the profitability of C&WG's wholesale broadband business

In terms of the forecast time period for the assessment, C&WG has argued this should cover a period of 5 years only as this is its estimate of the NGN asset lifetime. It argues that a longer forecast time period presents risk to C&WG in that a period of assessment that extended beyond 5 years may attribute future cash flows to its business that are not realised, since inadequate account is taken of the possibility of significant market share erosion through Local Loop Unbundling ("LLU") competition or wireless broadband provision for example.

[1] Audit of Broadband Services in Guernsey. Information Notice (OUR 05/14R)

However, the DG has concerns that if he allows NGN costs on the basis proposed by C&WG and limits his assessment to the short to medium term (5 years) this would result in a disproportionate recovery of costs. Such an approach might, for example, lead to a situation where broadband customers bear a disproportionate share of NGN costs compared to C&WG's overall customer base or where recovery of costs is over a shorter period than reasonable. There is also a risk that a decision to limit the analysis to 5 years is overly reliant on an assumption by C&WG that due to the prospect of wholesale competition the likelihood of realising cash flows after this period is uncertain to the extent that no benefits should be attributed to its business beyond this period.

In weighing up these considerations the DG is of the view that an assessment based on allowing the NGN broadband costs proposed by C&WG and allowing net cash flows arising only over the next 5 years presents a significant risk that consumers would face inappropriately high prices. The DG has therefore assessed the profitability of NGN's wholesale broadband business over the period 2000/01 to 2015/16. This period takes account of all C&WG's broadband start-up losses as well as net cash flows from its wholesale broadband business reasonably expected to arise from its investment in NGN facilitated broadband. The DG's analysis has taken account of C&WG's concerns about the prospects for future wholesale competition in Guernsey by providing for a degree of market share erosion from 2008/09 and has assumed a reasonable degree of market share erosion of C&WG's wholesale business beyond the short to medium term.

To mitigate further the risk that market developments diverge from the assumptions underpinning this analysis the DG proposes to review the level of prices set out in this decision in 2008/09. The OUR has only recently received a clearer timetable of C&WG's NGN investment plans, which indicates a relatively rapid rollout of the technology and indications are that this may allow for attribution issues in NGN allocation to be revisited in light of further experience. The prospects for wholesale competition in Guernsey can at that time also be taken into account given the DG's intention to consult on LLU and consideration of the implications of other technologies, such as wireless broadband competition, can then also be further considered.

Based on the DG's analysis, he will reduce C&WG's current wholesale revenues (i.e. based on interim prices) by 15% to ensure C&WG earns a return consistent with its cost of capital in the provision of wholesale broadband services.

2. Structure of this Paper

The remainder of this paper is structured as follows:

Section 3:	Provides background to the investigation;
Section 4:	The basis for the DG's powers in this area is explained in terms of the regulatory and licensing regime;
Section 5:	Discusses the key features of the proposed decision and the comments offered by respondents;
Section 6:	Sets out a discussion on the context within which the DG has considered the assessment of wholesale broadband prices;
Section 7:	Provides details on the key inputs used by the DG in reaching his decision and the results of his assessment; and
Section 8:	Sets out the conclusions and next steps.

Comments Received

The OUR received three responses to the draft decision paper from:

- C&W Guernsey;
- Itex; and
- Newtel Solutions.

The DG wishes to thank those who have responded to the draft decision for their contributions. In accordance with the OUR's policy on consultation set out in Document OUR 05/28 – "Regulation in Guernsey; the OUR Approach and Consultation Procedures", non-confidential responses to the consultation are available on the OUR's website (www.regutil.gg) and for inspection at the OUR's Offices during normal working hours.

3. Background

In Autumn 2002, C&WG submitted the prices it intended to charge for its then new broadband services to the OUR. The OUR commenced an assessment of those prices. In its initial review of those proposed prices the OUR noted these were supported by cost of capital assumptions higher than might have been expected, resulting in an above normal level of profit on the service[2]. These reservations were conveyed to C&WG who then reduced the prices for these services and introduced a wholesale service for competing ISPs to purchase. At that time, the OUR's feedback to C&WG was not based on a comprehensive analysis of C&WG's incremental broadband costs but on an initial view on the justification for the prices proposed, primarily based around the proposed cost of capital C&WG had sought to use.

In 2005, the OUR conducted a review of broadband in Guernsey, covering ADSL broadband service quality and pricing (OUR 05/14R[3]) and the DG published the results of the broadband audit (by GOS Consulting) in June 2005. The recommendations of that audit identified three key issues, namely:

- an apparent margin squeeze on residential services;
- high business oriented retail prices; and
- a lack of flexibility for ISPs to introduce distinctive services.

Several ISPs raised concerns following an announcement by C&WG, shortly after the publication of this audit in the Summer of 2005, that C&WG would be enhancing the broadband service to all customers (wholesale and retail) by doubling the bandwidth available at no increased charge ("Double Broadband"). To allow for discussion on the issues, C&WG delayed the introduction of "Double Broadband" until September 2005. Following these discussions, C&WG agreed to reduce its wholesale rate for the broadband services[4]. This was an interim price reduction pending the conclusion of a detailed pricing investigation into the level of wholesale broadband prices the OUR announced it would undertake in response to concerns by competing ISPs that the margins available in providing retail broadband services were too low.

The OUR's approach to this investigation was to consider whether C&WG's wholesale broadband charges were cost reflective. Since September, the OUR has worked together with C&WG in specifying the information it has needed to conduct the investigation. Upon receipt of that information the OUR has considered in detail C&WG's business case for its broadband service and the implications that future market developments – such as NGN investment and the potential for greater competition – may have on C&WG's business.

In February 2006, the OUR issued a draft decision (OUR 06/05) which proposed to reduce the wholesale broadband prices of C&WG by 22% based on an assessment of C&WG's costs of providing the service. This followed a detailed investigation into

[2] Further information on the background to the launch of broadband services and the subsequent investigation may be found in OUR 02/34 and OUR 02/40

[3] Audit of Broadband Services in Guernsey. Information Notice (OUR 05/14R)

[4] The cost of the wholesale residential service was reduced from £19.49 to £17.49 per month for example

C&WG's pricing for wholesale broadband services which commenced in September 2005. The DG invited comments on this draft decision and this document sets out the DG's final decision on the pricing by C&WG for its wholesale broadband service including a discussion of comments received on the draft Decision. The DG would like to thank C&WG for its co-operation and assistance with this investigation.

4. Regulatory and Licensing Regime

Section 5(1) of the Telecommunications (Bailiwick of Guernsey) Law, 2001 ("the Telecoms Law"), provides that the DG may include in licences such conditions as he considers necessary to carry out his functions. The Telecoms Law specifically provides that such conditions can include (but are not limited to):

- conditions intended to prevent and control anti-competitive behaviour[5]; and
- conditions regulating the prices, premiums and discounts that may be charged or (as the case may be) allowed by a licensee which has a dominant position in a relevant market[6].

In accordance with these provisions, C&WG's Fixed Telecommunications Licence contains a Condition (Condition 31) which states, inter alia, that:

"The Director General may determine the maximum level of charges the Licensee may apply for Licensed Telecommunications Services within a Relevant Market in which the Licensee has been found to be dominant. A determination may;

a) provide for the overall limit to apply to such Licensed Telecommunications Services or categories of Licensed Telecommunications Services or any combination of Licensed Telecommunications Service;

b) restrict increases in any such charges or to require reductions in them whether by reference to any formula or otherwise; or

c) provide for different limits to apply in relation to different periods of time falling within the periods to which the determination applies."

This condition allows the DG to regulate the prices that a licensee charges for its telecommunications services in a way and for a time that he deems appropriate, provided the licensee has a dominant position in the relevant market.

In OUR 05/19, the DG determined that C&WG is dominant in the:

- wholesale fixed-line telecommunications market:
- the retail fixed-line telecommunications market:

Therefore the DG is empowered to regulate the charges applied by C&WG for wholesale broadband services.

[5] Condition 5(1)(c) of the Telecommunications (Bailiwick of Guernsey) Law, 2001.
[6] Condition 5(1)(f) of the Telecommunications (Bailiwick of Guernsey) Law, 2001.

5. Comments received on draft Decision

In OUR 06/05, the DG set out three possible options which he had considered could be used to determine the level of wholesale pricing that would allow C&WG to make a reasonable return on its investment. All three approaches are set out in detail in OUR 06/05 and it is not intended to repeat these here. However, the DG did conclude that Approach 2 was the most appropriate for determining the appropriate level of pricing for C&WG and set out in some detail the rationale for this. In addition, the DG set out his consideration of issues around:

- Scope;
- NGN investment;
- Timing; and
- Various critical input assumptions.

C&WG has commented on several aspects of the approach proposed by the OUR in that document. The following section summarises the responses received and sets out the DG's consideration of these issues.

5.1. Response of OLOs

As noted earlier, two OLOs responded to the draft decision, namely Newtel and Itex. Itex generally supported the draft decision and the use of Approach 2. It did however note that the decision did not consider Broadband SP Connect services, which it would wish to see considered further and highlighted the generally tough nature of the ADSL market for OLOs.

Newtel believed the DG had adopted more conservative assumptions than might be reasonable and that, in its view, Approach 1 would deliver to the market more reasonable wholesale charges than those proposed in the draft decision (Approach 2) which it viewed as a 'middle way'. It highlighted its concerns with C&WG's NGN investment and the possible implications that may have for LLU in the short term. It also believed that this would further impact on the degree to which wholesale competition might reasonably be expected to impact on C&WG's market share. It believed C&WG would continue with its investment in NGN regardless of the DG's decision and that an approach closer to Approach 1 should now be adopted.

The DG's position on the points raised by OLOs is addressed in the remainder of the document in some detail.

5.2. General concerns of C&WG

5.2.1. Validity of price comparisons

C&WG questioned whether the results of the audit published in June 2005 (OUR 05/14R[1]) remain valid given they were based on price comparisons prior to the introduction by C&WG of Double Broadband. C&WG cited comparisons between its latest pricings and the wholesale and retail prices for residential customers in other jurisdictions which, unlike the June 2005 comparisons, suggested it now compares favourably with other jurisdictions since the introduction of its Double Broadband offer.

The OUR approached the regulators and incumbents in the benchmark jurisdictions to obtain an update on the prices used in the June 2005 report[7]. These revised prices from other jurisdictions indicate that while the pricing comparisons presented by C&WG in its response to the draft decision take account of changes by C&WG to its prices and offerings, they do not take account of subsequent price changes and offerings in these other jurisdictions. Tables 1 and 2 below set out these updated price comparisons based on this evidence. It is apparent that the concerns identified from the benchmark study by GOS Consulting reported in June 2005 remain valid.

Table 1: Comparison between Guernsey, Jersey and Isle of Man: Residential Wholesale prices

Operator	Service	Monthly *Wholesale* Price (excl VAT)
Cable & Wireless Guernsey	Broadband Home 1000 Lite (1 Mbps)	£19.49 (interim price £17.49)
MANX Telecom	Wires-only (2Mbps)	£13.00
Jersey Telecom	Option 2 (1 Mbps)	£14.99
BT	IPStream Home 1000	£23.00

Table 2: Comparison between Guernsey, Jersey and Isle of Man: Residential Retail prices

Operator	Service	Monthly *Retail* Price (incl VAT)
Cable & Wireless Guernsey	Broadband Select 1000 (1Mbps)	£26.99
MANX Telecom	Broadband 2Mbps	£29.23
Jersey Telecom	Option 2 (1 Mbps)	£24.99
BT	Single 2Mbps	£28.99

5.2.2. Framing of consultation

C&WG argued that the way in which the OUR framed the consultation, showing the extent of price reductions under differing assumptions, would lead respondents to comment based only on the outcome of the approach as opposed to the principles.

[7] It should be noted that the initial price comparisons were not the basis for the OUR's draft decision but the basis for conducting a more in-depth investigation into C&WG's prices.

In the DG's view, it is not an unusual practice for a regulator to set out alternatives in this way[8] as it provides a useful way in which to solicit responses on the key issues. The ability of respondents to comment on draft decisions or directions can often be enhanced by such an approach since respondents are better informed by understanding the materiality of certain assumptions underpinning an analysis. The DG considers C&WG's view that respondents would be led by the resultant change to prices are not justified and no more valid for C&WG than for other parties. The DG does not believe that C&WG has been disadvantaged in any way by the way in which the consultation was framed.

5.2.3. Three approaches

C&WG considered that the OUR put forward three different models for the calculation of prices with no reasonable justification for the differences between the models.

The DG does not accept that there was no reasonable justification put forward for the different approaches. The DG's view is that in any assessment of the reasonableness of profits earned by a business in a discounted cash flow analysis, there is a definite link between the expenditures taken into account, the nature of the assets acquired (whether tangible or intangible) and the time horizon over which forecasted cash flows are included in the analysis. It was apparent to the OUR that there were three particular and distinct sets of assumptions about the appropriate costs and revenues to take into account that were plausible in an assessment of the reasonableness of C&WG's prices. These assumptions were essentially dependent on how conservative the OUR's assumptions should be about the nature of costs to be included and the time period of the analysis. The draft decision presented an explanation of these different assumption sets and their relevance, together with the DG's reasoning for his preferred approach. This allowed all respondents to consider fully both the validity of the assumptions themselves as well as the materiality of those assumptions. Such an approach was entirely reasonable and consistent with the options identified by the OUR and the issues on which the OUR wished to consult.

5.2.4. Accepted principles of costing models

C&WG argued that the OUR had failed to adopt widely accepted principles of costing models that are applied consistently, proportionately and reasonably in accordance with the statutory obligations of the OUR. C&WG has argued that as a consequence the OUR has failed to provide regulatory certainty as to how prices will be set by the regulator. The time period proposed by the OUR and the use of a terminal value appear central to C&WG's concerns.

The DG acknowledges that regulatory decisions in other jurisdictions are important reference points for regulatory decisions in Guernsey. However, the DG's decision not to apply an approach by regulators in other jurisdiction does not of itself create regulatory uncertainty for C&WG. In coming to his decision, the DG must take

[8] Ofcom, for example, in a consultation document on margin squeeze published a number of possible results of a margin squeeze test, setting out nine variants based on different assumptions - Ofcom, Consultation on a Draft Direction Setting the Margin between IPStream and ATM Interconnection Prices

account of factors within the context of the Guernsey market and the issue at hand. An assessment of factors relevant to a regulatory decision in the UK, for example, may lead to quite different but possibly erroneous conclusions if translated directly to an assessment on Guernsey. To assess C&WG's concerns however, the OUR has reviewed several broadband-related investigations, including those in the jurisdictions to which C&WG has referred and details are set out in Appendix 3.

5.2.5. Inconsistency

C&WG argue that the OUR has been inconsistent in that it applies different approaches in different parts of the telecommunications sector in Guernsey, citing the OUR's approach to regulating interconnection or access, compared to that for leased lines. As the DG's review of decisions from other regulators shows, regulators will consider the particular features of each issue before determining the appropriate approach to follow. The DG's position on this issue is that regulatory bodies in other jurisdictions do not generally apply a single approach when assessing price levels since the issues relevant to a particular investigation influence decisions as to the appropriate approach for that service[9]. The DG notes that, where a particular approach may favour a particular segment of the market in a given case, applied to a different market with different circumstances, it may have markedly different results. The DG remains of the view that considering in detail the specifics of the Guernsey broadband market is necessary to ensure his decision is correct for Guernsey and that he is able to balance the duties imposed on him by the Regulation of Utilities (Bailiwick of Guernsey) Law 2001.

5.3. Discounted cash flow approach

The DG proposed to assess the rate of return earned by C&WG's wholesale broadband business with reference to the historic and projected cash flows generated by the business using a discounted cash flow ("DCF") approach. The DG also proposed to allow C&WG to recover some of its fixed and common costs from ADSL services. An estimated cost of capital of 12% was proposed as a reasonable level of return, with any proposed changes to price levels to be informed by the differences between this cost of capital and the return from an assessment of the net cash flows generated by the business.

C&WG has responded that it recognizes that the DCF approach is a standard approach and appropriate for this specific circumstance. C&WG note that key to the approach is the time period and terminal value and has concerns with these aspects of the OUR's approach. Each of these issues is considered in more detail below.

5.4. NGN investment

C&WG's planned investment in NGN is expected to be sizeable and as indicated in the OUR's draft decision, raises questions about the extent to which wholesale

[9] For example, regulators have approached issues like margin squeeze using different powers and in doing so make materially different assumptions depending on whether they are acting under sectoral powers or competition powers.

broadband customers should contribute to these investment costs. C&WG has sought to make some allowance for the fact that broadband customers should not bear a number of costs for the NGN network platform. However, given the general functionality of an NGN platform, the absence of a suitable forecast for future non-broadband services that could provide a basis for the allocation of NGN investment costs between broadband and non-broadband services risks the allocation of costs to broadband customers that should be met elsewhere.

The DG's position, as set out in the draft decision, is that additional investment should be justified by the additional benefit provided. Efficient investment is expected to be underpinned by a case for facilitating new services (both broadband and non-broadband) and related new revenues, or by improvements in efficiency that reduce the cost of providing existing services. In the case of NGN investment, C&WG proposes such investment without any associated increase in revenues and without any efficiency improvements to the delivery of the existing service. While the DG recognises the general potential NGN offers in the form of new services given they represent a step change in technology, in the case of C&WG's planned NGN investment costs for broadband, their inclusion in any profitability assessment effectively serves only to increase the cost of providing the same broadband services to wholesale customers. As set out in the draft decision, there is therefore a case that an assessment of C&WG's wholesale business could exclude such costs.

However, C&WG has argued that the exclusion of NGN investment costs in any assessment of the reasonable levels of C&WG's wholesale pricing would prevent the introduction of increased broadband speeds to Guernsey. C&WG have indicated their concern that Guernsey customers should not be disadvantaged as minimum speeds increase in other jurisdictions to provide the enhanced services that are on the horizon. Limitations to the capacity of the existing broadband network have also been highlighted by C&WG as a reason why it believes NGN investment is an efficient investment. C&WG has, in particular, argued that its investment in NGN provides a basic platform necessary for the provision of future broadband services.

The DG's view is that he would not wish this investigation to act to the detriment of Guernsey customers or to discourage investment in infrastructure where this is needed. Where investments are made they should however be justified either by additional benefits (broadband and non-broadband) arising from new services or improved efficiencies in the provision of existing services. In the absence of such a justification for NGN broadband related investment, it could be argued that an assessment should be limited to consideration of the costs and benefits of the current network over the remaining asset life of these assets. Nevertheless, the DG intends to allow for the NGN investment costs allocated by C&WG to broadband.

However, the DG's view is that the inclusion of NGN costs in the profitability assessment has implications for the time period over which such an assessment is made. Inclusion of investment costs that "*not only ensure continuity of broadband service but also to provide the technology that will underpin future overlay services, such as VOIP*." (C&WG's response page 13, section 6.4) is inconsistent with the view that the return on such investments should only be assessed over the asset life of the equipment that comprises this basic technology platform. Account of the ongoing benefit to C&WG in the form of net cash flows from its wholesale broadband service beyond the asset life of the technology components of NGN is therefore the only basis on which the DG would be prepared to accept these investments costs proposed by C&WG.

The DG acknowledges the view of industry experts that NGN equipment is expected to have a relatively short asset life of some 5 years. The technological capability of NGN is however likely to extend well beyond the life of individual components - a situation not dissimilar to the use of technologies such as computers or telephones. While the asset life of the equipment itself may be relatively short, the benefits of the technology that support the facilitating platform would reasonably be expected to extend well beyond the asset life of the equipment on the basis that while the equipment is replaced or upgraded over time, the benefit to C&WG of having customers on its wholesale broadband network would continue. In particular, where allowance is provided for such replacement and upgrading (see discussion in following subsection), the benefit to C&WG of its broadband service is not limited only to a single asset investment cycle of its NGN investment given it is a technology that will underpin future services, including broadband services.

5.5. Time period and Terminal Value

The draft decision set out the OUR's view that in a price setting analysis of this nature there should be a matching of costs and benefits. Where customer revenue included within the cash flow analysis is derived from investments made prior to the start of an investigation, the OUR took the view that it would be appropriate to factor in the cost of those historic investments, to the extent that they provide some ongoing economic benefit, in the DCF analysis. The OUR therefore proposed to recognise such past investments in full. In accordance with the matching principle, historic net cash flows from 2000/01 to 2005/06 generated by those investments were therefore included.

The OUR was also of the view that the same arguments for matching costs to associated benefits were relevant for future periods and therefore proposed to extend the cash flow analysis to 2015/16, requiring a period of 10 years of cash flows to be forecast from 2005/06. This was considered appropriate to capture the value of C&WG's broadband business as measured by its cash flows beyond 2005/06. C&WG's view was that the asset life of NGN equipment was 5 years, which had implications for the capital expenditure cost that needed to be taken into consideration for any analysis that extended beyond this period of time. The OUR took into account the need identified by C&WG for a level of CAPEX equivalent to replacement of all the NGN broadband equipment after 5 years by providing for additional annual capital expenditure. The un-depreciated tangible assets at the end of 2015/16 were proposed as the basis for a terminal value with no account taken of potential cash flows beyond that point.

C&WG strongly disputed the period over which the OUR proposed that costs should be recovered. It was of the view that the use of a terminal value modeled using an economic value ending in 2016 contradicts all empirical observation, business and academic thinking on the usable lifecycle and economic value of technology assets, sending mixed messages in product profitability analysis. The issues of regulatory certainty and consistency between the approach taken by other regulators and that of the OUR, as well as consistency by the OUR in other areas of telecoms, deserve careful consideration. The OUR has therefore reviewed several investigations into wholesale broadband markets and relevant features of these investigations are highlighted below with Appendix 3 setting these out in further detail.

This document has already noted that the factors taken into account by regulators may differ between jurisdictions for justifiable reasons. Given that C&WG currently has 100% of the wholesale broadband market (compared to 75% by incumbents such as eircom[10] and 70% by BT[11]) indicates to the OUR that C&WG remains in a considerably stronger position than incumbents in jurisdictions from which C&WG draws many of its arguments regarding regulatory precedent. Key reasons for this are identified below, namely:

- the existence of LLU obligations already in force;
- existing levels of wholesale competition in the form of established cable infrastructure; and
- the potential for future wholesale competition (e.g. FWA).

In terms of the time period over which such regulatory assessments have been based, it is clear from an examination of such cases that it could for example be possible to consider the profitability of the key current investments over:

- the economic life of those assets;
- the very long-run in which profitability over the whole lifetime of the business is taken into account;
- over multiple investment cycles.

The DG concludes therefore that, even within a market such as broadband, regulators have sought to ensure that in any assessment of the market the approach used is reflective of the specific circumstances of that market, rather than a 'one-size-fits-all' approach. The DG has no reason to believe that any of the operators subject to such investigations have been disadvantaged as a consequence or that different approaches have led to any uncertainty or acted as a detriment to future investment.

The DG remains of the view that it is appropriate in considering the market for broadband services in Guernsey to take account of the specific circumstances of that market and to acknowledge that the characteristics that exists here do differ from those in other markets, both in terms of actual competition and in the potential for competition.

[10] Comreg's Irish Communications Market, Quarterly Key Data Report, March 2006
[11] Ofcom's The Communications Market, Interim report, February 2006 (p. 61)

6. The Director General's Methodology

6.1. Scope

The OUR benchmarking study was undertaken to assess how the Guernsey broadband market compared to other markets both for the range of services available to consumers and in terms of the price to end-users. The OUR's benchmarking report published in June 2005 suggested there were concerns about:

- an apparent margin squeeze on residential services;
- high business oriented retail prices; and
- lack of flexibility for ISPs to introduce distinctive services.

A retail margin squeeze is a situation where retailers are not able to earn reasonable margins. For an efficient retailer, this can occur where the retail arm of a vertically integrated incumbent sets its retail prices too low, but can also arise if the wholesale arm of the vertically integrated incumbent sets its wholesale charges too high. The setting of retail prices by the incumbent's retail arm that are too low effectively places pressure on the margins of competing ISPs at the retail level. The alternative situation where wholesale charges are set too high will also result in margins that are too low but in this case it is the wholesale charge set by the incumbent's wholesale arm that is the contributing factor.

Since concerns by ISPs that the wholesale broadband prices charged by C&WG were a key reason why margins were considered too low, an assessment of C&WG's wholesale charges is appropriate as a focus of this investigation. The lack of competition from alternative networks leads the DG to believe it was and remains appropriate that the focus of the investigation is therefore on the wholesale cost of broadband.

An assessment of wholesale charges by regulators is generally made using either a cost-based approach or a retail-minus approach. Given the results of the benchmarking study the DG is of the view that an assessment of wholesale charges with reference to retail prices does not offer a sound approach. A cost based approach of course presents a number of difficulties such as allocation of costs and forecasting of cash flows. Given the mixed picture identified in the benchmarking study in terms of retail prices, and the wish to avoid having to make subjective decisions about the appropriate allocation (recovery) of fixed costs common to all ADSL services, the OUR focused the investigation on the total wholesale broadband market served by C&WG. The scope of the assessment is therefore on the total demand for all network ADSL services in Guernsey rather than individual ADSL services.

The wider scope of the DG's assessment reduces concerns about allocation issues in a cost based approach. The DG is also of the view that subject to reasonable assumptions, forecasting of cash flows can be sufficiently robust as a basis for an assessment of the reasonableness of C&WG's wholesale broadband charges and has conducted the analysis on this basis.

6.2. Discounted Cash Flow

A DCF approach is adopted for this investigation based on C&WG's average estimated cost of capital of 12%, while C&WG is allowed to recover some of its fixed and common costs from ADSL services. On this basis an assessment is made of whether C&WG's wholesale broadband business earns a reasonable return.

6.3. Treatment of NGN costs

A key factor in the DG's consideration is the nature of costs to include in the assessment and the period over which such an assessment should be made. The nature of investments will of course have implications for the time period over which the benefits of those expenditures are realised.

C&WG intends to invest in a new network (NGN) to facilitate broadband as well as other non-broadband services. As already noted, whether these costs should be taken into account in the DG's analysis has been a major consideration. The benefits of NGN investment are not specific to broadband and so the extent to which broadband wholesale charges should make allowance for these NGN capital investment costs is a material consideration. Given the issues with forecasting the uptake of other non-broadband services that will utilise this NGN technology there are difficulties in accurately attributing the costs of this investment to broadband.

In general it would be expected that investment would be justified by a clear demonstration of the additional benefits (both to broadband and non-broadband services) either in the form of efficiencies or new services. C&WG is not in a position to provide such a case at this stage of its investment plans, but there is a general case that NGN investment will provide the underpinning platform for new services as it represents a step change in technology. Evidence that the existing network which presently supports broadband service provision is facing limitations is a further consideration in terms of efficient investment. Given this position, the DG has allowed for the inclusion of NGN costs in his assessment of the profitability of C&WG's wholesale broadband business on the allocation basis put forward by C&WG. However, this has implications for the time period over which the assessment is made since the benefits to C&WG generated from the investment should be fully recognised by taking account of cash flows over an appropriate period to ensure the principle of matching costs with benefits is observed.

6.4. Time period of analysis

6.4.1. Regulatory precedent

In considering the relevant time period over which to conduct the DCF analysis, regulators have identified a number of alternative approaches. As set out in Appendix 3, other regulators have had to assess the alternatives for an analysis of prices in terms of time period and an examination of the factors informing these cases provides a useful reference point. It is evident from consideration of the different regulatory investigations that, depending on the circumstances and the nature of the service and market involved, different interpretations of the economic lifetime of the activity are considered feasible.

In Ofcom's investigation of IPStream, for example, Ofcom was of the view that the profitability of BT's key current investments might imply using the economic life of those assets or a very long-run approach could be adopted which would consider profitability over the whole lifetime of the business or at least over multiple investment cycles.

Oftel's investigation of BTOpenworld's prices identified similar alternatives, noting:

> "*there were a number of possibilities for the relevant time period for the analysis of sustainable prices, depending on the circumstances and the nature of the service and market involved. Three different perspectives can be identified, which relate to different interpretations of the economic lifetime of the activity: - profitability of the business over the very long-run (i.e. over a significantly longer period than the lifetime of the current assets) - profitability of the key current investments, and - profitability of supplying customers.* "

Given the context and market conditions in which Ofcom/Oftel and Comreg regulate they have generally chosen to specify a time period that was related to the economic life of the underlying assets plus a terminal value. The decisions by Ofcom, Oftel and Comreg regarding the period over which to assess cashflows were informed by specific priorities and considerations, in particular whether the assessment should be based over the long run of the business. Two aspects in particular were identified as potential concerns when an assessment is made over the long run, namely it might:

- allow the incumbent to earn losses on its current investments thus damaging competition that relied on super normal profits in future;
- result in setting wholesale charges at levels that dissuade investment in competing wholesale broadband networks.

The relevance of these two aspects to this assessment is discussed below.

6.4.1.1. Super normal profits

The risk of allowing the incumbent to earn super normal profits in future periods if the analysis was extended beyond the lifetime of the assets was a particular consideration in several investigations. Given the risks that a time period of the analysis that extended beyond the lifetime of its assets might build in the rewards of anti-competitive behaviour, Oftel tended to prefer to base the relevant period for the analysis on the lifetime of BT's investments (both tangible and intangible). Similar considerations informed Ofcom's assessment of BT's charges for IPStream.

The DG does not consider such concerns to be an issue to the same extent in the Guernsey context. Wholesale charges are not being set artificially low in the short to medium term that are compensated by higher prices in the long term. The absence of wholesale competition in the market at present and the DG's intention to review prices again on 2008/09 also significantly reduce the potential for such concerns.

6.4.1.2. Prospects for alternative wholesale competition

The presence of established cable infrastructure and the fact that LLU was already in force in both jurisdictions meant that a further notable context of these regulatory decisions was both the existence of competing wholesale networks and the prospects for such competition. In the IPStream investigation the regulator's view was that ATM interconnection had a valuable role to play in promoting competition in broadband provision, since Ofcom's expectation was that LLU was likely to provide the more important basis for the promotion of competition in broadband. Ofcom was therefore concerned not to set too large a margin which could distort incentives on alternative network providers to invest. Ofcom took account of this context, when striking the balance between promotion of competition and reducing the risk of inefficient entry and distorted investment incentives.

In the case of Comreg/eircom (see Appendix 3), the regulator stated that the purpose of its proposals was to seek to promote wholesale competition and indicated its concern not to set a margin which could distort incentives to invest in infrastructure, or encourage inefficient entry. Comreg's considerations were based on a view that LLU and direct connections were likely to provide the more important basis for the promotion of competition in broadband. On this basis Comreg's assessment of eircom's wholesale broadband charges based an analysis of eircom's retail broadband cashflows on effectively an 8 year cash flow projection, with a 5 year asset life assumption and terminal value of 3 years of cash flow.

The DG notes that where alternative wholesale competition is a factor in other jurisdictions the regulator has indicated a need to set wholesale prices that do not deter investment. In doing so a balance is struck between several risks. One source of risk is the length of time over which consumers are charged a price higher than necessary before competing wholesale providers address this discrepancy. If the period of time is extensive or based on too optimistic assumptions about competitive entry then the consumer will bear excessive costs.

There is currently no alternative wholesale broadband network in the Bailiwick and there are no plans of which the OUR is aware for such investment to take place. The DG is therefore conducting an assessment of C&WG's wholesale broadband charges in an environment that in at least one respect is materially different from that in which regulatory investigations have been conducted either in the UK or the Republic of Ireland from which C&WG has drawn comparisons with regulatory approach to broadband investigations.

While there is the possibility that some form of LLU may be introduced, given the OUR has indicated it will consult the industry, it is apparent that several years of preparation are generally required to put all the necessary measures in place before LLU can be established in Guernsey. The rate of any possible erosion of C&WG's wholesale broadband customer base would thereafter also depend on the extent to which the potential for LLU is taken up by competitors to C&WG. There would appear to be no real possibility of cable infrastructure investment in the island and C&WG has not advanced such an argument. C&WG has however indicated that there are real prospects for market share erosion of its wholesale broadband business through the introduction of wireless broadband to Guernsey.

The telecommunications sector is undoubtedly a sector of dynamic change where technology advances are potentially significant. However while technology change in such a market is inevitable, the key issue which the DG must assess is the likely speed which these and other technologies could feasibly be utilised by an alternative provider to C&WG to challenge C&WG's market share.

There are factors that suggest to the DG that the length of time over which any meaningful market penetration might occur is more likely to be over the longer term (i.e. beyond the next five years) than the short to medium term. The absence of any current or intended wireless broadband offerings in the Guernsey market from competitors to C&WG, despite its presence in the markets indicated by C&WG, suggest Guernsey is more likely to be a later recipient of such technologies than in larger markets. This was evident in the introduction of broadband to the island for example[12].

The DG also notes that C&WG has established a 100% market share in wholesale broadband services in an island market of relatively small scale. This being the case it has an advantage, in terms of its resources and established customer base over potential competitors, that supports its ability to respond to competition. There is no reason to suggest, for example, that C&WG will not be in a position to invest and market such new technologies itself should they pose a threat to its broadband customer base. In the DG's view, investment in an NGN network reflects a business plan based on C&WG's confidence that NGN is a robust technology for future service provision despite the evidence cited by C&WG as to the attractiveness and feasibility of an alternative technology such as wireless broadband. If there were a reasonable prospect of C&WG losing customers on the scale suggested by C&WG, the DG is of the view that this would have been reflected in the resources C&WG committed to NGN technology as its future broadband network as well as other technology investment.

6.4.2. Relevance of Intangible and Tangible assets

In considering the appropriate time period over which an assessment of C&WG's profitability should be made, consideration of the intangible and tangible assets is required, specifically:

- the value to the business of revenues from customers in future years; and
- the economic life of the NGN technology.

Intangible assets - C&WG's own forecast shows that at the end of 2009/10 it expects to have around [confidential] wholesale customers. While the DG has identified the prospect of wholesale competition beyond 2010/11, the likelihood that these C&WG customers will disappear after 2010/11 appears low. C&WG's own retail arm, for example, is likely to continue to remain a customer of its wholesale arm regardless of the extent of wholesale competition that may develop, and C&WG's own retail arm is likely to remain a significant player in the provision of retail broadband services in Guernsey.

[12] Broadband was introduced in the UK in September 2000, while in Guernsey broadband was launched around October 2002.

Tangible assets - The draft decision was based on a 5 year asset life of NGN technology and this was accepted by C&WG. The implication of this asset life is that any assessment that covers a time period beyond 2009/10 might also require account to be taken of the need for a further round of NGN network replacement. As set out in the DG's draft decision, the DG has included within C&WG's wholesale costs a provision for capital expenditure equivalent to that required in the first round of NGN investment.

6.4.3. Conclusions

In this assessment a cost based approach has been adopted and the scope is the total demand for all network ADSL services in Guernsey rather than individual ADSL services. A DCF approach is adopted for this investigation based on C&WG's average estimated cost of capital of 12%, while C&WG is allowed to recover some of its fixed and common costs from ADSL services. The DG has allowed for the inclusion of NGN costs in his assessment of the profitability of C&WG's wholesale broadband business on the allocation basis put forward by C&WG. However, this has implications for the time period over which the assessment is made since the benefits to C&WG generated from its investment should be fully recognised by taking account of cash flows over an appropriate period to ensure the principle of matching costs with benefits is observed.

The DG is of the view that in the Guernsey context, an assessment based on the longer term does not raise as strong concerns about detriment to wholesale competition as is apparent in a number of other regulatory investigations. In determining the appropriate time period over which to asses the profitability of C&WG's wholesale broadband service the DG has taken the view that C&WG is likely to remain a significant market participant in wholesale broadband provision indefinitely. The DG is however of the view that some account of potential market penetration is reasonable and this is most credible beyond the short to medium term. As already noted, market penetration of incumbent's wholesale broadband business varies across different markets. Based on the discussion on the prospect for market entry at the wholesale level, the DG considers it reasonable to assume a level of market penetration beyond 2008/09 and this is considered further in section 7.2.

7. Assessment of C&WG's Wholesale Charges

7.1. Time Period and Terminal Value

In deciding on an appropriate timeframe over which to assess the profitability of C&WG's wholesale broadband business, the DG has sought to observe the principle of matching costs with benefits. C&WG's historic investment and start-up losses have therefore been included within the time period of the assessment covering the period 2000/01 to 2005/06. Based on the same principle, given that the DG has allowed NGN investment that facilitates broadband services, and that this investment is a fundamental platform for C&WG's future network, the DG has taken the view that the benefit to C&WG of this broadband investment is likely to extend to the long term.

The DG is not however of the view that C&WG's wholesale broadband cashflows should be considered in perpetuity. Such an approach would appear to place excessive risk on C&WG and the DG must balance the risk to consumers of setting a wholesale charge that is too high against the risk to C&WG of setting a wholesale charge that is too low. The DG has therefore also chosen to conduct the assessment over a forecast timeframe of one investment cycle over which to assess future cash flows (i.e. 2006/07 to 2010/11). A terminal value is also included to take account of the cash flows arising from a further asset investment cycle of 5 years (i.e. 2011/12 to 2015/16) to satisfy the need to take reasonable account of benefits to C&WG.

The DG will base his assessment of the profitability of C&WG's wholesale broadband business on the net cash flows earned by C&WG for the period 2000/01 to 2010/11 on the basis that historic investment and start-up losses should be taken into account and the asset lifecycle of the NGN broadband investment in supporting all future broadband services is 5 years. This reflects a favourable position for C&WG in that regulators have in some cases subjected historic expenditure to efficiency criteria and excluded elements of historic costs in pricing assessments. The DG has not proposed to assess C&WG's costs in this way or to restrict his assessment to an incremental cost basis, but has allowed for the inclusion of all these historic costs.

Since the DG has allowed NGN investment that facilitates broadband services, and since this investment is a fundamental platform for C&WG's future network, the DG has taken the view that the benefit to C&WG of this broadband investment is likely to extend to the long term. Consistent with the matching principle, a terminal value is therefore also used to take account of the benefits of cash flows estimated to accrue to the business between 2011/12 and 2015/16 to satisfy the need to take reasonable account of benefits to C&WG in balancing the risks between supplier and consumer.

Decision 1

The DG will base his assessment of net cash flows over the time periods 2000/01 to 2010/11 as set out in 7.1 and will use a terminal value to take account of benefits accruing to C&WG after 2010/11.

7.2. Revenues

The revenues earned by the C&WG's wholesale business up to 2009/10 are based on forecasts provided by C&WG prior to the draft decision with a growth factor of 0.5%[13] applied to the final year of the cash flow assessment over the first asset investment lifecycle (i.e. 2010/11).

C&WG has argued that wholesale competition is likely to lead to materially lower levels of market share than those assumed by the OUR in its draft decision. It therefore argues that account of cash flows forecast for the business beyond the 5 year asset life of its assets exaggerate the benefits likely to be accrued by the business. The DG has accepted the need to make an assumption of market share erosion given evidence in other markets and the prospects for technology change. However, he disagrees with C&WG that the potential for competition is likely to materialise to the extent that no account should be taken of net cash flows accruing to the business after 2010/11.

The revenues on which the terminal value is based therefore reflect an assumed rate of market share erosion of revenues over the period 2011/12 to 2015/16 of 8% per annum. A market share of 60% forecast for C&WG's wholesale broadband business is therefore forecast for 2015/16, with an erosion of market share to commence in 2008/09, accelerating from 2010/11 onwards. This estimate of market share erosion compares with BT's DSL market share which after approximately 5 years of wholesale competition is currently around 75% while its retail broadband arm holds 60% of the broadband market. Eircom's wholesale broadband market share currently stands at 80%.

7.3. Costs

C&WG has argued that the asset life of telecommunications equipment is far shorter with modern technology and that C&WG would expect to commence replacing NGN equipment very soon after the end of 2009/10. This effectively requires that some account is taken of subsequent rounds of renewed capital investment in broadband which lowers the forecast net cash flows and therefore the return to the business. The OUR proposes to accept a five year basis for the asset life of broadband tangible assets and the ongoing need for repeated capital investment. On this basis an average level of capital expenditure is assumed beyond 2009/10 based on C&WG investments projections over the 2005/06 to 2009/10 period. This is significantly influenced by levels of NGN investment forecast by C&WG. Ongoing extension to the network of a similar order to that over previous years is also assumed.

In allowing costs on this basis the DG has chosen not to factor in any reductions in technology costs which might be available to C&WG when it begins its replacement of the NGN network components after the end of the first asset life cycle. Given the general decline in technology costs, such a position may favour C&WG's wholesale business as replacement of the equipment could in fact require lower levels of investment than the initial setup costs. The DG has also not amended C&WG's attribution of NGN costs to its wholesale broadband business. While C&WG has made best attempts to allocate a significant level of its proposed NGN investment

[13] C&WG's business plan assumes a population growth of 0.5% per annum.

costs to non-broadband services, the DG remains of the view that NGN capital costs allocated to broadband still have economies of scope in that services other than broadband are likely to utilise the same capital equipment. While the DG accepts the difficulties of forecasting future non-broadband services he expects that as NGN investment roll-out occurs C&WG will be in a position to make more accurate allocation assumptions than those at the moment.

The level of operating costs proposed by C&WG has been accepted, with a growth adjustment in the level of these costs beyond 2009/10. The DG has adopted a conservative assumption that operating costs will not reduce proportionate to the assumed decline in C&WG's wholesale business market share over the period 20011/12 to 2015/16, which effectively attributes a level of operating costs that may be higher than realised.

7.4. Input Assumptions

Period 2000/01 to 2005/06 - Inputs required for the period between 2000/01 and 2005/06 are made with relative certainty given the predominantly historic nature of the data. C&WG has provided the revenue streams realised by its wholesale broadband service for each year over this period, as well as the operating and capital expenditure costs incurred by the business (and its predecessor Guernsey Telecoms) on a cash basis.

Period 2006/07 to 2010/11 - A reasonable level of accuracy is also possible on an annual basis in estimating revenues, operating and capital expenditure costs over the period 2006/07 to 2009/10. C&WG has supplied its estimates of revenue growth for each of these years, which assume a slow down in the rate of revenue growth consistent with assumptions that the wholesale broadband provision market will mature over this period to approximately [confidential] subscribers by the end of the period. C&WG also provided estimates of its operating costs as well as investment costs, including NGN investment over this period taking into account initial set-up costs as well as the extension of the network over time. Net cash flows for 2010/11 are based on an annual growth rate applied to the previous year.

Period 2011/12 to 2015/16 – The terminal value is based on net cash flows forecast over this time horizon. The OUR regards annual projections over this period as less reliable indicators of cash flows, in that their allocation to a specific year involve an obvious element of uncertainty. However, taking into account assumed market losses, reasonable estimates of the aggregate net cash flows can be made based on more general assumptions.

Decision 2

The DG will use as inputs to determining the appropriate wholesale rate the assumptions set out in section 7.4 of this decision paper.

7.5. Conclusions

The DG's assessment has indicated that, without any price reduction, C&WG's wholesale business would earn a return of 17.5% based on the net cash flows assumed. This implies a reduction of 15% on current wholesale revenues (i.e. based on interim prices) to ensure C&WG earns a return consistent with its cost of capital in the provision of wholesale broadband services.

Section 6.3 dealt with the issue of treatment of NGN costs in the analysis. Allocation issues have already been discussed in this document, as well as the DG's view that new investments costs should not only introduce costs to the provision of a service but should also demonstrate quantifiable benefits. In the absence of a robust allocation of costs, the DG has indicated that the most prudent approach to the assessment of profitability of C&WG's wholesale business might be to exclude the costs of NGN. The analysis would then be based only on the net cash flows derived from assets over the asset life of the existing broadband network.

The DG has however also highlighted that he would not wish this investigation to hinder the introduction of NGN which C&WG has assured will provide benefits but, like other NGN investors, is not in a position to robustly forecast the extent of such services as yet. Given this, the DG has allowed for the inclusion of NGN costs in his assessment. It is notable that an approach that excludes the cost of NGN and adopts a five year net cash flow analysis would result in a price reduction of 13% in the level of wholesale broadband charges. This reduction is of a similar magnitude to that arrived at through the analysis set out in this document and provides some assurance that consumers have not been significantly disadvantaged by assumptions made in the analysis, and therefore that a reasonable balance has been struck between the interests of consumers and C&WG.

The DG is satisfied that he has balanced the interests of consumers and C&WG and that the resulting price reductions are consistent with an alternative economic approach to this assessment and in line with prices seen in other island jurisdictions.

DG's Decision 3

The DG will reduce C&WG's wholesale broadband revenue by 15% to ensure C&WG earns a return of 12% from the provision of wholesale broadband services.

8. Conclusions and next Steps

The OUR's investigation has concluded that wholesale broadband revenues should now reduce by 15% from their current level and that such a reduction will enable C&WG to earn a reasonable return on their investment.

To further mitigate the risk that market developments diverge from the assumptions underpinning this analysis the DG proposes to review the level of prices set out in this decision in 2008/09. The OUR has only recently received a clearer timetable of C&WG's NGN investment plans, which indicates a relatively rapid rollout of the technology and indications are that this may allow for attribution issues in NGN allocation to be revisited in light of further experience. The prospects for wholesale competition in Guernsey can at that time also be taken into account given the DG's intention to consult on LLU later this year and consideration of the implications of other technologies such as wireless broadband competition can then also be further considered

The DG will now carry on with the on-going work involved in assessing the interest in, and demand for, LLU, and will monitor the development of C&WG's NGN network, both of which may have implications for any future review of wholesale prices.

Appendix 1: Allocation of operating expenditure

Operating expenditure is apportioned to the broadband service according to the relative volumes in the year the cost is incurred. C&WG's Oros system has been used as the source for all operating costs with 2003/04 as the base year (being the most recent published regulatory accounts). Access costs have not been included as they are assumed to relate to the provision of the voice telephony service. Also, exceptional items such as the voluntary release scheme have been excluded.

In its submission of cash flows, C&WG has assumed that there is a direct relationship between direct labour costs, employee related support costs and fixed and common costs. It has also assumed that the activity in the related areas mentioned above is less at the time when Broadband was first installed (2000/02) and to a lesser extent when the network is being replaced by NGN (2006/08). A view that it will be necessary to have a certain degree of parallel running prior to the switch over to full NGN is the reason for such an assumption. In contrast the Broadband share of network costs is forecast to rise as the customer base grows and default capacity increases.

C&WG has derived average actual salary increases applied to the years from 2000-2005, again using 2003/04 as the base year. The salary factor has been applied to those elements of operating costs that include a high percentage of labour costs i.e. direct labour costs, employee related support costs and common corporate costs. A cost of capital rate of 12% has been applied to the elements of fixed assets included under direct and indirect operating costs. Costs have not been inflated by RPI as it is anticipated that the rise in RPI will be cancelled by the decrease in prices. C&WG has submitted that the only third party direct costs are for support and estimates of this cost are also included.

Appendix 2: Allocation of capital expenditure

[Confidential]

Appendix 3: A Review of Regulatory Decisions related to Broadband Market

Comreg/eircom[14]

Background	Comreg investigated prices in Ireland of wholesale bitstream products that are used as inputs by providers of retail broadband services to offer broadband internet access services to consumers and businesses. The investigation was concerned with the identification of possible competition problems, in particular, the possible leverage of market power by eircom in the upstream market into the downstream market for broadband services, by way of margin squeeze. Comreg also indicated its concern not to set a margin which could distort incentives to invest in infrastructure, or encourage inefficient entry in the longer term.
General Approach	Comreg stated that the purpose of its proposals was to seek to promote wholesale competition. It imposed a retail minus wholesale price control rather than a cost-based price using a discounted cash flow approach. The overall approach was forward-looking, assessing economic costs and revenues of eircom's retail arm adjusted for differences in costs between new entrants and eircom.
Methodological Issues	Since Comreg's basis for setting margins was the costs incurred by a theoretical new entrant rather than those incurred by eircom's retail operations, a forward looking basis did not include eircom's own sunk costs. Comreg therefore adopted the "similarly efficient cost standard" approach.
Prospects for Competition	Comreg stated that it expected that local loop unbundling and direct connections were likely to provide the more important basis for the promotion of competition in broadband and was therefore concerned not to set a margin which could distort incentives to invest in infrastructure, or encourage inefficient entry.
Time Period for Analysis	Comreg considered that an appropriate timescale would be one under which the current investments were profitable and where the firm did not rely on earning super-normal profits on future investments. Given forecast risks and the likelihood of generating unreliable results, a five year period for the DCF analysis was considered more reasonable in the circumstances as it was related to the economic life of the underlying assets. Comreg also included a terminal value calculated using the net cash flow of the fifth year of the analysis carried forward for three subsequent years.

[14] Comreg, Retail minus wholesale price control for the WBA market, 13 January 2006. Comreg, Response to consultation and draft direction on retail minus wholesale price control for the WBA market, 23 November 2005. Comreg, Consultation on retail minus wholesale price control for the WBA market, 19 August 2005

Oftel/BTOpenworld[15]

Background	Oftel conducted a margin squeeze test under the Competition Act 1998 to assess whether BTOpenWorld's pricing policies of its consumer broadband products amounted to a margin squeeze.
General Approach	Oftel adopted a discounted cash flow analysis of BTOpenworld's consumer broadband business to assess the net present value of the business model. The assessment took account of investments in broadband incurred prior to the investigation subject to whether past negative cash flows had created an asset of ongoing benefit.
Methodological Issues	An "equally efficient cost standard" approach was used in this margin squeeze analysis. Oftel took the approach that the extent to which physical or intangible assets obtained through expenditure of past costs are value generative, the equally efficient new entrant would be likely to incur them to compete. Oftel proposed that an appropriate relevant period for the analysis should be based on the nature of BT's investments (both tangible and intangible), noting that account of intangible assets were much more difficult to predict and that their value can be destroyed over very short time periods by situations beyond the control of the business.
Time Period for Analysis	Oftel noted that the starting point is that the assessment of profitability should generally be over the whole of the relevant period from the date of the investments to the end of the period. Whether that is the economic lifetime of the asset or the average customer contract or the very long run. Oftel's view in this case was that subscribers acquired by BT yield a significant on-going economic benefit to BTOpenworld that should be recognized in the analysis of BTOpenworld's profitability. Oftel noted there were a number of possibilities for the relevant time period for the analysis of sustainable prices, depending on the circumstances and the nature of the service and market involved. Three different perspectives were identified, which relate to different interpretations of the economic lifetime of the activity: • *profitability of the business over the very long-run (i.e. over a significantly longer period than the lifetime of the current assets)* • *profitability of the key current investments, and* • *profitability of supplying customers."* Oftel did not extend the relevant period beyond the lifetime of key investments, arguing that an approach that might allow a business to make losses on its current key investments, with the expectation that they will be compensated by future supernormal profits on later investments, runs the risk of building in the rewards of anti-competitive behaviour. Oftel also took account of issues around: • generating reliable forecasts for individual aspects of business cases into the future; • risking building in the rewards of anti-competitive behaviour; and • assets (tangible and intangible) do not have a coterminous life. The assessment was made over a core period of five years together with a terminal value to reflect the cash flows of that business over its remaining life.

[15] Oftel, Investigation by the Director General of Telecommunications into alleged anti-competitive practices by British Telecommunications plc in relation to BTOpenworld's consumer broadband products, 20 November 2003

Ofcom/IPStream[16]

Background	Ofcom investigated the prices of wholesale products that are used as inputs by internet service providers (ISPs) to offer broadband internet access services to consumers and businesses. Ofcom's proposal was to derive a margin squeeze rule reflecting Ofcom's objective of introducing more certainty for alternative network providers, in particular in order to facilitate competition in the provision of intermediate services such as IPStream. Ongoing uncertainty about the margin available to these alternative providers was believed to discourage market entry and Ofcom wished to address this.
General Approach	Ofcom adopted an approach that considered the position of an entrant today and was forward-looking. Ofcom believed a discounted cash flow approach was appropriate for this assessment.
Methodological Issues	Ofcom took the view that since the context for the setting of a margin is one of ex-ante regulation which has as its objective the promotion of competition, it would alter the standard assessment of margin squeeze, in terms of a proxy for an efficient business. Ofcom chose to use BT's costs, both historic and forecast data, as a data source and then applied various adjustments as part of the process of modeling the profitability of a similarly efficient new entrant (i.e. one that shares the same cost function as BT's own downstream businesses but which does not yet necessarily enjoy the same economies of scale and scope as BT's business). Ofcom essentially adopted the "similarly efficient cost standard" approach
Prospects for Wholesale Competition	Ofcom's views that ATM interconnection had a valuable role to play in promoting competition in broadband provision, since in the longer term Ofcom's expectation was that LLU was likely to provide the more important basis for the promotion of competition in broadband. Ofcom therefore indicated concern not to set too large a margin which could distort incentives to invest by alternative network providers. Ofcom took account of this context, when striking the balance between promotion of competition and reducing the risk of inefficient entry and distorted investment incentives.
Time Period for Analysis	In considering the relevant time period over which to conduct the DCF analysis, Ofcom considered a number of possible approaches were possible in relation to choosing the relevant time period for analyzing a business model. It stated that it could be possible to consider the profitability of the key current investments which would imply using the economic life of those assets. Alternatively one could adopt a very long-run approach which would consider profitability over the whole lifetime of the business or at least over multiple investment cycles. In this investigation Ofcom considered that an appropriate timescale would be one under which the current investments were profitable and where the firm did not rely on earning super-normal profits on future investments. On this basis, Ofcom considered that it would be more reasonable to specify a time period that was related to the economic life of the underlying assets rather than the very long run. A terminal value was included in the analysis using the annualized asset costs that had not been allocated over the period of the analysis.

[16] Ofcom, Direction Setting the Margin between IPStream and ATM interconnection Prices, 26 August 2004