A review of wholesale leased line pricing in the Bailiwick of Guernsey

A REPORT PREPARED FOR THE OFFICE OF UTILITY REGULATION

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Executive summary

The Office of Utility Regulation (OUR), the telecommunications regulator of the Bailiwick of Guernsey, has retained Frontier Economics to advise it on the appropriate form and structure of regulated charges for wholesale leased line services offered by Cable & Wireless Guernsey (C&WG), the incumbent telecommunications operator in the Bailiwick. This report sets out our findings.

C&WG, together with C&W Plc (UK) recently deployed a new fibre optic link between Guernsey and the UK (the HUGO cable). Prior to launching services over the cable, C&WG provided the OUR with a proposed set of retail prices for the services that are to be offered, together with the prices for equivalent wholesale services. In line with existing regulation, C&WG set the wholesale prices on the basis of retail prices minus 9.1%. The business plan provided by C&WG indicated that C&WG anticipates earning a rate of return on the HUGO cable assets significantly in excess of its cost of capital. Therefore, following an initial review of the proposed business case, the OUR has retained Frontier Economics to conduct a review of wholesale leased line prices offered by C&WG. The OUR has requested that Frontier Economics consider specifically:

- the approach used in other markets to set wholesale leased line charges;
- given the context and position of Guernsey's telecommunications sector, the application of retail-minus and cost-plus approaches to setting wholesale leased line prices; and
- the recommended approach to the calculation of proposed charges for wholesale leased line services using the HUGO link.

Frontier was asked to consider the market conditions in the leased lines market, although a full market analysis was not part of this study.

Our report is structured in three sections. Section 2 reviews the current status of leased line service markets in Guernsey, including the current regulatory framework applied to both wholesale and retail leased lines. Section 3 considers the conditions under which particular regulatory pricing regimes may be appropriate, whilst Section 4 considers a suitable pricing structure for leased lines offered over C&WG's HUGO cable.

- Section 2 presents some of the key characteristics of the leased line markets in Guernsey. It shows that, based on 2005-06 regulatory accounting data C&WG earned a rate of return that year of 66% on its end-to-end leased line services.[1] This is substantially above C&WG's cost of capital and indicates that current leased line prices are not reflective of the costs of providing leased line services. The Section also presents evidence that there is a prospect of competition emerging in the provision of off-island wholesale leased line services, where at least two other operators to C&WG have direct

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1 Annexe 2 reviews the cost data provided by C&WG and the HUGO business plan.

access to off-island capacity. In contrast, over the medium term C&WG is unlikely to face significant competition in the provision of on-island wholesale leased line services.

- Section 3 then considers three different forms of price regulation for wholesale services (retail minus, cost plus and wholesale price caps) and analyses the appropriateness of each in the light of the market conditions identified. Given the differing competitive conditions that C&WG faces in the provision of on-island and off-island wholesale leased lines, we consider that it might be appropriate for the OUR to apply different forms of regulation to wholesale on-island leased line prices and wholesale off-island leased line prices. In particular, we propose that the OUR consider a cost oriented form of regulation for on-island leased line prices (either a cost-plus or wholesale price cap regulation) and a retail-minus obligation on wholesale off-island leased line prices.
- Section 4 applies the proposed approach for calculating wholesale off-island leased line prices to put forward a range of prices for wholesale leased line services carried over the HUGO cable. Based on cost data provided by C&WG, we estimate that avoidable retail costs in the provision of leased line services equated to between 15% and 16.2% of retail leased line revenue during 2005-06. We then apply this revised discount rate to the proposed retail tariffs for HUGO leased lines. The following table shows the resulting wholesale charges.

Wholesale leased line prices	Proposed wholesale prices (July 06)	Proposed wholesale prices (Sept 06)	Wholesale prices using a 15% discount factor	Wholesale prices using a 16.2% discount factor
2 Mb	6,136	5,630	5,265	5,190
45 Mb	42,110	38,825	36,305	35,793
155 Mb	99,697	91,961	85,992	84,778

Table 1: Revised wholesale prices for HUGO leased line half circuits[2]

Source: C&WG, Frontier analysis

2 Annexe 1 reviews leased line regulation in a number of other jurisdictions.

1 Introduction

The Office of Utility Regulation (OUR), the telecommunications regulator of the Bailiwick of Guernsey, has retained Frontier Economics to advise it on the appropriate form and structure of regulated charges for wholesale leased line services offered by Cable & Wireless Guernsey (C&WG), the incumbent telecommunications operator in the Bailiwick. This study forms part of a review of wholesale leased line pricing in the Bailiwick that was announced by the OUR as part of its work programme for 2006.

1.1 THE BACKGROUND TO THE REVIEW

In conjunction with C&W Plc, C&WG has recently installed a new fibre optic submarine cable linking Guernsey to the UK and France (the HUGO cable).[3] The HUGO cable will be used to offer off-island leased line (SDH) and Ethernet services on a half-circuit basis. In July 2006, C&WG notified the OUR of the prices it intended to charge for retail and wholesale 2Mb, 45Mb and 155Mb leased line half circuits to the UK. The business case provided alongside this proposal showed that C&WG expected to earn a rate of return on these services significantly in excess of its cost of capital.

Following a discussion between the OUR and C&WG on some aspects of the business case, C&WG submitted to the OUR in September 2006, a revised (reduced) set of prices. This revised pricing proposal showed C&WG earning a return significantly above its cost of capital.

The scope of the study commissioned by the OUR therefore covers both the general regulatory principles that should be applied to wholesale leased line pricing and the proposed prices for wholesale leased line services offered over the HUGO cable. In particular, the objectives of the study are to:

- review the approach used in other markets to set wholesale leased line charges;
- given the context and position of Guernsey's telecommunications sector, review the application of retail-minus and cost-plus approaches to setting wholesale leased line prices; and
- apply the recommended approach to the calculation of proposed charges for wholesale leased line services using the HUGO link.

For the purposes of conducting this review we have undertaken a number of tasks. These include:

- a review of approaches to regulating wholesale leased line tariffs in other jurisdictions;
- meetings with users of C&WG's wholesale leased line services;

[3] High Capacity Guernsey Optical fibre

- a meeting with C&WG to discuss its leased line service offering and its approach for determining the proposed prices for HUGO leased lines;
- a review of data provided by C&WG in response to a data request sent by the OUR to C&WG; and
- a review of possible approaches for determining regulated wholesale charges and the circumstances under which each may be appropriate.

1.2 THE STRUCTURE OF THE REPORT

Based on the above tasks and in line with the objectives for the study, this report sets out our draft findings. The remainder of it is structured as follows:

- Section 2 provides an overview of leased line services in the Bailiwick, including the current regulatory regime applying to these services.
- Section 3 presents an analysis of different options for setting the prices of regulated services, including an assessment of the key characteristics of each. The section concludes by recommending an appropriate pricing structure for wholesale leased line services in Guernsey.
- Section 4 applies the proposed pricing structure and recommends a reasonable range of prices for wholesale leased lines offered over the HUGO cable.

In addition, the report includes four annexes:

- Annexe 1 reviews regulatory regimes for wholesale leased line pricing in a number of other jurisdictions;
- Annexe 2 reviews the costs of providing leased line services in Guernsey, based on information provided by C&WG to the OUR and Frontier as part of this review;
- Annexe 3 presents C&WG cost data related to the provision of retail leased line services; and
- Annexe 4 provides a list of sources used in the reviews of wholesale leased line pricing in other jurisdictions.

2 Leased line services in the Bailiwick of Guernsey

Leased lines are fixed permanent telecommunications connections providing capacity between two points. The main distinguishing features of leased lines are that they:

- are dedicated to the user's exclusive use; and
- enable the end user to send voice and data messages from one site to another.

Retail leased line services may be either analogue or digital. Analogue leased lines allow the transmission of analogue signals typically in the frequency range 300 Hz to 3.4 kHz, whilst digital leased lines allow the transmission of digital signals and are provided in a range of bandwidths referring to the maximum data rate that can be transmitted. Digital leased lines are typically offered at bandwidths ranging from 64kb/s to 622Mb/s.

Following the liberalisation of the telecommunications sector, leased lines take on an additional role, allowing new entrant operators and service providers to deliver network services over a wider area without the need to replicate the incumbent's infrastructure. As such, any regulatory obligations that relate to leased lines can have a significant impact on the development of competition in telecommunications markets. In some jurisdictions, regulators require operators dominant in a relevant market to offer wholesale leased lines to other operators, with wholesale prices set at some level below the level of retail prices. These wholesale leased line services can then be used for both:

- providing links between parts of the other operator's network (for example, backhaul links between radio base stations); and
- competing with the dominant operator in the provision of leased line services to retail customers.

2.1 LEASED LINE SERVICES OFFERED BY C&WG

In Guernsey, leased lines are offered for both on-island[4] and off-island connections. The off-island connections provide links from Guernsey back to the UK, France or Jersey, and then on (if necessary) to other international destinations. C&WG currently offers these off-island connections over a number of submarine cables, namely:

- **"UK-Channel Isles 7"**. A cable between Guernsey and the UK, this link has been in service since 1989.

4 "On-island" connections include those between Guernsey and other islands in the Bailiwick (i.e., leased lines between Guernsey and Alderney)

- **"Guernsey-Jersey 4".** A link between Guernsey and Jersey, this connects to **"UK-Channel Isles 8"** from Jersey to the UK, and has been in service since 1994.

Cables 4, 7 and 8 are owned jointly by C&WG, Jersey Telecom and BT. C&WG also uses the CIEG cable between Guernsey and Jersey to carry off-island traffic.[5] Links 4, 7 and 8 are shown in the figure below.

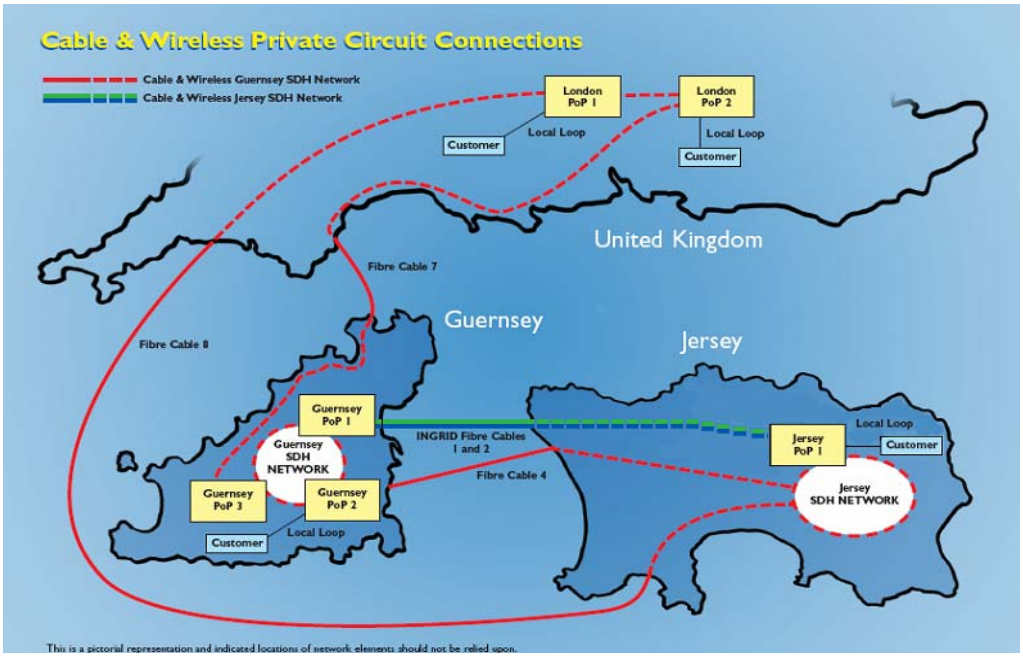

Figure 1: Submarine cables 4,7 and 8

Source: C&WG

We understand that C&WG currently offers both 2Mb and 45Mb half circuit leased line services to the UK over these links, together with full circuits to Central London. Where C&WG provides a half circuit to the UK, customers can contract with either BT or C&W (UK) for the second half circuit. For on-island leased lines, C&WG currently offers only a 2Mb leased line service and a 45Mb leased line between Guernsey and Alderney. This effectively means that other licensed operators reliant on C&WG's on-island wholesale leased line service as an input to their own off-island leased line services are constrained to only offer off-island services of the same capacity as C&WG's on-island services. (Although C&WG offers a 155Mb off-island leased line, it does not offer a 155Mb on-island leased line, thus reducing the ability of other operators to compete with C&WG in the provision of high-capacity off-island lines).

C&WG Guernsey, in conjunction with C&W Plc in the UK, has recently invested in a new submarine cable link, the HUGO cable. The HUGO cable connects Guernsey to the UK and France. C&WG intends to provide half circuit

5 Channel Islands Electricity Grid cable

leased lines to the UK over the HUGO cable and has submitted proposed prices to the OUR for half circuit 2Mb, 45Mb and 155Mb SDH leased line services. As shown in the table below, these prices are considerably below the retail prices C&WG currently charges for equivalent leased line services.

Service	Proposed retail prices for HUGO (2006-07, annual rental) (Jul 06)	Proposed retail prices for HUGO (2006-07, annual rental) (Sept 06)	Current leased line prices (annual rental)[6]
2Mb half circuit to the UK	£6,750	£6,194	£26,000
45Mb half circuit to the UK	£46,325	£42,712	£210,000
155Mb half circuit to the UK	£109,678	£101,168	Price on application

Table 2: Proposed retail prices for HUGO and existing leased line half circuits

Source: C&WG price list and HUGO pricing proposal (submitted to OUR on 01/09/06)

C&WG recently removed the connection charge on all its leased line products. The only charges payable on leased line circuits are therefore quarterly rental charges. For on-island leased lines, the rental charge differs according to whether the terminating segments of the leased line are sited in the same exchange area:

- a 2Mb circuit within the same exchange area is charged at a quarterly rental of £506.25; and
- a 2Mb circuit between different exchange areas is charged at £911.25.[7]

Standard retail leased line contracts offered by C&WG have a duration of one year. Customers taking contracts for two or three years are offered respectively 5% and 10% discounts on the standard leased line rental prices applicable in each year of the contract. As described below, these discounts are not available to wholesale leased line customers.

Based on data from C&WG's 2005-06 regulatory accounts, we estimate that C&WG earned a rate of return on its retail leased lines of 66% in 2005-06. This is significantly above its cost of capital of 12%[8], suggesting that C&WG has been

6 The prices included in the table are for Guernsey to UK half circuits as presented in C&WG's retail leased line price list. The price list also includes 2Mb and 45Mb Guernsey to London full circuits. The annual rental charges for these (based on a one year term) are respectively £23,500 and £229,950. It is noticeable that for the 2Mb link to the UK the half circuit price lies above the price of a full circuit to London. The reasons for this pricing pattern are not clear.

7 C&WG price list for 2Mb plus circuits, valid from 1st April 2006 (taken from C&WG's website) and based on a one year contract.

8 A cost of capital of 12% is applied by C&WG in their calculation of HUGO prices. It equates to the cost of capital used by the OUR during its recent review of C&WG's price control.

able to maintain a price for leased line services significantly above the cost it incurs in providing the services.[9] In addition and as set out above, the business case for HUGO leased line services, submitted by C&WG to the OUR also indicates that C&WG expects to earn a rate of return on HUGO significantly above its cost of capital, including an allowance for an additional risk premium.[10]

C&WG is also obliged to make its leased line services available on a wholesale basis. As set out below, the prices for wholesale leased lines are set on a retail-minus basis.

2.2 REGULATION OF C&WG LEASED LINE SERVICES

C&WG is currently considered by the OUR to be a dominant operator in both the retail fixed line telecommunications market and the wholesale fixed line telecommunications market.[11] As a result, it is the subject of a number of regulatory obligations, including price cap regulation on some of its retail services. Within the price cap, retail leased line prices are regulated in a separate basket, with a cap of RPI-16% applying until April 2008.[12] We understand that this cap was set in order that by the end of the cap period, retail leased line prices would be reflective of forward-looking estimates of leased line costs.

2.2.1 Regulation of wholesale leased lines

The prices that C&WG charges for wholesale leased lines are currently regulated on a retail-minus basis. That is, prices are set according to the price of the equivalent retail service, minus an amount (currently 9.1%) for the costs that C&WG avoids when providing a wholesale service, compared to a retail service. Wholesale leased lines have been regulated on this basis since 2002.[13]

The retail discount was calculated based on C&WG cost data for 2001-02. Retail costs that were considered avoidable were related to retail billing costs and bad debt, together with a share of business overhead costs attributed to on-island leased lines. This derivation is shown in the table below.

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9 Annexe 2 reviews the profitability of C&WG's leased line services in more detail. This estimate is based on the necessary network components of leased line services being made available to the retail business at cost (and hence includes profits that in C&WG's regulatory accounts may be allocated to its core network business and those allocated to its retail business).

10 Annexe 2 reviews C&WG's business case for HUGO leased lines in more detail.

11 OUR 05/19, "*Price control for Cable & Wireless Guernsey: Decision notice*"

12 During the first price cap period between 2002 and 2005, retail leased line prices were regulated using a safeguard cap of RPI-RPI (effectively allowing no change in nominal leased line prices). We understand that a safeguard cap was applied because of a lack of available information.

13 We note that there are a number of licence conditions that set out the obligations of C&WG (and the rights of the OUR) in relation to determining the pricing of regulated products, and in particular whether regulated prices should be set on the basis of cost orientation. This report does not include a review and/or assessment of such conditions.

Retail revenues for on-island private circuits, 2001-02	xxxx
Retail billing costs for on-island private circuits, 2001-02	xxxx
Bad debt for on-island private circuits, 2001-02	xxxx
Business overhead, 2001-02	xxxx
Total retail cost, 2001-02	xxxx
Retail discount	9.1%

Table 3: Calculation of the existing discount for wholesale leased line services

Source: C&WG

As shown in the above table, the discount was calculated with reference only to on-island leased lines costs and revenues. From the information provided by C&WG it is not clear that the discount calculation took account of the costs of retail marketing and CRM (customer relationship management) activities that could possibly be avoided when only providing a wholesale service.

C&WG wholesale leased lines are only available on a one-year contract. As a result, the retail discounts of 5% and 10% on contracts of two and three years respectively are not available to wholesale customers. This means that the price charged by C&WG to a retail customer on a three year contract could be less than the wholesale price an OLO would pay if it were to purchase a wholesale service and use this to provide the retail service to the customer. Although these discounts may reflect cost savings achieved by C&WG when offering leased lines on longer term contracts (for example through reduced customer acquisition costs), the lack of multi-year contracts (and discounts) for wholesale leased lines could be expected to place other licensed operators at a disadvantage in the retail market.

2.3 THE COMPETITIVE NATURE OF ON-ISLAND AND OFF-ISLAND LEASED LINE SERVICES

As set out in Section 2.2, the same regulatory regime currently applies to both on-island leased lines and off-island leased lines. Both are regulated under the same retail price cap basket and for both, wholesale prices are set at a level equal to retail prices minus 9.1%. From our discussions with key stakeholders in Guernsey's telecommunications sector, we understand that the potential scope for competition in the delivery of retail and wholesale leased lines may differ for on-island and off-island services. This in turn could have important implications for the appropriate regulatory pricing regime. This part of the report therefore presents our understanding of the potential differences in competitive conditions between on-island and off-island leased lines.[14]

On-island leased line services

Currently, C&WG has the only complete fixed network infrastructure on the Bailiwick. We understand that it estimated its market share of the retail on-island leased line market for 2005-06 at approximately xx% (by volumes). It is the only operator providing wholesale on-island leased line services.

Other operators, in particular Wave Telecom and Newtel, are currently in the process of deploying some alternative network infrastructure on the Bailiwick. However, we understand that C&WG is expected to maintain a significant share of the on-island market, with other operators being likely to maintain a significant reliance on C&WG's wholesale on-island leased line service.[15] Other licensed operators, in addition to competing for retail on-island leased line services, typically use C&WG's wholesale on-island leased lines:

- to provide connectivity between their own network components; and
- to link retail customers to the operator's own off-island connectivity, thus providing an off-island leased line for the operator's retail customers in Guernsey.

This second use is particularly important for an operator who has not fully deployed an on-island transmission network but who wishes to compete with C&WG in the provision of off-island leased lines. For example, we understand that both Newtel and Wave offer off-island leased line services by combining self-provided off-island capacity with a wholesale on-island leased line purchased from C&WG. Therefore, the terms and conditions on which wholesale on-island leased lines are made available to OLOs, together with the portfolio of available on-island services, can also affect the market in Guernsey for off-island leased lines.

Off-island leased line services

Other licensed operators in the Bailiwick currently self-provide (or are planning to further self-provide) off-island transmission capacity. For example, we understand that Newtel uses capacity on the CIEG cable to take traffic off Guernsey, rather than relying on C&WG wholesale off-island leased line services. Wave Telecom currently uses cables 4, 7 and 8 (in which its parent, Jersey

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14 As part of this report, Frontier was not asked to complete a full analysis of the leased line markets and hence our analysis is based on information provided to Frontier during the course of the review by the OUR and C&WG

15 From discussions with alternative providers of leased line services we understand an operational factor reducing the ability of new entrants to deploy significant local fixed infrastructures is the existing right of way regulations in the Bailiwick. We understand that under current regulations in the Bailiwick, a party is not able to dig up a road within three years of another party having dug up the same section. If one operator is laying cable over a particular section, other operators are typically not invited to also lay cables there at the same time, thus meaning they are then not able to lay cables in that area for the three-year period.

Telecom has a stake) to take traffic off-island and is also understood to be provisioning a further cable link between the Channel Islands and the UK.[16] In addition, we also understand that Newtel carries off-island traffic on behalf of service providers such as Itex. As a result, we understand that C&WG does not envisage a significant demand for wholesale leased lines offered over HUGO. Indeed, its business case assumes that it will only carry leased lines from C&W Jersey, rather than from other licensed operators. By way of illustration, the following table presents C&WG's forecasts for its share of leased line markets (by volume) over the course of the next three years. This shows that whilst C&WG expects to maintain a significant share of the wholesale on-island leased line market (indeed a xx% share of on-island wholesale leased lines), its current and forecast share of wholesale off-island leased lines is expected to be around xx%.

Leased line market share		On-island	Off-island
2005-06	Wholesale	xx%	xx%
	Retail	xx%	xx%
2006-07	Wholesale	xx%	xx%
	Retail	xx%	xx%
2007-08	Wholesale	xx%	xx%
	Retail	xx%	xx%

Table 4: C&WG wholesale and retail market share for on-island and off-island leased lines

Source: C&WG

Taken together, this evidence would suggest that the provision of wholesale off-island leased line services may potentially be subject to much stronger competition than the provision of on-island wholesale leased line services. Wholesale on-island leased lines form a vital input to an alternative operators' provision of off-island leased line services. Therefore, the ability of an alternative operator to compete with C&WG in the provision of off-island leased lines (even when that operator has its own off-island capacity) can be dependent on the terms and conditions on which wholesale on-island leased lines are available, together with the portfolio of on-island wholesale leased lines that are available.[17]

16 In a press release issued in November 2006, Wave Telecom and its owner (the Jersey Telecom Group) announced plans to lay a new fibre optic cable between the Channel Islands, UK and France.

17 C&WG's own off-island retail leased line service implicitly includes an on-island transmission component. To replicate C&WG's off-island leased line service, alternative operators have to purchase on-island capacity from C&WG in the form of a wholesale on-island leased line. However, we understand that C&WG does not provide the same portfolio of wholesale on-island leased lines as off-island leased lines.

The far-end half circuit and the regulation of wholesale leased lines

As set out above, C&WG intends to use HUGO to provide off-island leased lines on a half circuit basis. Customers wishing to connect to the UK will have to contract with C&W Plc (UK) for the far-end half circuit. In designing the regulatory regime it is therefore also reasonable to consider whether a chosen regime may impact the provision of a full end-to-end circuit to customers (for example through C&W Plc recovering lost revenues on the Guernsey half circuit through increased charges for the far-end UK half circuit). We understand that the provision of the far-end half circuit may not fall within the OUR's jurisdiction.[18] Therefore, it is important to consider how C&W Plc might react to any regulation of wholesale leased line prices for the C&WG end of the half-circuit. For example, if the market is not effectively competitive and the OUR regulates the C&WG half circuit, C&W Plc could increase the price of the far-end half circuit to compensate for price reductions on the C&WG half. This could potentially mean that despite regulation, wholesale customers would not see a significant reduction in end-to-end circuit prices. If though the market is, or is becoming, effectively competitive, C&W will be less able to set prices independent of competitors by restricting access to the far-end half circuit. Such an action would result in customers moving from C&WG's leased line service to one of those offered by a competitor.

18 If C&WG does provide the far-end half circuit to its customers, it may fall within the OUR's jurisdiction to ensure that a wholesale product including the far end is also available to OLOs. However, we understand that the price charged by C&W Plc for the far end half circuit would not come under the OUR's jurisdiction.

3 Pricing regimes for regulated services

Regulated wholesale prices may be set using a number of different mechanisms. In this section of the report we describe the key characteristics of the most common of these, namely:

- Retail minus pricing;
- Rate of return (i.e. Cost plus) pricing; and
- Wholesale price caps.

We then recommend an appropriate pricing structure for on-island and off-island wholesale leased line services offered by C&WG, considering both

- the factors determining the property/performance of a pricing regime, namely:
  - o the ability of the regime to result in cost oriented prices;
  - o the impact of the regime on efficiency incentives;
  - o the impact of the regime on investment incentives;
  - o the consistency of the regime with the existing retail price control;
  - o practical considerations of deriving charges under each regime; and
- the implications of the differing nature of competition in the provision of on-island and off-island leased lines.

3.1 REGULATORY PRICING REGIMES

A number of methods have been used to determine regulated prices for wholesale services in the telecommunications sector. The characteristics of the most common methods are presented below, namely:

- setting wholesale prices with reference to retail prices, minus the costs that an operator avoids when providing a wholesale service, compared to a retail service (i.e., retail-minus);
- setting wholesale prices according to the estimated costs of providing that wholesale service (i.e., cost-plus); and
- setting a price cap for the wholesale price, such that prices of the regulated services in real terms converge to cost, typically lasting 3-5 years (i.e., a wholesale price cap).

3.1.1 Retail minus

Under a retail minus approach, regulated wholesale prices are calculated from the prevailing price of an equivalent retail service. That is, the wholesale price is set by subtracting from the retail price the retail costs that the operator would not incur if it provided a wholesale service, compared to providing a complete end-to-end service. For example, an operator providing a wholesale service instead of a retail service is likely to save costs associated with retail billing and the provision of (retail) customer support.

A retail-minus approach can be used to set prices in order to reduce the ability of dominant vertically integrated operators to pursue anti-competitive pricing policies, including the possible use of margin squeeze. Retail minus can also be used by regulatory authorities to help facilitate efficient entry into the relevant retail markets.

A retail minus approach will lead to cost-oriented wholesale prices if retail prices are themselves cost-oriented and the retail costs subtracted from the retail price are accurately estimated. If the operator earns a return above its cost of capital in the provision of the retail service, it may also earn a return above its cost of capital when providing the wholesale service (as identified by the OUR in C&WG's HUGO wholesale prices). One solution to this could be for the retail margin to also include some part of the profit earned on the provision of the retail service. Using this approach, it is necessary to amend the retail-minus pricing formula as the profitability of the incumbent's retail service changes. For example, if retail price regulation is gradually reducing the incumbent's retail margin, it would not be appropriate to set a retail-minus pricing formula according to a historic view of the profitability of that service.

Typically, retail costs are calculated as a percentage of the retail revenue that the regulated firm earns on the service under consideration, with this percentage deducted from the retail price to yield the wholesale charge. Alternatively, a regulator could calculate the 'minus' as the absolute costs that the operator avoids when providing a unit of the wholesale product, rather than a unit of the retail product. This will ensure that the absolute margin available to new entrants does not decline as retail prices fall. In choosing which method to apply a regulatory authority should have regard to the expected change in retail costs in relation to retail prices. For example, if retail costs are expected to remain constant (in absolute terms) as retail prices fall, the absolute approach might be most appropriate, or an approach where the discount is reviewed on a regular basis.

Retail costs could be estimated either according to the costs that the incumbent avoids when providing the wholesale service (compared to the retail service), or according to the retail costs of a reasonably efficient new entrant. The second approach may be particularly relevant when the incumbent's retail business benefits from considerable economies of scale compared to the retail business of a new entrant (operating at a lower level of volumes) and hence where the average retail costs of the incumbent may be lower than those of the new entrant. In such circumstances, applying the costs of the new entrant to calculate the discount may facilitate the development of retail competition.

3.1.2 Rate of return regulation

Under rate of return (i.e., cost-plus) regulation, the prices of regulated services are determined each year such that the regulated entity typically is allowed to recover its costs and earn its cost of capital on the assets used to provide that service. This approach therefore ensures that prices are cost-oriented. However, any cost-savings would be passed on to consumers in the form of lower prices at the end of each year and hence such a regulatory system gives only limited incentives to a dominant regulated operator to provide the given services more efficiently. In addition, in the event that only a part of a regulated operator's service portfolio must be provided on a cost-plus basis, the operator concerned may have an incentive to "shift" costs between regulated and non-regulated (competitive) services. This is a particular risk in industries such as telecommunications where a significant proportion of costs are common across services, or within a regulatory accounting costing system where the costs of particular assets (such as transmission equipment) are attributed to a number of products according to a cost driver mechanism. Taken together, these factors mean that this approach to regulation may not result in prices being set according to efficient cost levels.

If a cost-plus system is used, costs can be measured in a number of ways. These include:

- a measure of the actual costs that the operator incurs (i.e., a top-down approach); and
- a measure of efficient costs (i.e., involving some form of bottom-up costing).[19]

A bottom-up approach is more likely to result in tariffs being closer to efficient costs. However, this may not allow the regulated operator to recover its actual costs. For example, bottom-up models have been criticised (by operators) for underestimating the costs that an efficient operator would actually incur, through simplifying the cost drivers and cost volume relationships faced by operators.

3.1.3 Wholesale price cap

Under a price cap mechanism, changes in the prices of the regulated services are capped at a particular level. Price caps are normally in place for a number of years, with for example a regulated firm required typically to reduce the price of a basket of services (or an individual service) by a given percentage (adjusted for inflation), when prices are above costs and/or costs are expected to fall. Price caps can be set with reference to estimates of the forward looking costs of providing the regulated services, such that by the end of the cap period, the charges for the regulated service may reflect projected costs. This has been the case with a number of wholesale services used in the telecommunications sector in the UK. For example, the charges for mobile voice call termination are currently regulated under a price cap, which was set with reference to estimates of the forward looking costs of providing mobile termination services. BT's wholesale prices were also set using a price cap mechanism.

[19] When deriving charges under a cost-plus approach or another approach that relies on cost information (for example, a wholesale price cap), consideration should also be given to different approaches for annualising capital costs. This is particularly the case when considering the capital costs of a single investment, where demand for the associated services may increase over time.

Price caps are typically used where competition is not sufficient to constrain the regulated prices and where a regulator wishes to provide the firm with an incentive to improve its efficiency. Price caps provide such an incentive because, at least for the duration of the cap, the regulated firm is able to keep any additional profits it earns from cost savings in excess of those required by the cap. The strength of these incentives will depend on the characteristics of the cap, including the duration of the cap and the anticipated approach of the regulatory authority to revising the control at the end of the cap period.

In introducing or renewing a price cap a regulator may also wish to impose a so-called 'P_0 adjustment'. Such an adjustment would require the regulated operator to reduce some or all of its prices at the start of the price cap period, with the price cap then applying from the date of the P_0 adjustment. A regulator may introduce such a policy if the operator earned a rate of return significantly in excess of its cost of capital at the outset of the price cap period. This could however have a significant impact on the incentive properties of the cap, particularly if the regulated firm believes that further P_0 adjustments will be applied at the start of subsequent price cap periods.

3.2 KEY FACTORS IN DETERMINING AN APPROPRIATE PRICING REGIME FOR C&WG WHOLESALE LEASED LINE SERVICES

The different price control regime options that are available to the OUR each have specific characteristics and can have different impacts on the regulated firm and the dynamics of emerging competition. Each regime can be appropriate in particular circumstances and therefore, in determining the most suitable regime it is important for a regulatory authority to consider the characteristics of the market to which the regulation will apply, and the potential impact of the regime. In this section of the report we present the key factors that the OUR should take into consideration when determining an appropriate pricing regime for wholesale leased line services in Guernsey.

We consider the following factors:

- the ability of the regime to result in cost oriented prices;
- the impact of the regime on the incentives of C&WG to seek efficiency improvements;
- the impact of the regime on C&WG's incentives to make future investments;
- the consistency of the regime with the existing retail price control; and
- practical considerations of deriving charges under each regime.

Below we review each of these factors in more detail.

Cost orientation

Prices that reflect efficient economic costs can provide the appropriate pricing signals to both producers and consumers. As such, 'best practice' often considers that regulated wholesale and access prices should be set with reference to measures of cost. Under certain conditions, all the pricing regimes presented above can result in prices being set according to cost.

A cost-plus pricing regime may lead to tariffs most closely reflecting the underlying costs incurred in the provision of the regulated service. However, it will not necessarily lead to prices reflecting an efficient level of costs (particularly if cost estimates are based on a top-down approach). If prices of only some of a firm's products are regulated on a cost-plus basis, the firm could face incentives to shift costs towards the regulated products. The ability of a firm to engage in this behaviour will therefore be a key driver of the efficacy of a cost-plus regulation – the greater the ability of the operator to shift costs to regulated services, the greater the potential for cost-plus regulation not to lead to cost oriented tariffs.

A retail-minus approach will not necessarily ensure cost-oriented wholesale prices. Wholesale prices set on this basis can only be expected to be cost oriented if the underlying retail price is cost oriented (and the discount on retail prices reflects underlying retail costs). As set out in Section 2.1, C&WG currently earns a return on its retail leased line services significantly in excess of its cost of capital. A retail-minus regime cannot therefore be expected to lead to cost oriented wholesale rates.

A wholesale price cap scheme can be set in a way that prices would be expected to converge towards cost over the period of the cap. If at the start of the cap period, prices are above cost, an operator could continue to earn a rate of return in excess of its cost of capital for at least the initial period of the price cap.[20]

Efficiency incentives

A second key factor in determining an appropriate pricing regime is the extent to which it may promote incentives for the regulated firm to seek efficiency savings.

Compared to a cost-plus approach, price cap schemes are typically considered to offer a regulated firm an incentive to seek efficiency savings. An annual cost plus scheme will provide limited incentive for a regulated firm to seek efficiency savings if any such savings are returned to customers when the regulated prices are reviewed each year. Indeed, if the rate of return applied in the regime exceeds the true cost of capital the operator faces, it might even provide the operator with an incentive to increase costs.[21] By contrast a price cap scheme has a positive efficiency incentive by allowing the regulated operator to keep – at least on a temporary basis until the next price cap review – the additional profit it

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20 This could be "removed", if considered appropriate, through a P_0 cut.

21 This is true in any case, but the incentive is even stronger if the permitted rate of return is greater than the true cost of capital.

earns from efficiency savings over and above the levels projected when the price cap is set.[22] This also provides the regulated firm with the appropriate incentive to reveal retrospectively its true costs.

The importance that should be attached to this factor depends on the extent to which there may be realisable cost/efficiency savings in the provision of the product. If costs are unlikely to change following the initial investment, annual operating costs (where efficiency savings might be made) form a relatively small proportion of total costs, and there is limited possibility for the regulated operator to credibly allocate more costs to the services that are subject to cost-plus regulation, the benefits from applying a price cap approach might be relatively minor, compared to a cost-plus approach.

Investment decision

A third factor to consider is the impact that the regulatory regime may have on the incentives of the regulated firm to make future investments in its (regulated) business.

The impact of a cost-plus scheme on investment incentives is likely to depend on the rate of return the operator is able to earn on investments under the regime. It may discourage investment if an operator does not consider that it will be able to earn a reasonable return (including possible risk factors) on that investment, or if the operator assumes that its return on all investment will be regulated under a cost-plus approach.

A price cap scheme is expected to have less impact on investment decisions made, but could encourage the delay of investments depending on the length of regulatory periods. To the extent that an operator might be able to earn a return in excess of its cost of capital (at least for a period), a price cap might encourage further investment. Investment might also be encouraged if new services are not immediately included in a price cap regime. Thus an approach commonly taken by regulatory authorities is to exclude new services from price regulation (e.g. the OUR does not automatically include new services offered by C&WG in its retail price control such as ADSL services.

Under a retail-minus scheme investment incentives may depend on the regime used to set retail prices and indirectly the ability of that scheme to promote investment. If the prevailing retail price regime enables the operator to earn at least its cost of capital and promotes an efficient level of investment, the retail-minus regime for the wholesale service should also enable the operator to earn a reasonable return on the wholesale service.

Consistency with retail price control

The retail-minus scheme provides a direct link between retail and wholesale prices, whereby the wholesale price always moves along the path of retail prices;

22 The efficiency incentives of a price cap may be positively related to its duration. The longer the duration of the price cap, the greater is the time period over which a regulated firm can profit from efficiency savings, thus increasing its incentive to seek efficiency savings.

however the retail price is regulated. By departing from that principle and regulating the wholesale service separately, the retail price regulation could either become irrelevant or become inconsistent with the wholesale prices set. If alternatively the retail-minus margin is set to include some of the operator's profit margin from the provision of the retail service, it will need to be amended as retail price regulation gradually reduces the operator's profit margin towards its cost of capital. Conversely, using a cost plus or wholesale price cap with a P_0 cut could increase the retail margin available, hence promoting competition at the retail level.

It is also important to consider the basis on which the retail price control was set. For example, if the retail price control was set such that the regulated firm would be able to earn a reasonable return over all its services (including wholesale services), it might not be appropriate to amend the wholesale pricing regime part way through the retail price cap period without also considering the impact of the new wholesale pricing regime on the ability of the operator to earn a reasonable return over all of its regulated services. We understand from the OUR that this is not the case here, as leased lines form a separate basket in the prevailing retail price control.

Practical considerations

In selecting the most suitable wholesale regime it is also important to consider whether the information necessary to develop the regime and derive charges under the regime, is available. Setting prices on the basis of a cost-plus approach requires data on the costs of providing the regulated service, and may also require consideration as to how costs that are common between products should be recovered. Similarly, a price cap approach requires a view of forward looking costs during the price cap period, together with a forecast of demand over the regulatory period.

3.3 THE IMPLICATIONS OF THE DIFFERING STATES OF COMPETITION IN THE PROVISION OF ON-ISLAND AND OFF-ISLAND LEASED LINES

The state of current and prospective competition in relevant markets is a further key factor in determining an appropriate regulatory pricing regime. Typically, a "light touch" approach to regulation might be taken in markets where competition is expected to emerge, with a more interventionist approach taken with the regulation of services where competition may not develop (i.e., "bottle-neck services").

In Section 2.3 we presented evidence to show that C&WG might reasonably be expected to face a greater degree of competition in the market for the provision of off-island wholesale leased lines than in the market for the provision of on-island wholesale leased lines. In this section of the report we consider the implication of this for price regulation of its wholesale leased line services.

Where competition can reasonably be expected to emerge over the course of a regulatory cycle, and if retail prices are appropriately regulated, a retail-minus approach may provide a reasonable regulatory safeguard prior to the full emergence of competition. This can ensure that retail providers reliant on the dominant operator's wholesale product are offered the product on reasonable terms whilst also reducing the potential for possible margin squeeze cases arising.

Such an approach may not be appropriate where competition is not expected to emerge. In such cases regulatory intervention may be necessary to ensure that prices reflect efficient economic costs, and hence provide the correct signals to all market actors.

3.4 A PROPOSED REGULATORY REGIME FOR C&WG WHOLESALE LEASED LINE PRODUCTS

As set out above, the OUR has a number of options for regulating the prices of C&WG's wholesale leased line services. These could each have a different impact on the market.

Given the differing prospects for the development of competition in the provision of off-island and on-island wholesale leased lines, we propose that the OUR should consider imposing differing regulatory remedies to wholesale on-island leased lines and wholesale off-island leased lines. In particular, we consider that the OUR should consider applying:

- a retail minus remedy for the provision of wholesale off-island leased lines; and
- a cost-plus or wholesale price cap remedy for the provision of wholesale on-island wholesale leased lines.

C&WG is likely to face less competition in the market for wholesale on-island leased lines, with alternative providers having a continuing reliance on C&WG infrastructure. Competition may therefore not be sufficient to ensure that prices for on-island wholesale leased lines reflect efficient economic costs. As a result it may be reasonable for the OUR to intervene in the market to ensure that tariffs for on-island wholesale leased lines reflect efficient costs, particularly given the importance of on-island wholesale leased lines for other licensed operators offering off-island services. This could either be achieved by a cost-plus or wholesale price cap obligation. In choosing between a wholesale price cap (with P_0 cut) and cost-plus obligation, the OUR should have regard for:

- the ability of C&WG, under a cost-plus regime, to attribute accurately costs between off-island leased line services and on-island leased line services;
- the impact of a cost-plus regime on the incentives for C&WG to achieve efficiency gains in its leased line business;
- the potential impact of a cost-plus regime on investment incentives; and
- data requirements to project costs forward.

In contrast, the emergence of strengthening competition in the provision of off-island leased lines could be expected to lead to prices reflecting costs for wholesale off-island services. A retail-minus regulation will act as a safeguard (in combination with the existing retail price cap) for existing customers of C&WG's off-island wholesale leased line services. This approach could further be reviewed at the time of the next retail price cap review.

Regulating on-island wholesale leased line charges

Above we proposed that the OUR should consider switching from a retail-minus approach for regulating wholesale on-island leased line charges to either a cost-plus approach, or a wholesale price cap approach, with a potential P_0 adjustment to align prices more closely with underlying costs. In either case, a review of the cost of wholesale leased line services will be a critical input to determining the regulated price levels.

Regulated cost based charges can either be based on a top-down or a bottom-up model. Although a bottom-up model may more closely estimate an efficient level of costs, we consider that it is appropriate to use C&WG's existing top-down costing system to derive estimates of the costs of wholesale on-island leased line services because:

- this would ensure that the regulation of on-island wholesale leased lines is consistent with the regulation of other regulated wholesale, interconnect and retail products (which use the OROS top-down cost accounting model as a key source), and
- will also reduce the time required to derive an understanding of C&WG's cost base.

Under a retail-minus approach, the wholesale pricing structure will mirror the retail pricing structure for the regulated products. As such, term discounts that are available on retail leased line contracts of two years or more should also be available on wholesale leased line contracts of two years or more.

With a move to cost-oriented wholesale on-island leased line charges, it is appropriate to consider the structure of wholesale charges and in particular, whether the periodic wholesale rental charge should also cover connection costs, or whether a separate (cost oriented) connection charge should be levied.[23] If the (average) wholesale on-island leased line charge is set such that it is cost oriented, covering both connection and usage costs, then the OUR should consider allowing C&WG the flexibility as to the exact structure of wholesale prices, subject to ensuring that there is no opportunity for C&WG to use the structure of prices to bypass the requirement for cost orientation. In addition, any cost oriented term discounts on retail leased line contracts of two years or more should also be available on wholesale leased line contracts of two years or more.

23 In order for C&WG to cover its efficiently incurred costs, a tariff structure that did not include a connection charge would be required to amortise connection costs in the periodic rental charges.

4 Prices for HUGO leased lines

In Section 3 we considered the appropriateness of different regimes for regulating the prices of wholesale leased line services offered by C&WG. Based on this analysis, we have proposed that the OUR should consider continuing to apply a retail-minus pricing rule to off-island wholesale leased lines, including those offered over the HUGO cable. On that basis this section of the report applies the retail-minus methodology to data provided by C&WG in order to present a range of possible prices for wholesale leased lines offered over the HUGO cable.

4.1 DETERMINING THE RETAIL-MINUS MARGIN

C&WG currently charges for wholesale off-island (and on-island) leased lines on a retail – 9.1% basis. The derivation of this was shown above in Section 2.2.1. C&WG has also derived a set of proposed wholesale prices for HUGO leased lines on this basis. Table 5 shows the retail and wholesale prices that C&WG proposed in July 2006, together with its revised proposal made in September 2006.

Leased line product	Retail (£)		Wholesale (£)	
	July	Sept	July	Sept
2 Mb	6,750	6,194	6,136	5,630
45 Mb	46,325	42,712	42,110	38,825
155 Mb	109,678	101,168	99,697	91,961

Table 5: Proposed wholesale and retail prices for leased line half circuits over the HUGO cable

Source: C&WG

The initial margin of 9.1% is based on the retail cost and retail turnover for leased line services in year 2001-02. Since 2001-02 the leased line market has changed significantly: for example, retail prices are now regulated under a RPI-16% price cap and C&WG recently amended the structure of its leased line pricing. The cost base for leased line services is also likely to have also undergone changes as C&WG adapts to the competitive and regulatory environment. It is therefore appropriate to reconsider as part of this review the wholesale discount (i.e., the retail minus margin applied to wholesale leased lines).

To support this aspect of the review, C&WG has provided data from its OROS financial system on leased line costs and revenues for 2005-06. This is based on its audited regulatory financial statements for 2005-06. In using this data to propose a range of tariffs for wholesale HUGO leased lines, we have not conducted an audit of C&WG's costing system, but rather have reviewed the appropriateness of the categorisation of costs as retail/wholesale.

C&WG provided updated information on the cost that was allocated in 2005-06 retail activities for leased lines. The majority of these costs relate to customer related staff expenditures and customer management equipment. Table 6 shows the main cost categories identified by C&WG as retail costs, which together comprise approximately 60% of the total retail cost of leased line services. The table also shows the retail costs split between on-island and off-island leased lines.

Cost category	Total retail cost	On-island retail cost	Off-island retail cost
Staff Costs - CSC	xx	xx	xx
Depr - IT Systems - Mosaic Project	xx	xx	xx
Staff Costs - Business Sales/Develpmnt	xx	xx	xx
BRANDING CHARGE	xx	xx	xx
Staff Costs - IT Operations	xx	xx	xx
Staff Costs - Customer Accounts	xx	xx	xx
Marketing Communication - Marketing	xx	xx	xx
Staff Costs - Customer Provisioning Group	xx	xx	xx
OUR LICENCE FEE	xx	xx	xx
Staff Costs - Marketing	xx	xx	xx
Staff Costs - CPE PM	xx	xx	xx
Staff Costs - Customer Provisioning	xx	xx	xx
Residual retail cost	xx	xx	xx
Total	xx	xx	xx

Table 6: Retail cost of on-island and off-island leased lines[24]

Source: C&WG

Whilst the data provided by C&WG has not enabled us to evaluate the split between retail and wholesale services of the overhead cost items included in the above table, we note that the proportion of these cost items allocated to wholesale services is relatively small. A misallocation of these cost items is therefore unlikely to have a significantly material effect on the proposed discount.

[24] The complete list is shown in Annex 3

Based on the above information, C&WG would avoid costs of £xx if it provided all its retail leased lines on a wholesale basis, rather than on a retail basis. Of this, around £xx would be saved on the provision of on-island leased lines and £xx on the provision of off-island leased lines. This can be converted into a retail minus discount by dividing the avoidable cost by the retail revenues generated by leased line services over the same period (i.e., 2005-06). This is shown below.

Wholesale discount	Total retail	On-island	Off-island
Retail cost	xx	xx	xx
Retail turnover	xx	xx	xx
Discount factor	16.2%	18%	15%

Table 7: Wholesale discount factor

Source: C&WG, Frontier analysis

Based on this approach, a retail minus discount should be set between 15% (the discount based on including only off-island leased lines in the calculation) and 16.2% (based on including all leased lines in the calculation).[25] Table 8 below shows revised wholesale leased line prices for HUGO leased lines if the revised wholesale discount is applied to the most recent proposed retail prices. The table shows two cases, where either a discount of 16.2% or 15% is applied.[26]

Wholesale leased line prices	Proposed wholesale prices (July 06)	Proposed wholesale prices (Sept 06)	15% discount factor	16.2% discount factor
2 Mb	6,136	5,630	5,265	5,190
45 Mb	42,110	38,825	36,305	35,793
155 Mb	99,697	91,961	85,992	84,778

Table 8: Revised wholesale prices for HUGO leased lines

Source: C&WG, Frontier analysis

25 As noted previously, it is also possible to calculate the discount based on the estimated retail costs of a new entrant operator. However, no cost data or analysis of the relevant retail margin was provided by the other licensed operators with whom meetings were held as part of this project.

26 It should be noted that as the proposed prices for HUGO leased lines differ significantly from current off-island leased line prices, the discount should be reviewed once services become operational. This is because if retail costs stay reasonably constant (as an absolute level) but retail revenues fall, the avoidable retail costs as a percentage of revenue may increase.

Annexe 1: A review of pricing regimes for Wholesale leased lines

This annexe contains a summary of the regulation of wholesale leased line services in a number of other jurisdictions. In particular, it provides information (where available) on:

- the leased line markets in each jurisdiction (the date of market liberalisation and the market share of the incumbent operator in the leased line market);
- the charging structure for leased line services offered by operators considered to be dominant in the relevant markets; and
- the regulatory regime applied to the pricing of retail and wholesale leased lines offered by operators considered to be dominant in the relevant markets.

The analysis is primarily based on publicly available information on leased line markets in European Union Member States. Information has been collected from three primary sources:

- market reviews of relevant leased line markets carried out under the EU framework for regulation of electronic communications;[27]
- NRA websites in each jurisdiction; and
- the website of the incumbent operator in each jurisdiction.

In addition, we have also considered the prevailing regulatory regime in European micro states. However, in some of these (such as the Isle of Man and Gibraltar) wholesale leased line services are not offered.

The following table summarises the results of this analysis. We then review further the situation in a number of jurisdictions below.

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27 The EU framework identifies three leased line markets that may be suitable for ex-ante regulation. At the retail level, this includes a market for the "minimum set of leased lines up to and including 2Mb per second". The market recommendation also lists two wholesale markets: wholesale terminating segments of leased lines and wholesale trunk segments of leased lines. Summaries of all market reviews conducted to date can be found at http://forum.europa.eu.int/Public/irc/infso/ecctf/library?l=/&vm=detailed&sb=Title.

Country / Jurisdiction	Charging structure	Year of market liberalisation	Market share of incumbent operator in retail leased line market	Regulation of retail and wholesale leased lines
Greece	Charges for local circuits and trunk circuits (on a per km basis)	2001	97%	Retail leased line prices set on basis of cost orientation according to CCA FAC
Malta	Connection charge and annual rental (non-distant dependent)	2001	100%	Cost orientation for both retail and wholesale
Ireland	Connection charge and annual rental for main link (including distance related charge) and local end	1998	85%	Retail prices are cost oriented Wholesale prices set at retail minus 8%
Portugal	Fixed charge and distance based annual rental charge	2000	93% (end 2004)	Retail prices are cost oriented Wholesale prices set at retail minus 26%
Cyprus	Connection and rental charge. Rental charges based on 4 distance bands. In three of these bands, charges are calculated on a per kilometre basis	2003	98% (for leased lines up to 2Mb)	Wholesale products currently priced at retail minus 20%. Moving to cost-orientation based on BU-LRIC. Retail prices for 2Mb and 34Mb services were benchmarked at the 3rd lowest of Member States
Singapore	Connection and rental charges for point to point services. Point to multi-point services have	2000	N/A	Wholesale end to end services priced at retail minus 30%. Partial circuits priced at retail

	separate pricing for the access tails and the aggregated circuit. Separate pricing for circuits within the "Central" district and those outside the central district.			minus 50%.

Table 9: Summary of regulatory regimes for wholesale leased lines in selected jurisdictions

Source: Source: NRA and operator websites, EU market review summaries[28]

COUNTRY SUMMARIES

In this section of the annexe for a number of jurisdictions we provide further information on the regulations applied to operators that are considered dominant in relevant leased line markets.

Malta

Telecommunications services in Malta were formally liberalised in 2001, although Maltacom continues to have a market share of almost 100% in the market for the "minimum set" of retail leased line services. Currently, two submarine cables connect Malta with Italy. The first of these was commissioned by Maltacom in 1996 and the second was commissioned by Vodafone and became operational in 2004.

In August 2006 the MCA (Malta Communications Authority) completed its review of relevant leased line markets. It concluded that Maltacom was dominant in a number of markets, namely:

- retail national traditional interface leased lines and retail international traditional interface leased lines (together incorporating the "minimum set of leased lines" up to and including 2Mb/s);
- wholesale terminating segments of leased lines;
- wholesale national trunk segments of leased lines; and
- wholesale international trunk segments of leased lines.

As a result, it imposed a number of remedies on Maltacom. These included a requirement to provide both retail and wholesale end-to-end leased lines on a cost-oriented basis. This represented a continuation of existing remedies and therefore the prices as listed in Maltacom's retail and wholesale service offers as at August 2006 have been maintained "until the conclusion of the forthcoming

28 See summary of relevant documents at the end of this report.

review of prices".[29] Currently these prices are set with reference to a fully allocated historic cost model. The MCA is currently consulting on a transition to a fully allocated current cost approach to estimating costs. The following table compares the prices offered by Maltacom for a wholesale end-to-end 2Mb national leased line and a retail 2Mb leased line. These are taken from the available data on Maltacom's website.

	Retail	Wholesale	% difference
Connection charge (MTL[30])	120	120	0%
Annual rental (MTL)	5,508	5,385	2.2%

Table 10: Comparison of Maltacom retail and wholesale leased line charges

Source: Maltacom website, November 2006

In responding to the MCA's market review, the European Commission commented on the implementation of a cost-orientation remedy for both wholesale and retail leased line services. In particular, it was concerned that a stringent form of price regulation through cost-orientation could act as a deterrent to the potential development of competition between the two off-island submarine cables. Following this, MCA reviewed its proposed remedies although still concluded that obligations of cost orientation were appropriate. It rejected other pricing methods because:

- the geographic position of Malta and its reliance on submarine cables for international leased lines would be difficult to reflect if **benchmarking** prices;
- **retail minus** regulation would not be appropriate for leased lines of speeds above 2Mb/s because of a lack of retail price regulation on these services; and
- **price cap regulation** might lead to a significant burden to determine the appropriate level of the cap.[31]

Ireland

Fixed line telecommunications markets in Ireland were liberalised in 1998. *Eircom*, the incumbent operator is still considered to have a dominant position in relevant leased line markets, namely:

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29 Malta Communications Authority, "*Retail leased lines, wholesale terminating segments and wholesale trunk segments of leased lines: identification and analysis of markets, determination of market power and setting of remedies – Response to consultation and final decision*" August 2006

30 1 MTL = 1.58 GBP (01-Oct-06)

31 Malta Communications Authority, "*Retail leased lines, wholesale terminating segments and wholesale trunk segments of leased lines: identification and analysis of markets, determination of market power and setting of remedies – Response to consultation and final decision*" August 2006. Page 55

- the minimum set of retail leased lines up to and including 2Mb/s;
- the market for wholesale terminating segments of leased lines; and
- the market for wholesale trunk segments of leased lines.

In its market review for these markets (completed in 2005), Comreg proposed the continuation of obligations previously imposed on *eircom*. The obligations related to pricing of these products are summarized below.

Wholesale

Eircom offers both wholesale end-to-end leased lines and Partial Private Circuit (PPC) products. Pricing remedies were therefore designed to promote efficient infrastructure investment, encouraging operators along the "ladder of investment", (i.e., encouraging operators to migrate from wholesale leased lines to PPC products).

PPC products are offered at prices based on FL-LRIC. In contrast, wholesale leased lines of up to 2Mb/s are offered on a retail minus basis, with a discount of 8%.[32] Comreg supports the use of retail minus regulation for wholesale leased lines on the following basis:

- retail prices for the minimum set of leased lines are set on a cost-plus basis, and therefore the retail-minus approach is equivalent to a cost-plus method;
- retail-minus ensures that potential margin squeezes are avoided;
- retail-minus ensures that resale competition is efficient;
- the application of retail-minus to wholesale leased lines and FL-LRIC to PPC products may incentivise investment in core network infrastructure.[33]

Retail

Eircom is obliged to set cost oriented prices for the minimum set of retail leased lines, and these are set with reference to fully allocated historic costs. Any price changes need to be "objectively justified" by Eircom.

Portugal

The national communications regulatory authority of Portugal (Anacom) completed its review of relevant leased line markets in 2005. Portugal Telecom Group companies were found to be dominant in the retail market for the minimum set of leased lines (having a market share of 93% in revenue terms). PTC (part of the PT Group) was found to have a dominant position in the

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32 Wholesale leased lines at capacities above 2Mb/s should be offered to other operators on terms equal to those for equivalent retail products.

33 Comreg, "Market analysis: Retail leased lines and wholesale terminating and trunk segments of leased lines (national) – Response to the consultation and consultation on draft decision", January 2005

markets for trunk and terminating segments, having a market share of 100% in the market for terminating segments, and a market share of 86% (by revenue) in the trunk segment market.

As a result, Anacom has maintained a number of obligations on PT Group companies in the retail market. These include an obligation to set retail prices for the minimum set of leased lines on a cost-plus basis. For pricing wholesale leased lines it introduced in 2004 a retail-minus regulation, with a minimum difference between retail and wholesale prices of 26%. Combined with an obligation of cost orientation in the retail market, Anacom considers that this approach should ensure reasonable wholesale and retail prices. It has not however ruled out switching to a cost-plus approach for wholesale leased lines, using a FL-LRIC methodology.[34] We understand that the retail minus discount was not determined on the basis of an exercise that estimated the actual level of costs avoided by PTC when providing a wholesale service rather than a retail service. Instead, the margin is based on the discount offered by the incumbent network provider (Portugal Telecom) to its group companies (such as PT Prime, a provider of business telecommunications solutions). Portugal Telecom must now make this discount available to all service providers purchasing in excess of €1 million of leased line services per month.[35]

Cyprus

Fixed line telecommunications markets in Cyprus were liberalized in 2003. In August 2006, the regulatory authority in Cyprus (OCECPR) notified the results of its reviews of the leased line markets to the European Commission. These reviews concluded that CYTA (the incumbent operator in Cyprus) had significant market power in each of the three leased line markets identified by the Commission as being susceptible to ex-ante regulation. This assessment was primarily based on CYTA's market share in the relevant markets (98%, by volume, in the retail market for leased lines up to 2Mb/s and 100% in the markets for trunk and terminating segments).

In its notification, OCECPR proposed to impose or maintain a number of obligations on CYTA in these markets, including an obligation of price control based on cost orientation. Whilst a fully allocated current cost model is already in place, a process to develop a bottom-up LRIC model is underway. Once the LRIC model has been implemented, it will be used to determine cost oriented prices for wholesale services. Pending the completion of this model, OCECPR has proposed regulating wholesale leased line prices on a retail-minus basis, with a discount of 20%.[36]

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34 This information is taken from the summary of the Market analysis of wholesale and retail leased lines submitted by Anacom to the European Commission in March 2005 (cases PT/2005/0155, CY2006/0156 and CY2006/0157).

35 Source: "Regulation report: Situation of communications in Portugal", Anacom 2004

36 This information is taken from the European Commission's comments on OCECPR's market review notification (cases CY/2006/0482, CY2006/0483 and CY2006/0484), September 2006.

The following table compares the prevailing retail and wholesale prices for 2Mb, 45Mb and 155Mb leased lines, assuming a trunk segment of 5 kilometres.[37]

	Connection charge			Annual rental charge		
	Retail (CYP£)	Wholesale (CYP £)	Wholesale discount %	Retail (CYP£)	Wholesale (CYP £)	Wholesale discount %
2Mb/s	595	536	-10%	1,458	1,136	-22%
45Mb/s	1,080	972	-10%	6,654	5,292	-20%
155Mb/s	1,080	972	-10%	13,782	13,638	-1%

Table 11: Comparison of CYTA's retail and wholesale leased line prices

Source: CYTA website, accessed November 2006 and Frontier analysis

Singapore

The telecommunication market in Singapore was fully liberalized on 1st April 2000. Following liberalization, a number of competitors built local access networks, but the coverage of these local access networks is limited and as such competitors to the incumbent (Singapore Telecommunications Ltd, Singtel) are reliant on leased lines to offer services to some customers.

Local Leased Circuits (LLCs) are offered by Singtel as both point to point services and point to multipoint services. The point to multipoint service consists of a number of tail circuits, connecting many sites (such as branch offices) which aggregate to a single trunk service connecting one site (such as a central office).

In May 2003 the regulatory authority in Singapore (the IDA) published a consultation document setting out its proposals to require Singtel to offer wholesale LLCs as part of its Reference Interconnection Offer (RIO). The consultation proposed that as an interim measure LLCs should be provided on a retail minus basis and that Partial Private Circuits should also be offered (Tail Leased Line Circuits – TLLC). The proposal was based on a market analysis of the LLC market.

Following responses to the consultation a Decision notice was issued in December 2003. The market analysis conducted by the IDA indicated that while there was prospective competition in the inter-exchange part of the LLC market, in the longer term the access part was likely to remain uncompetitive, in particular for circuits outside the central area of Singapore. As a longer term measure, the IDA would designate local tails as interconnection services ("Interconnection Related Services") and would set the prices on these services on a cost plus basis.

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[37] Calculations assume a 5km trunk segment with both local ends of the leased line terminating within a CYTA telephone exchange.

As an interim measure the Decision required Singtel to offer LLCs on a wholesale basis as part of the RIO for both end-to-end circuits and local tails (TLLCs) for a period of two years (later cut to 18 months for circuits in the central district). The price for LLCs was set on a retail minus basis with the discount being 30% for end-to-end LLCs and 50% for TLLCs. The lower discount for local ends was intended to encourage competitive infrastructure, while the high discount for local ends reflected the lack of prospective competition for these services. These were based on the discounts already available in the market – for example those offered to internet access providers – rather than being determined through a formal service costing exercise.

The retail minus was applied to Singtel's list prices (before discounts). Singtel offers a range of discounts such as volume discounts and term discounts. The retail minus for end-to-end circuits was set such that the discount to wholesale customers was similar to that already available for resale customers such as ISPs.

Tail local leased circuits in the central district were incorporated as interconnection services in Singtel's RIO in April 2006 and in the rest of Singapore from October 2006.

Faroe Islands[38]

The incumbent telecommunications operator in the Faroe Islands recently split into three companies: a retail business; a network business and a holding company. The network company provides services both to the separated retail business and other downstream competitors.

The use of leased lines by retail customers in the Faroe Islands has recently declined following the advent of new technologies. However Faroese Telecom does continue to provide wholesale leased lines to other operators in the market place. Currently, leased line charges include both a connection charge and a periodic (monthly) rental charge. The rental charge varies according to whether or not the leased line spans different geographic zones within the Islands.

The Faroese telecommunications authority does not directly regulate the price of wholesale leased lines but instead requires it to be notified of agreements reached between operators, whilst it may also conduct ex-post assessments of the terms of any agreements. This is primarily because the Authority considers that there is sufficient competition from other infrastructures (primarily point-to-point microwave links and radio networks) to constrain the prices of wholesale leased lines.

Previously, the Authority has investigated the prices of wholesale leased lines. In these cases its reviews have primarily focused on benchmarking prices in Faroe Islands with those for comparable services in other jurisdictions. Countries included in the benchmark exercise were Iceland, Denmark, Norway and

38 This case study is based on an interview conducted by Frontier Economics with the Faroese Telecommunications Authority on November 24th, 2006.

Luxembourg. It has not conducted an exercise to estimate the costs of wholesale or retail leased line services.

Annexe 1: A review of pricing regimes for Wholesale leased lines

Annexe 2: A review of C&WG data on the cost of leased line services

As stated in the main report, in 2005-06 C&WG earned a rate of return on its leased line services substantially in excess of its cost of capital. In addition, based on its proposed prices for leased line services over HUGO, C&WG also expects to earn a significant return on its investment in the HUGO cable.

Respectively, this annexe reviews in more detail the profitability of C&WG's existing leased line services and C&WG's business case for HUGO.

THE PROFITABILITY OF C&WG'S EXISTING LEASED LINE SERVICES

C&WG's regulatory accounts currently include an estimate of the profitability of its retail leased line business. However, the regulatory accounts include transfer charges between C&WG's network and retail leased line businesses that are not cost oriented (but instead based on the retail-minus regime). This means that within C&WG's regulatory accounts a part of the true profitability of leased line services is captured in the network business and a part in the retail business, with the result that the profitability of the retail leased line business as reported in the regulatory accounts might underestimate the actual profitability of C&WG's "end-to-end" leased line service. In this annexe we describe the approach we have therefore taken to estimate the profitability of end-to-end leased line services.

To support this analysis C&WG provided information on the cost and revenue of their retail leased line business in 2005-06, as well as an allocation of the capital employed in that operation. Based on this information, we assess that the rate of return[39] for the total retail leased line business in 2005-06 was 66%[40] (excluding the additional transfer charges included in the regulatory accounts)[41]. The data used for that calculation is summarised in Table 12 below.

39 ROCE – Return on capital employed

40 The rate of return is not comparable to the rate of return provided in the regulatory accounts for the retail leased line basis as the figure quoted in the regulatory accounts for 2005-06 (50%) is calculated on the basis of retail revenue (taking into account transfer charges from the network business) and capital employed in the retail business only.

41 C&WG's regulatory accounts include transfer charges between retail leased line business and core network business based on existing retail minus regime. These charges have been identified as a single cost item within wholesale on-island leased line cost for retail leased lines. However, in the analysis of the true profitability of C&WG's leased line services we do not consider it appropriate to include this element. This is because it is not a cost that is actually incurred by C&WG but instead reflects the fact that current wholesale leased line charges are above cost. To include this in an estimate of actual end-to-end leased line costs would therefore overestimate costs and underestimate the true profitability of leased line services.

Retail on-island revenue	xx
Retail off-island revenue	xx
Retail on-island cost	xx
Retail off-island cost	xx
Wholesale on-island cost	xx
Wholesale off-island cost	xx
Wholesale cost including transfer charges	xx
On-island capital employed	xx
Off-island capital employed	xx

Table 12: Retail leased line financial information[42]

Source: C&WG

The information C&WG provided represents extracts from its OROS system. The information provided shows:

- individual retail cost items for on-island and off-island leased lines;
- individual network (wholesale) cost for retail on-island and off-island leased lines;
- capital employed in retail operations for on-island and off-island leased lines;
- capital employed in wholesale operations for retail on-island and off-island leased lines; and
- on-island and off-island retail revenue.

Following a review of the cost information by C&WG it was determined that the cost data included an item accounting for the difference between the actual cost of wholesale leased lines and the transfer charge paid by the retail business for the wholesale leased line service. As set out above, this cost item has been excluded from our calculation of ROCE as it does not represent an actual cost that would be incurred by an end-to-end leased line business. In line with regulatory accounting principles, the cost, revenue and capital employed data was then used to estimate the return on capital employed.

The major cost items taken from the OROS system for leased line services are listed in the tables below.

42 We have not audited the correctness of the data as it is provided by the OROS system which is audited for C&WG general regulatory obligations. The data shows some slight discrepancies to the information shown in the regulatory accounts. The revenue excludes transfer charges from other parts of the business.

Annexe 2: A review of C&WG data on the cost of leased line services

Costs of leased line services

Table 13 below shows the main network cost items related to the provision of leased line services.[43] Costs consist mainly of network equipment depreciation and staff cost.

Cost item	(£)
Depr – Private Circuit Terminating Equipment	xx
Staff Costs – Installations	xx
Depr - Junction Guernsey Transmission Equipment	xx
Off Island Ethernet Rent CW Jsy InterCo	xx
Staff Costs - Access Network	xx
Depr - Distribution Lines - Cables and Ducts	xx
Depr - Radio General Network Equipment: Other Islands	xx
MARCONI SUPPORT CONTRACT (Switch & trans)	xx
Property Rents	xx
Staff Costs - Core Network - Transmission	xx
Staff Costs - Customer Provisioning	xx
OUR LICENCE FEE	xx

Table 13: Main network costs items for C&WG's on-island leased line services

Source: C&WG

Cost item	(£)
NATIONAL PRIVATE CIRCUIT RENTAL	xx
CONNECTION FROM FRAME RELAY PORT CHARGES	xx

43 Together, the items in the table comprise xx% of the network costs of leased line services.

Annexe 2: A review of C&WG data on the cost of leased line services

TRUNK CABLES-NSCMA/BT/JT CHARGES	xx
Depr - Junction Guernsey Transmission Equipment	xx
Staff Costs - Installations	xx
INTERNATIONAL PRIVATE CIRCUIT RENTAL	xx
Depr - Radio General Network Equipment: Other Islands	xx
OUR LICENCE FEE	xx
Depr - Submarine Cables:- Jsy-UK	xx
Staff Costs - Core Network - Transmission	xx

Table 14: Main network costs items for C&WG's off-island leased line services

Source: C&WG

The major cost item in the above table (national private circuit rental) relates to the distant end charges, including UK tail circuits, incurred by C&WG in its provision of full circuits from Guernsey to the UK. (That is, where C&WG provides single agreement/billing to its customers).

C&WG'S BUSINESS PLAN FOR HUGO LEASED LINES

Alongside its price proposal for HUGO leased lines C&WG provided a detailed business case setting out its approach to determining the proposed tariffs. This part of the annexe provides a review of the business case.

The business case shows separately the costs for three aspects of a HUGO leased line service, namely:

- the capital and operating costs of submarine cables;[44]
- the cost of the local transmission portion of the leased line; and
- the cost of the customer access portion of the leased line.

Below we review in turn each aspect of the business case calculation.

Submarine cable equipment and operating costs

Figure 2 illustrates how the capital and operating costs of submarine cable equipment has been apportioned to services.

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44 Within the cost of the submarine cable it also includes the cost of existing off-island cables which C&WG is required to maintain.

[Redacted]

Figure 2: Hugo capital and operating cost and existing cable cost allocation to leased line products

Source: C&WG

The business case shows separately operating costs and capital costs. Capital costs are calculated on the basis of:

- straight line depreciation, with costs recovered over a 15 year period;
- a cost of capital of 12%; and
- an additional risk premium of 12%.

Annualised capital costs, together with operating costs and the costs of existing submarine cables are then summed together to give the annual cost of the submarine cable assets. The annualised total is expressed as a cost per Mb and allocated to individual services on the basis of the capacity of the service and a "service factor". The service factor is designed to reflect the fact that lower capacity services – for example 2 Mb leased lines – incur more cost (per Mb) than higher capacity services such as 45 or 155 Mb leased lines.

Following the above approach yields estimated annual cost per service for the submarine cable element. The following table presents these estimates from C&WG's latest business plan.

2Mb (1 – 2Mb equivalent)	xx
45Mb (21 – 2Mb equivalent)	xx
155Mb (63 – 2Mb equivalent)	xx

Table 15: Circuit element cost per 2Mb equivalent[45]

Source: C&WG, Frontier analysis

The local transmission element

Figure 3 shows the second cost element, namely the cost of local transmission required for services on HUGO. The principle of cost allocation to services is the same as for the submarine cable costs described above.

[Redacted]

Figure 3: Local transmission cost element allocation to leased line products

Source: C&WG

Following a review of the business case, C&WG has clarified that this element of the business case might double-count the cost of customer sited MUX

45 The estimation of 2Mb equivalent cost assumes that the service is running on traditional SDH which can't utilise the nominal capacity of the physical link.

equipment (as this is also included in the customer access cost described below). Removing this element from the business case would reduce the cost of local transmission by xx per annum.

Customer access costs

As set out above, the third element of the business plan relates to the cost of customer access equipment.

[Redacted]

Figure 4: Access cost element for HUGO leased lines

Source: C&WG

A 2Mb leased line service on HUGO will be provided using the same access connection as for current non-HUGO services. For 2Mb leased line services C&WG therefore takes the cost of access equipment from its regulatory accounting system for 2005-06. For connections above 2Mb, C&WG is considering deployment of core network equipment at the customer site. The cost of deploying this equipment is estimated using a bottom up approach. In calculating the annualised capital cost of this element C&WG includes a risk premium of 12% in addition to its cost of capital. C&WG has stated that it considers the inclusion of the risk premium is appropriate because the deployment of core network equipment at the customer site has not been previously tested in the C&WG network environment.

The total cost of HUGO services

Together, the three elements described above form the total cost of the service. To convert these costs to retail prices, C&WG then adds a retail margin of xx%. Once retail unit prices are calculated, C&WG derives the proposed wholesale rates by applying the 9.1% discount factor to the proposed retail rates. This is shown in Figure 5.

[Redacted]

Figure 5: Access cost element for HUGO leased lines

Source: C&WG

Using the above approach, C&WG proposed in a letter sent to the OUR on 01/09/06 the following tariffs for HUGO leased line tariffs.

Annexe 2: A review of C&WG data on the cost of leased line services

Service	Retail	Wholesale
2Mb half circuit to the UK	£6,194	£5,630
45Mb half circuit to the UK	£42,712	£38,825
155Mb half circuit to the UK	£101,168	£91,961

Table 16: HUGO retail and wholesale prices

Source: C&WG business case

As described, the proposed tariffs (and their underlying cost base) are dependent on a number of factors. In particular, unit costs are dependent on the volume of leased line services provided by C&WG, whilst the forecast capital costs are partially dependent on the additional risk premium that C&WG has included in the business case.

Forecast volume growth

[Redacted]

The risk premium applied to the business case

As set out above, C&WG has applied a 12% risk premium to the following elements of the business case calculation:

- the HUGO cable equipment cost;
- the equipment cost of access to leased line services above 2Mb; and
- the local transmission cost.

In principle the application of such a risk factor is not uncommon in a business case for a stand alone investment.

- In the case of the HUGO investment a WACC applicable to the whole business might not represent the project specific risk – especially if the project is too risky to be financed by debt; and
- As the business case represents an internal decision making tool the application of a separate risk factor may represent an internal perception towards particular assumptions that have been applied in the business case.

Although we have not reviewed the appropriate level of the risk premium, we note that has C&WG has provided two reasons for including the risk factor in its business case, namely:

- the risk of the projected increase in demand for bandwidth not occurring; and
- the risk associated with deploying customer site core network equipment which has not yet been tested in C&WG's network environment.

Annexe 2: A review of C&WG data on the cost of leased line services

Annexe 3: A review of C&WG data on the cost of leased line services

This annexe provides a full list of costs that C&WG considers it would avoid if providing retail leased lines as a wholesale service.

Cost category	Total retail cost	On-island retail cost	Off-island retail cost
Staff Costs – CSC	xx	xx	xx
Depr - IT Systems - Mosaic Project	xx	xx	xx
Staff Costs - Business Sales/Develpmnt	xx	xx	xx
BRANDING CHARGE	xx	xx	xx
Staff Costs - IT Operations	xx	xx	xx
Staff Costs - Customer Accounts	xx	xx	xx
Marketing Communication - Marketing	xx	xx	xx
Staff Costs - Customer Provisioning Group	xx	xx	xx
OUR LICENCE FEE	xx	xx	xx
Staff Costs - Marketing	xx	xx	xx
Staff Costs - CPE PM	xx	xx	xx
Staff Costs - Customer Provisioning	xx	xx	xx
MOSAIC SUPPORT	xx	xx	xx
Property Rents	xx	xx	xx
Staff Costs - Commercial Finance	xx	xx	xx
C&WG OWN FIXED NETWORK CALLS (RETAIL RATED)	xx	xx	xx
POSTAGE EXPENSES	xx	xx	xx
Staff Costs - Sales & Marketing General	xx	xx	xx
CONSULTANCY / CONTRACT	xx	xx	xx

STAFF COSTS			
CORPORATE IMAGE	xx	xx	xx
Staff Costs - CEO's Office	xx	xx	xx
Marketing Communication - Products (Mobile)	xx	xx	xx
BILL PRODUCTION CHARGES	xx	xx	xx
Staff Costs - Mobile General	xx	xx	xx
Staff Costs - Business Support	xx	xx	xx
Staff Costs - Human Resources	xx	xx	xx
LEGAL FEES - Legal & Regulatory Affairs	xx	xx	xx
Marketing Communication - Product Management	xx	xx	xx
INTERVIEW / RELOCATION COSTS - CEO's Office	xx	xx	xx
ELECTRICITY CHARGES	xx	xx	xx
REGULATORY AUDIT FEES	xx	xx	xx
EXTERNAL SUPPORT	xx	xx	xx
Staff Costs - Finance General	xx	xx	xx
MARKET RESEARCH	xx	xx	xx
Intercompany Recharges In (C&W UK Management)	xx	xx	xx
MANAGEMENT FEES	xx	xx	xx
Staff Costs - Portfolio PM	xx	xx	xx
Staff Costs - ISP PM	xx	xx	xx
CASH HANDLING CHARGES	xx	xx	xx
Staff Costs - Financial Accounts	xx	xx	xx

Annexe 3: A review of C&WG data on the cost of leased line services

Depr - Buildings	xx	xx	xx
Depr - Office computing - Hardware & Internal Network	xx	xx	xx
MEDICAL EXPENSES - STAFF WELFARE	xx	xx	xx
Property Rates and Taxes	xx	xx	xx
Staff Costs - Support Services General (Div)	xx	xx	xx
Staff Costs - Health & Safety	xx	xx	xx
Transfer Charge Cost - C&WG's IT Leased Lines	xx	xx	xx
Marketing Communication - IP Solutions	xx	xx	xx
Staff Costs - Training	xx	xx	xx
HARDWARE-SERVERS/NETWORK	xx	xx	xx
ADMINISTRATIVE ADVERTISING EXPENSES	xx	xx	xx
Staff Costs - Logistics	xx	xx	xx
Depr - Specific Switch Equipment - Customer Support Centre	xx	xx	xx
MERCHANT (VISA/ACCESS) CARDS	xx	xx	xx
Transfer Charge Cost - Own Use Of Exchange Lines	xx	xx	xx
Staff Costs - Mobile PM	xx	xx	xx
INSURANCE CHARGES	xx	xx	xx
Staff Costs - Installations	xx	xx	xx
Depr - Utilities Installations	xx	xx	xx
REPAIRS TO PREMISES	xx	xx	xx

Annexe 3: A review of C&WG data on the cost of leased line services

Staff Costs - Core Network - Switching	xx	xx	xx
TRAINING - Business Sales/Develpmnt	xx	xx	xx
BUSINESS LIAISON-OTHER ACTIVITIES - Business Sales/Develpmnt	xx	xx	xx
Depr - IT Systems - CAS	xx	xx	xx
TOOLS & TEST EQUIPMENT MAINTENANCE - CPE PM	xx	xx	xx
DEBT COLLECTION COSTS	xx	xx	xx
BANK CHARGES (NAT WEST)	xx	xx	xx
OTHER MARKETING COSTS	xx	xx	xx
Training - Training	xx	xx	xx
HARDWARE MAINTENANCE-AIR CONDITION'G UPS	xx	xx	xx
Marketing Communication - Info Services	xx	xx	xx
Depr - Office equipment - Furniture, Accommodation, others	xx	xx	xx
BUSINESS LIAISON-TRAVEL & ACCOMMODATION - CEO's Office	xx	xx	xx
GENERAL COMPUTER PERIPHERALS	xx	xx	xx
SOFTWARE & LICENCES-CLUSTER NETWORK	xx	xx	xx
SOFTWARE & LICENCES-PC HELPDESK	xx	xx	xx
FLORAL GUERNSEY COMPETITION	xx	xx	xx
Depr - IT Systems - General Equipment	xx	xx	xx

Annexe 3: A review of C&WG data on the cost of leased line services

STATUTORY AUDIT FEES	xx	xx	xx
PRINTING & STATIONERY - IT Operations	xx	xx	xx
INTERVIEW / RELOCATION COSTS - Personnel	xx	xx	xx
Depr - IT Systems - Accounting and finance	xx	xx	xx
HARDWARE-MAINTENANCE/SUPPORT PC SYSTEMS	xx	xx	xx
SECURITY SYSTEM MAINTENANCE & OPERATION	xx	xx	xx
SUPPORT - FINANCE SYSTEMS	xx	xx	xx
SUPPORT - CAS(TRIAD)	xx	xx	xx
Marketing Communication - Business Sales	xx	xx	xx
CLEANING COSTS	xx	xx	xx
SUBSCRIPTION TO PROFESSIONAL BODIES - Customer Accounts	xx	xx	xx
PRINTING & STATIONERY - CPE PM	xx	xx	xx
PRINTING & STATIONERY - Customer Accounts	xx	xx	xx
INSTALLATION OF C&WG EQUIPMENT FOR OWN USE	xx	xx	xx
PRINTING & STATIONERY - Marketing	xx	xx	xx
C&WG'S OWN GSM PHONE RENTAL - CSC	xx	xx	xx
SUPPORT - INGRES DATABASE SYSTEMS	xx	xx	xx

Annexe 3: A review of C&WG data on the cost of leased line services

CANTEEN EXPENSES	xx	xx	xx
SOFTWARE & LICENCES-BUSINESS OBJECTS	xx	xx	xx
C&WG'S OWN GSM PHONE RENTAL - Technical Sales	xx	xx	xx
FIRE ALARM MAINTENANCE	xx	xx	xx
FUEL OIL COSTS	xx	xx	xx
Staff Costs - Carrier Services	xx	xx	xx
Depr - Vehicles	xx	xx	xx
REFUSE BIN HIRE CHARGES	xx	xx	xx
BUSINESS LIAISON-OTHER ACTIVITIES - CEO's Office	xx	xx	xx
UNRECOVERABLE DEBTS - CAS	xx	xx	xx
SOFTWARE & LICENCES-CAS MEDIATION SUPPT	xx	xx	xx
Total	xx	xx	xx

Table 17: Retail cost of on-island and off-island leased lines[46]

Source: C&WG

[46] Only items above £100 are included.

Annexe 3: A review of C&WG data on the cost of leased line services

Annexe 4: Sources – international benchmarking

Greece

- **Regulatory authority:** Hellenic Telecommunications & Post Commission (http://www.eett.gr/EETT_EN/Index.html)
- **Information on leased line charges:** National leased lines price list; OTE (http://www.otewholesale.gr/files/leased_lines_tarrifs_3-4-2006.pdf)
- **Information on price regulation:** Notification of Draft Measures; European Commission:

  (http://forum.europa.eu.int/Public/irc/infso/ecctf/library?l=/ellda/registeredsnotifications/el20060491/notification_summary/_EN_1.0_&a=d

Malta

- **Regulatory authority:** Malta Communications Authority (http://www.mca.org.mt/)
- **Information on leased line charges:** Maltacom; Leased Lines Retail Services Terms and Conditions; 27.09.04

  http://www.maltacom.com/Images/RETAIL%20Leased%20Lines%20Terms%20and%20Conditions%20-%20v1%20Final%2027.09.04%20revised%2004.11.2004.pdf
- **Information on price regulation:** Malta Communications Authority; Retail Leased Lines, Wholesale Terminating Segments and Wholesale Trunk Segments of Leased Lines – Identification and Analysis of Markets, Determination of Market Power and Setting of Remedies; 20.04.06

  http://forum.europa.eu.int/Public/irc/infso/ecctf/library?l=/malta/registered_notifications/mt20060373/m71314_notification/_EN_1.0_&a=d

Ireland

- **Regulatory authority:** Commission for Communications Regulations (http://www.comreg.ie/)
- **Information on leased line charges:** Leased Line Charges; Eircom pricing (http://www.eircom.ie/About/Activities/Sn1_pt14.pdf)
- **Information on price regulation:** Market Analysis: Retail Leased Lines and Wholesale Terminating and Trunk Segments of Leased Lines (National)

  http://forum.europa.eu.int/Public/irc/infso/ecctf/library?l=/ireland/registeredsnotifications/ie20050138/notfication_explanatory/_EN_1.0_&a=d

Portugal

- **Regulatory authority:** ANACOM (http://www.anacom.pt/index.jsp?categoryId=2958)
- **Information on price regulation:** Notification of Draft Measures; European Commission

  http://forum.europa.eu.int/Public/irc/infso/ecctf/library?l=/commissionsdecisions/2005_155_publpdf/_EN_1.0_&a=d

Cyprus

- **Regulatory authority:** Office of the Commissioner of Telecoms and Post Regulation (OCEPR) (http://www.ocecpr.org.cy)
- **Information on leased line charges:** Products and Services; CytaGlobal (http://www.cytaglobal.com/cytaglobal/pricelist-en.php)
- **Information on price regulation:** *Price regulation:* Notification of Draft Measures; European Commission

  http://forum.europa.eu.int/Public/irc/infso/ecctf/library?l=/cyprus/registered_notifications/cy20060484/decision_pubpdf/_EN_1.0_&a=d

Singapore

- **Regulatory authority:** Info-communications Development Authority (IDA), (http:// www.ida.gov.sg)
- **Information on leased line charges:** Singtel reference interconnect offer (http://www.ida.gov.sg/idaweb/pnr/infopage.jsp?infopagecategory=interconnection:pnr&versionid=1&infopageid=I3659)
- **Information on price regulation:** Designation of Singapore Telecommunications Limited's local leased circuit as a mandated wholesale service, December 2003

  http://www.ida.gov.sg/idaweb/media/infopage.jsp?infopagecategory=telecoms.mr:media&versionid=4&infopageid=I2629

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