Valuing copper access

BT's response to
Ofcom consultation document
published December 2004

11th February 2005

BT would welcome comments on this response. Comments should be addressed by e-mail to Michael Doodson at michael.doodson@bt.com

This response is available electronically at http://www.btplc.com/responses.

Contents

This response is divided into three main sections. Section A summarises our response and describes our concerns about the approach Ofcom is taking. Section B gives more detailed views on topics not directly addressed by the numbered questions in the consultation document. Finally Section C responds to the questions highlighted by Ofcom.

Contents 2
A. Executive Summary 3
B. Detailed comments 5
C. Responses to questions posed in the consultation document 11
Annex 1: Report from KPMG 24
Annex 2: Letter from Sir Bryan Carsberg 24
Annex 3: Expert Opinion by Eileen Marshall CBE 24

Please note that the documents referred to in the annexes are combined together in a separate document

A. Executive Summary

The strategic context of this consultation and BT's response
Ofcom's consultation on valuing BT's copper access network cannot be viewed in isolation. Like the consultations on Next Generation Networks and Ofcom's approach to risk in the assessment of the cost of capital, it must be seen in the context of the Strategic Review of Telecommunications. All of these exercises will play an important role in determining the approach to regulation that Ofcom adopts as a result of the Strategic Review and the future performance of the telecommunications industry in the UK.

Indeed, in BT's response to the Strategic Review Phase 2 consultation document, we made an explicit link between our proposals for a new regulatory settlement and the copper access valuation and cost of capital studies. As part of a package of proposals, also involving *inter alia* organisational change by BT and an Ofcom commitment to rapid and significant deregulation, we would propose to create a greater margin between our prices for WLR and retail line rental and to reduce charges for fully unbundled local loops. However, as we made clear in our response, we would only implement these changes on the satisfactory conclusion of Ofcom's cost of copper and cost of capital studies. The outcome of this consultation will therefore affect the industry's chances of reaching a new settlement.

This response is made in recognition of the wider importance of the consultation document. In particular, it assesses the potential effects of Ofcom's proposals on investment in the industry, which has emerged as one of the key themes of the Strategic Review and the associated consultations.

BT's basic premise is that what Ofcom are proposing is inappropriate. Nothing in this response should be taken to mean or imply that BT accepts otherwise.

Specific responses to this consultation
BT believes that a revaluation of the copper access network assets is unnecessary, and Ofcom's method is inappropriate. Nothing in this response should be taken to mean or imply that BT accepts otherwise. The need for regulatory confidence has never been greater, yet Ofcom's approach conflicts significantly with its publicly stated regulatory principles.

Ofcom's proposals demonstrate a number of features that, if carried forward, would destabilise the confidence that customers, industry and investors have in the regulatory regime.

BT has particular concerns regarding:

- Ofcom's assertion that the approach to valuation should be changed following a change in regulatory objectives.
- Ofcom's proposed method for defining the optimal network - which generates a theoretical cost that is unachievable in practice. For example:
    - It assumes perfect foresight.
    - It does not reflect changing demand over time.
    - It assumes unlimited resources, available immediately.
    - It assumes instantaneous rebuild.
    - It fails to recognise 'transition costs' associated with maintaining the optimal network design over time.

- Ofcom's proposed abatement of any resulting holding losses - which would amount to expropriation of BT's recognised regulatory asset base.
- Ofcom's apparent desire to 'pick off' certain parts of BT's asset base for different treatment. Any approach should be holistic and applied consistently.
- The logical implications of this action. For example, if Ofcom intends to implement its proposals then this would necessitate the upward revision of interconnect prices to take account of prices that have applied since 1997.

BT believes that, on the balance of evidence, the Current Cost Accounting (CCA) approach currently adopted continues to give a value that is an appropriate basis for future regulation of the local access network. If relevant changes were made to the WIK model to reflect the weaknesses referred to above, BT believes that the resulting value would be substantially higher than the current CCA valuation.

Ofcom make no reference in the consultation document to the treatment of ongoing investment in the copper access network, nor do they make it clear whether they intend to review valuation of network assets regularly in future. It is essential that the regulatory settlement gives BT appropriate incentives to manage its network efficiently and avoids micro-regulation and the undue burden that this would imply.

Additional information included in the Annexes
Please note that the Annex documents themselves are submitted in a separate combined computer-readable file.

Our response includes, at Annexes 1 and 2 respectively, a report commissioned by BT setting out KPMG's views on Ofcom's proposals, and a letter from Sir Bryan Carsberg (former Director General of Oftel from 1984 to 1992, and former Secretary-General of the International Accounting Standards Committee from 1995 to 2001), who acted as an advisor to KPMG on this, confirming that he is in agreement with the conclusions of this report. We believe that both documents support the views expressed by BT.

In addition, included at Annex 3, is an Opinion from Eileen Marshall CBE (former Director of Regulation and Business Affairs at OFFER, Chief Economic Adviser and Director of Regulation and Business Affairs at Ofgas, and Deputy Director General of Ofgas from 1998 and at OFGEM from 1999), in which she argues, amongst other related topics, for the need for regulatory consistency and predictability, and for regulators to recognise the implications of real world informational limitations.

B. Detailed comments

Consistency with Ofcom's regulatory principles

Ofcom's proposed course of action is, in a number of significant respects, at odds with the core principles of cost-based regulation that have applied for the last decade. Should such a change be necessary, it need to be managed appropriately - without expropriation of the regulatory asset value and without increasing the level of regulatory risk and uncertainty. Moreover, many aspects of the approach appear to contradict Ofcom's published regulatory principles.

In addition, Ofcom is aiming to deal with the valuation of the access network on a piecemeal basis and not in a holistic way. It is in the interests of all concerned that the regulatory regime ensures that the key aspects of the access network (i.e. asset valuation, return on capital employed, price setting for wholesale access products, ongoing incentives to improve efficiencies) are treated in a consistent, coherent and predictable way. Picking off elements of the whole in separate reviews is likely neither to give a sensible integrated result nor enable to Ofcom to achieve the 'light touch' regulatory approach that they desire.

The approach being taken in the consultation document ignores many of Ofcom's publicly stated regulatory principles. The extent to which Ofcom is ignoring its own principles is of great to concern to BT, since the consultation document also contradicts Ofcom's desire to *"reassure investors that returns will not be 'regulated away' after the investment is made. Commitment by the regulator and consistency of regulatory actions are important in this context."*[1]. BT will, of course, continue to be constructive and co-operative with Ofcom. However, it will consider the options open to it, including the possibility of a formal appeal against a determination by Ofcom, if it believes that the solutions Ofcom proposes will not be right for our customers, the future of the industry or the company.

The consultation document also appears to pre-judge the outcome of the analysis - while it is possible Ofcom has performed some high level calculations that might indicate a lower valuation, the consultation document itself appears to have been written with the intention of raising expectations in the market that the asset valuation will in fact be lowered.[2] This is unhelpful to the debate and at odds with the goal of transparent and evidence-based regulation. BT is of the view that applying a correct set of adjustments to a theoretically optimal network design is likely to result in a valuation higher than the current CCA value.

The action proposed in this consultation runs counter to the principles Ofcom purports to be working to in the Strategic Review of Telecommunications[3]:

1. *"Promote competition at the deepest levels of infrastructure where it will be effective and sustainable;"*
   Ofcom appears to be giving up on competition in the local access network, even to the extent that its actions might adversely impact the finances of existing access network operators, and is reducing the incentives to invest in new technologies that might ultimately be economically efficient. This also appears to conflict with one of the stated objectives in Ofcom's Strategic Review: *"While our policy recognises that there are enduring economic bottlenecks in telecommunications today, the sixth principle*

[1] Strategic Review of Telecommunications, Phase 1 consultation document, para 4.7
[2] e.g. para 1.11: "It is likely that, as a result of adopting one of the alternative methodologies outlined in this document, the revised value of the access network will be lower [...]", and para 7.2 "Ofcom considers that if there is any change in valuation, then it is likely that the valuation will be reduced."
[3] Strategic Review of Telecommunications, Phase 2 consultation document, para 1.25, November 2004.

recognises the potential for new technologies, many of them wireless, to change the traditional economics and competitive conditions of telecoms networks. Ofcom is working to reduce the barriers to entry in the provision of wireless services."[4]

2. *"Focus regulation to deliver equality of access beyond those levels;"*
   This consultation will make no difference to equality of access - ensuring non-discrimination and equivalence are keys to this, not the value of the access network assets.
3. *"As soon as competitive conditions allow, withdraw from regulation at other levels;"*
   Competition in access already exists and is effective in many parts of the UK. If anything Ofcom should be proposing geographic deregulation in those areas, including cable company network areas for residential consumers, and metropolitan areas where businesses have a truly competitive choice.
4. *"Promote a favourable climate for efficient and timely investment and stimulate innovation, in particular by ensuring a consistent and transparent regulatory approach;"*
   The proposals in this consultation act in entirely the opposite direction: they will increase regulatory uncertainty and reduce the incentives for investment or innovation.
5. *"Accommodate varying regulatory solutions for different products and, where appropriate, different geographies;"*
   As identified above, there are already areas of the UK where regulation should be removed, and the increased regulatory uncertainty may not give appropriate conditions for alternative technologies to be successful.
6. *"Create scope for market entry that could, over time, remove economic bottlenecks;"*
   See comments under 4 and 5 above.
7. *"In the wider communications value chain, unless there are enduring economic bottlenecks, adopt light-touch economic regulation based on competition law and the promotion of interoperability."*
   As BT has already said in its responses to the Strategic Review of Telecommunications, BT does not accept that copper access is necessarily an enduring bottleneck in all geographies: many parts of the UK already enjoy direct and indirect access competition, and in due course alternative technologies such as Wi-Max and powerline communications may have a significant impact.

Justification for revaluation

It is generally accepted that one of the key objectives of economic regulation is to mimic the impact of competitive pressures on the regulated firm. This appears to have been the case when Oftel was the regulator, and should surely remain the case under Ofcom's tenure. It is hard to understand how Ofcom can reach a conclusion that the assets need to be revalued in a way that appears to contradict a conclusion reached by Oftel after considerable investigation, and maintained consistently over a lengthy period.

As a matter of regulatory principle BT strongly believes that the basis of valuation of assets should be independent of the objectives adopted by the regulatory body. The regulatory asset base should represent the economic value of the assets, upon which fair value the regulator should, provided the regulated firm performs efficiently, permit a reasonable level of returns to be achieved.

To assert, as Ofcom does, that the basis of valuation needs to be reviewed *because* its objectives have changed is counter to the regulatory regime as practised in the UK since utility regulation was introduced in the 1980s. Other UK regulators have sought to demonstrate commitment to using a consistent approach to valuation of regulated assets.

[4] *ibid.* para 5.11,

Furthermore the approach proposed by Ofcom is likely to damage regulatory credibility in the eyes of investors who have a right to a reasonable degree of certainty that they have secure title to the full economic value of the assets.

CCA valuation remains appropriate
CCA is the right approach, and our sampling method is fit for purpose and statistically valid. CCA valuation aligns with the economic value of the network (certainly more so than an Historical Cost Accounting (HCA) approach), being based on forward-looking modern equivalent assets.

There was extensive and open discussion of the relative merits of different accounting treatments at the time when a switch was made to regulation based on CCA some ten years ago. The arguments in favour of CCA have not changed.

HCA remains inappropriate for regulatory purposes
A return to HCA valuation would be a retrograde step, since the HCA basis results in asset valuations that are more distant from current economic value, and which are not suitable for a regulatory regime that is based on forward-looking long-run incremental costs (FL-LRIC).

Additionally, the allowed return on capital employed (cost of capital) to be incorporated in determining appropriate prices would have to be adjusted to ensure that it was consistent with an HCA asset base. A cost of capital determined using the Capital Asset Pricing Model (CAPM) is applicable to economic values, for which HCA is not appropriate. Such an adjustment is complex.

Ofcom's theoretical optimised network approach to CCA calculations understates the complexity of the real world
An optimised network is a theoretical concept. The assumptions made in the WIK and Analysys models, from what BT understands of these, will lead towards an understatement of relevant costs. The theoretical approach being proposed will produce a valuation that is not a long run economic value - no operator could deliver against these costs in the long run. As identified in the Executive Summary, there are a number of problems with this approach:

- **It assumes perfect foresight** - a network operator cannot know in advance where customers would be located, how demand would evolve, how technologies and techniques would improve.
- **It does not reflect changing demand over time** - demand does not simply appear and grow in steady ways; rather it ebbs and flows in response to changes in social and economic needs and the impacts of competing technologies and other factors such as house prices and migration.
- **It assumes unlimited resources, available immediately** - capital, skilled staff, equipment, stocks cannot be sourced overnight; it takes time and expense to plan and obtain resources and manage their deployment.
- **It assumes instantaneous rebuild** - it would take a number of years to build a network as extensive and sophisticated as that which BT operates; inevitably some apparent inefficiency will arise naturally due to this. It is certain that techniques and equipment will improve and that investment in spare capacity will prove to be unnecessary in some areas yet insufficient in others.
- **It does not recognise 'transition costs' associated with maintaining the optimal network design** - in response to these natural changes in network requirements changes need to be made that might include restructuring the network or installing additional capacity where insufficient was originally not anticipated. These changes all incur real and significant costs.

The issue of transition costs is particularly important. These costs, coupled with the disruptive effects on customers, are sufficient that significant network redesign is almost always grossly sub-optimal. For this reason for Ofcom to base access network values on a costless continuous redesign would be inappropriate.

The significant differences between plan and reality are evidenced with some weight by the financial and output performance of the UK cable TV industry in the early build stages of their networks. The costs incurred by these companies were significantly in excess of those anticipated in their plans, which were rooted in assumptions that were far less unrealistic than those adopted by the WIK model.

The current Oftel/BT method of determining CCA valuation is sound

BT takes the valuation process seriously and believes that the approach taken produces a reliable and valid valuation. If anything, BT's current valuation is likely to understate the true economic value - it totally ignores assets fully written down for accounting purposes that remain in operation, and which have enduring economic value. Additionally the current CCA valuation excludes drop wire investment prior to 2000/01. BT estimates the Gross Replacement Cost (GRC) of the missing assets to be between £4bn and £5bn.

Oftel was extensively involved in the establishment of the current CCA approach, and monitored and implicitly approved the CCA basis since it was introduced. Oftel were consistent in using the CCA valuation as the basis for regulatory decisions over an extended period, thus giving it considerable credibility.

If the theoretical model gives a different value from the valuation observed using the current method, then unless the differences are clearly understood and attributable to evidenced sub-optimal build, then the theoretical result should be ignored.

The CCA approach is sound, but it is noteworthy that Ofcom's consultation document does not consider a number of alternative approaches:

- **Deprival value** - This would give a far better recognition to the fact that a network could not be rebuilt overnight if you were immediately deprived of the assets, and the value would represent the real economic value to the organisation, including potential loss of revenues and funding costs over a realistic re-build period.
- **Use of market value** of the regulated firm, as other UK regulators do, on the basis that market value, suitable disaggregated to value the regulated assets in relation to the overall market value, gives an independent measure of the true economic value of the assets.

Gross Replacement Cost (GRC) vs. Net Replacement Cost (NRC) - what to do with the WIK output

Ofcom's approach - to be consistent with a new entrant perspective - necessitates that the equivalent 'missing' assets (drop wires and other fully-written down assets) previously referred to should be reinstated and their economic value recognised. As stated, this would give rise to some £4bn to £5bn of additional GRC.

If a theoretical approach is taken, this should not be 'mixed in' with assumptions about asset ages drawn from BT's asset base. If a theoretical approach is taken then theoretical asset ages should be assumed.

The consequence of this is that if it was assumed that the network could be built overnight the value would be its Gross Replacement Cost, with essentially no reduction in value because of the age of the assets.

Alternatively, it might be assumed that the network was in the 'steady state', having been built over a period of years, matching the relevant asset lives. BT believes this to be a more credible approach, overcoming some of the unrealistic assumptions in the WIK model as highlighted earlier. In this case, a NRC:GRC ratio of 50% should be used, reflecting that some assets would be brand new, others would be near to full depreciation and the rest would be evenly distributed in between.

Proposed accounting treatment - calculation of holding losses

If a revaluation does take place, and produces a different number, holding losses or gains should be accounted for appropriately through the profit and loss account, consistent with current policy and the CCA approach adopted by BT.

It would, however, be appropriate to recover these costs over a number of years for pricing purposes, to smooth the impact of any change. Failure to do this may give rise to significant price 'shock' problems.

Proposed accounting treatment - abatement of holding losses

Ofcom proposes that *"any holding gains or losses from a change in valuation should be calculated net of any windfall gain due to the change from HCA to CCA when setting prices"* (para 7.14). BT understands by this proposal that Ofcom intends to disallow the additional costs that might arise from a holding loss, to the extent that BT in some way benefited from the change in accounting basis from historic cost to current cost (HCA to CCA) in 1996/97.

Any netting off of purported prior 'windfall gains' against a holding loss arising on devaluation would represent regulatory action that is inconsistent with the way in which regulation has been applied in the UK. The effective reversal of a decision made a decade ago by a previous regulator would substantially undermine confidence in any future regulatory decisions, creating regulatory uncertainty and adverse impacts on the market's perception of risk arising from the regulatory regime - at a critical time for investment in the industry.

The regulatory regime, in order to give reasonable certainty for customers, regulated firms and their investors, is forward-looking, and there is a mutual understanding that *ex ante* regulatory constraints will not be revisited *ex post*, with a view to 'correcting' estimates or projections made at the time. The suggested treatment of the supposed windfall gains is tantamount to re-opening the regulatory settlement dating back to 1996, upon which BT acted in good faith in subsequent investment and operational decisions.

Accordingly, BT believes that Ofcom's proposal to net any windfall gain from the holding loss that might arise from this consultation is without merit and should not be pursued.

It is, it should be pointed out, meaningless to consider 'returns' from copper and 'returns' from duct. BT does not sell copper or duct – rather, there are a number of services that use copper and duct. Returns are generated from those services, not from their constituent elements. It is the returns from these services that it is relevant to consider. Ofcom's proposed method of determining the value of any windfall gains or losses is far from clear, and BT does not believe that any alleged windfall gains did, in fact, arise in relation to the copper access network.

Assuming that Ofcom intends to be consistent across the entire BT network, BT is keen to understand how Ofcom proposes to use the same logic regarding windfall effects in redefining network charges that have, since 1997, been set at lower levels on the basis of CCA accounting information compared with HCA.

Common costs
BT believes the current allocation of duct costs, based on cross-sectional area of circuit cables, is the most appropriate. However, alternatives exist and should be considered.

Critically, if a change is to be made then consistency in treatment of such costs is important if price discontinuities between access and core network are to be avoided.

Ongoing investment incentives must be maintained
Ofcom has already recognised that, in relation to Next Generation Networks, *"it is very important that regulation does not disincentivise their timely and efficient deployment"*[5], and BT believes that reducing the valuation of the local access network as proposed would materially increase the perceived risk of investment in such networks, as well as other traditional copper-based networks, which will continue to have economic value for some time.

BT believes it should remain a relevant objective for Ofcom to incentivise ongoing efficient infrastructure investment, both by BT and other access network operators. There is a real risk that a reduction in the value of local access network assets would disincentivise BT and other operators from making further investment, both in its copper-based local access network and in Next Generation technologies. Both BT and its competitors need to be confident of consistency in future, and Ofcom and its successors must ensure a regulatory regime that gives sufficient certainty to attract investment.

Treatment of future network investments and frequency of review of valuation
Ofcom make no reference in the consultation document to the treatment of ongoing investment in the copper access network, nor do they make it clear whether they intend to reviewed valuation of network assets regularly in future. It is essential that the regulatory settlement gives BT appropriate incentives to manage its network efficiently and avoids micro-regulation and the undue burden that this would imply.

[5] "Strategic Review of Telecommunications - Phase 2", Ofcom, December 2004, para 1.59

C. Responses to questions posed in the consultation document

1: Should this consultation be extended to cover the copper access network operated in the Hull area by Kingston Communications? If you think it should then please explain why.

Yes. There should be a standard regulatory approach for setting prices for the whole of the UK, because the retail market is UK-wide and customers deserve the same protection in Hull as anywhere else. If Ofcom is to re-examine the basis of valuation of BT's local access network assets there is no compelling reason why they should not also do so for Kingston Communications' assets also.

2: What is your opinion of a return to HCA?

It would be inappropriate to return to HCA as the basis for regulatory determinations. CCA values assets in a way that reflects economic value, and is a far better basis for FL-LRIC pricing, as recognised by European regulators.

CCA valuation is supported by the European Access Directive[6], where Paragraph 20 of the preamble states that: *"it is appropriate to allow a reasonable return on the capital employed including appropriate labour and building costs, with the value of capital adjusted where necessary* ***to reflect the current valuation of assets*** *and efficiency of operations"* (our emphasis). Article 13.1 goes on to say *"National regulatory authorities shall take into account the investment made by the operator and allow him a reasonable rate of return on adequate capital employed, taking into account the risks involved."* BT strongly believes that CCA is the only meaningful way of determining 'adequate capital employed' in this context.

If, despite the clear logic in favour of CCA, a decision was made to revert to an HCA basis, the way in which an appropriate return on capital employed is calculated would need to be revised. Applying BT's cost of capital as traditionally determined (using the capital asset pricing model to calculate the weighted average cost of capital) to HCA would not be correct, since CAPM is designed to assess the cost of capital in relation to the economic value of the firm. For companies with long-life assets such as BT it is accepted that an HCA is likely to significantly understate the appropriate economic value for setting a fair level of returns.

3: Do you believe that the overall regulatory approach described in this section is complete and appropriate? If not then please explain how the proposed approach should be changed.

BT does not believe that Ofcom is addressing the right fundamental regulatory issue. As already described above, the approach being proposed in this consultation to regulation appears to be being pursued in isolation from the wider regulatory regime and the need for a properly integrated regulatory 'contract', which should include a holistic and consistent approach to asset valuation.

[6] Directive 2002/19/EC of the European Parliament and of the Council of 7 March 2002 on access to, and interconnection of, electronic communications networks and associated facilities (Access Directive)

Purpose of the regulatory regime

BT agrees that a key objective of the regulatory regime should be to ensure that the incumbent is not able to achieve persistent excessive returns from bottleneck ('monopoly') assets. Ofcom appears to be confusing this with the desire artificially to promote the interests of competitors in retail markets.

If Ofcom considers competition has not developed as rapidly as they would have preferred, it is possible that this has been because regulated prices have been *too low* - not giving new entrants sufficient incentives to enter the market. Economic theory would suggest that access competition has not developed because prices have been too low (as evidenced by the below-par returns on access in BT's regulatory accounts), resulting in part from previous Government and Oftel policy to keep line rental charges low so as to ensure widespread access to telephony services. This did, however, have the effect of making calls-only competition possible and successful, as evidenced by the volume of IA and CPS traffic. Any attempt to rebalance this to make access competition work may make it more difficult for calls-only operators to maintain market share.

In the absence of competition, protecting customers from excessive prices is a legitimate objective for Ofcom, but the reality of the competitive telecommunications environment in the UK makes it clear that competition itself is providing this protection. No evidence is presented to suggest that the valuation of the copper access network is overstated or giving rise to excessive prices.

Where there are enduring economic bottlenecks, it is appropriate to review periodically the basis of wholesale prices charged for use of assets. This should be an objective, evidence-based review. BT believes that such a review would conclude that access prices under the Oftel/Ofcom regulatory regime have, if anything, adversely impacted the development of infrastructure-based competition.

Market failures - the right ones should be addressed, and in the right way

Ofcom argues that a change in the objective of regulatory policy - to protect the consumer - dictates a need to review the valuation of BT's access network assets. This is a non-sequitur. If Ofcom believes that consumer protection necessitates a reduction in access service pricing, they should state this as an explicit policy objective. This would at least link the policy objective to the valuation review. If consumer protection entails the stimulation of innovative service provision, this is independent of the absolute level of wholesale prices.

Any failure in retail markets should be addressed separately - the value of access network assets or the wholesale price charged is not directly relevant to the speed of development of effective competition in retail telephony or other services that use the local access network such as broadband or video services, nor in the ongoing effectiveness of competition.

Without detracting in any way from, and without prejudice to any of the points made elsewhere in this response, one of our key concerns is that if any reduction in the value of the access network was made, and yet retail competition still failed to meet Ofcom's (unspecified) success criteria, will the valuation be re-opened? Success in retail competition using BT's local access network is entirely independent of the value of the assets and periodic change to the basis of valuation of the access network would therefore be inappropriate. It is clear from any objective viewpoint that non-discriminatory prices and service quality are keys to effective downstream competition, not the absolute value of the access network assets. Revaluing will adversely affect investment incentives through the creation of unnecessary uncertainty, but will not in itself contribute to more effective competition in any part of the value chain - this results in an inevitable reduction in consumer welfare.

Scope of the review

Regulation of prices charged for using the access network may be appropriate, where the local loop remains a bottleneck. Periodic review of the basis of these charges may also be desirable. However, it is important that there is consistency of regulation so that appropriate and predictable signals are given to investors and market participants. It is important that regulation of wholesale local access services is done in a way that provides predictable prices and minimal need for regulatory intervention. Recent regulatory activity in the area has been piecemeal, examining individual products and now the asset valuation and, in a separate consultation, the applicable cost of capital.

The narrow focus of this review on access network asset valuation will not ensure a more robust and stable regime going forwards. A better approach to ensuring fair and economically justified pricing, whilst encouraging efficient investment would be to adopt a holistic approach to price controls. This should examine asset value, return on capital employed, operating and capital efficiency, quality of service and so on. Such a review should consider these factors in the context of the basket of wholesale products and services.

A holistic approach could enable a structured, light-touch regulatory approach that delivered clear and enduring incentives for BT to improve efficiency and quality of service, without the fear that precipitate regulatory intervention might unduly interfere with BT's role as managers of their own network. Furthermore, this approach would deliver an explicit level of protection for citizens and consumers, highlighted by Ofcom as a key goal.

As identified elsewhere in this response, BT believes that Ofcom should adopt a geographic deregulatory agenda, recognising that the need to protect customers is reduced by the beneficial effects of existing network competition.

BT's current approach to CCA valuation

Ofcom implies that it should be straightforward to derive a current cost valuation of the access network. It is suggested that BT has "inadequate records", and as a result the valuation is a complex and time-consuming process. This is not a fair representation of the true situation.

BT takes a serious approach to this, carrying out a detailed bottom-up valuation, identifying the physical quantities of each type of network asset, and applying an appropriate current price to each volume to derive a Gross Replacement Cost. The consumption is then reflected through actual use of the underlying assets in the depreciation charge, to determine the net carrying value.

To illustrate the scale of this undertaking, separate prices are applied for at least six different types of footway box, seven types of manhole cover, 14 types of joint closure, and 21 types of cable. The access network is a complex construction, and any robust current cost valuation is necessarily similarly complex.

4: What do you believe the useful economic life, i.e. book life, and the service life, i.e. actual usable life before replacement is required, of a copper access cable should be?

5: Do you believe that a rolling treatment of the economic life for duct is appropriate? If not, how do you believe duct should be treated?

In preparing its regulatory financial statements, BT follows the accounting policies used to prepare its statutory accounts. Consistent with these policies, asset lives are subject to annual review. Given the possibility of new, disruptive technology, quickly rendering existing

assets obsolete, the conservatism that underpins financial accounting makes it important not to set overly long asset lives.

The asset lives set by BT take account of a range of factors, including expected physical lives, wear and tear, network development plans, and the actual costs of maintenance and repair. Our policy is in line with telecommunications companies in Europe and North America, which use economic lives of between 11 and 20 years for copper and between 10 and 50 years for duct.

However, at any point in time, in an assessment of the economic life of an asset, the relevant consideration is the remaining economic value inherent in that asset.

The approaches that Ofcom is proposing in Options 2 and 3 are essentially designed to satisfy an economist's test: What might costs be in a competitive market? Any such economic assessment should have regard to the assets used to provide service and the value expected to be generated from that service.

For example, the access network from MDF to DP is by itself worthless, without the final drop wire connection to the end-user/customer. Drop wires therefore represent a valuable asset, which any new entrant would need to deploy in building an efficient access network.

Other assets including copper and duct may have been fully depreciated for financial accounting purposes, but still be in use in the provision of service. The current Gross Replacement Cost of duct which was fully depreciated - and therefore not included in BT's current CCA valuation - was £1.2bn as at 31 March 2004. A substantial portion of the duct represented by this value is still in use and should be reflected in any economic valuation of the access network.

It is not clear how Ofcom intends such assets to be taken into account in this review, but they must form part of the comparative value that will result from it, particularly as Ofcom moves further along the spectrum towards pure economic values.

6: What level of spare capacity do you believe is appropriate for a copper access network?

There is no single 'right' answer to this. Any network operator will invest in capacity that takes account of likely future demands, the cost of investing in 'spare' capacity and the cost of having to add new capacity in future. The most recent material example of this is the decision of UK cable companies to create networks that enabled access to many more customers than merely their short term expectations.

BT has built its access network using the most cost-effective technologies and techniques available at the time, taking account of expectations at the time of future growth and changes in demand. Ofcom has offered no evidence to the contrary. It would be inappropriate for an evidence-based regulator to ignore this and effectively penalise BT's shareholders for decisions that were either required for regulatory reasons (e.g. to satisfy social policy or the Universal Service Obligation) or that otherwise were perfectly sound at the time they were made.

The extent of investment in spare capacity at any one point in time is a result of a wide range of complex factors such as:

- Planned operational spare copper/duct capacity (e.g. to meet future demand and network resilience requirements). The planning rules followed by BT provide for more than one

line per household, both at E-side (1.2 lines per household) and D-side (2 lines per household) is based on many years' experience, subject to ongoing monitoring of subsequent demand, and aims to minimise the overall cost, including initial provision, subsequent re-provision and maintenance costs.

- Economic efficiency - since labour costs associated with digging and subsequent additional installations are high it is more economic to build additional capacity at the time of first dig.
- Forecasting 'error' - the ability to predict future levels of demand or technological advances with any certainty.
- Modularity, which arises because cables come in certain fixed sizes. In order to minimise stock holding costs and optimise bulk purchase costs, BT only buys in certain standardised sizes, and therefore the 'next size up' is routinely used. Much of the apparent excess capacity is therefore illusory - eliminating this by carrying a wider range of cable sizes could in fact *increase* costs, because of the considerably higher cost per line in lower capacity cables; and
- Losses to other access providers e.g. mobile phone companies, cable companies and other competing access networks, which have created effective access competition in many parts of the UK. Some allowance is also made for customers returning to BT's fixed access network.

Planning spare capacity is a complex real-world activity, which can only meaningfully be carried out in relation to the actual conditions pertaining at the time the decision has to be made. It is not an academic exercise, but a balance of financial and operational factors; BT employs engineers who are expert in such planning.

It should be noted that although there is some spare capacity in some parts of the BT access network, in other parts it is still necessary to use pair gain equipment (e.g. Digital Access Carrier System (DACS)), whereby telephony service to two customers is provided using the same twisted pair. This apparent shortage of capacity has arisen because of unexpected demand, due to factors such as new housing development and higher than anticipated demand for second lines. Pair gain has for many years been a cost-effective way of providing PSTN service without having to add further physical pairs, although its continued use has been reviewed in the context of increased broadband demand.

Finally, it should be noted that spare capacity in BT's network is tremendously valuable to competing network operators, as well as to BT. Competitors gain a real option value because they can use BT's spare capacity to provide services to their customers, deferring a decision as to whether to build their own network or not, which they can only do because of their ability to rent capacity from BT. This option value should not be ignored.

7: What is your opinion on the option of keeping the current methodology and then moving to a valuation based on PIPeR when it becomes possible (expected in 2006/7)?

BT believes that the current methodology continues to provide a robust, reasonable and fit for purpose valuation to meet its regulatory obligations, within reasonable time and cost constraints. It is based on a sampling approach which was defined by BT's statisticians, and is subject to external audit each year. Improvements in the statistical accuracy could be achieved only at a significantly increased cost due to a much higher resource required in conducting the sample surveys.

With all diagrams fully updated and vectorised under the PIPeR project BT will be able to account for all volumes of cable, duct and street furniture in the access network and apply unit costs to derive a network replacement cost. This will remove the need for the existing resource hungry sampling methodology and hence eliminate the scope of any sampling

errors. Any change in the valuation that arises from the introduction of more robust data via PIPer could, in BT's view, reasonably be phased in over a number of years in order to avoid price 'shocks' - a similar approach to that which might be used to smooth the impact of potential holding gains or losses if Ofcom were to revalue the assets as a result of this consultation process.

8: What is your opinion of using an optimised approach to estimate the value of BT's copper access network?

What is being proposed in the consultation document does not reflect the realities associated with any network build. Any revaluation based on a theoretical new entrant's 'fully efficient' design - using such deeply simplistic assumptions - is flawed. It is incorrect to claim that the appropriate value is that which could be built overnight, and with perfect knowledge of the future, the ability to costlessly relocate Primary Connection Points (PCPs) and re-route duct. The real world simply does not work this way, and other regulators such as the United States Federal Communications Commission (FCC) recognise this. It is vital to take account of real world factors such as routing, topology and necessary planning capacity levels and the inability to immediately source labour, skills, equipment and stocks if the valuation is not to be a figure of very limited applicability. Adoption of such a value as the basis for regulatory pricing would result in material under-recovery of costs and amount to expropriation of shareholder assets by regulators.

Any new entrant would face the same issues as BT over how to dimension its network to most efficiently meet demand. Forecasting 'error' - which includes the inability to predict perfectly demographic or technological changes - means that no network can ever be fully efficient in the way that the WIK/Ofcom approach implies. In addition, it takes many years to build a network as extensive as BT's. A new entrant could not simply build a new network overnight - over the years it would take to build, apparent 'inefficiencies' would arise that could not be avoided, the result of fluctuating demand levels and associated forecasting error, demographic changes and technical advances that cannot be predicted with certainty. A 'fully efficient' design is wholly theoretical and cannot exist in the real world. It is not possible to get from today's network structure and technology to a more efficient one either quickly or without cost. Ofcom appears to be proposing to ignore this opportunity cost of capital over time. This should be taken into account in any review of the relevant costs of access services. The consultation document does not indicate how Ofcom intends to deal with capital expenditure in future years - it is essential that full credit was given for necessary network investment and any costs associated with local redesigns needed to maintain an efficient design.

A forward-looking approach is appropriate, but this is inherent in the existing CCA methodology, and using actual fixed assets, suitably revalued to take account of latest proven technology, is the appropriate approach.

Great care needs to be taken not to over-stretch the concept of a 'forward-looking' methodology. Forward-looking prices should enable a network operator to recover efficiently incurred actual costs. Fundamentally however, no 'fully efficient' design can exist in the real world - technological change, new working methods, demographic and demand-led changes will all cause networks to be constantly in a state of inefficiency compared with the theoretical optimum at any point in time, even for the most efficient network operator.

Furthermore, any comparison of valuation should be on a consistent basis. For example, if the output of the optimised network analysis is on the basis of an 'overnight build' then any comparison with BT's valuation should be using the Gross Replacement Cost of the optimised network build. If, however, the optimised network was valued on a 'built over a

period, to reflect real life' basis it would be appropriate to use the Net Replacement Cost. The ratio of NRC to GRC is, in this situation, likely to be around 0.5, assuming build was managed at the same annual activity level (i.e. in the 'steady state') over the years during which the theoretical local access network was built. Note that a build over a period of years would also, necessarily, need to include some inherent 'inefficiency' - higher levels of initial capacity installed (to minimise later re-digging to install additional capacity) and some incremental additional capacity where unplanned demand increases meant that planned spare was insufficient.

These choices are illustrated in the following table:

Resource and time constraints of the 'Theoretically Efficient New Entrant'	GRC:NRC Ratio: 1	GRC:NRC Ratio: 0.5	GRC:NRC Ratio: BT's current ratio
Infinite resources	**Consistent**: with the ability to build a network 'overnight', no part of the asset base would have aged at the point of service deployment, hence NRC=GRC at the date of valuation		**Inconsistent**: A firm with infinite resources to establish 'instantly' a ubiquitous UK local access network would not have an aged asset profile similar to BT.
Rapid resources		**Consistent**: A firm with vast, but not infinite, resources might rapidly deploy a network over (say) 5 years. At the point of valuation NRC could be around 0.5 of GRC	
In line with actual UK market development			**Consistent:** An NRC:GRC ratio similar to that of BT - implies a roll out period similar to that experienced by BT. Note however that the firm would also incur BT-like levels of inefficiency, and forego significant cashflows during network deployment.

In addition, the current BT network is more valuable to a new entrant than the basic CCA valuation, since there is a real option value, reflecting the ability of the new entrant to choose to rent rather than buying - this element has been ignored in the past, but should be reflected in the calculation of access charges.

An alternative approach that should be given serious consideration is that of deprival value. This approach requires that the assets of a business should be valued using the value to the company in the event of the deprival of those assets, also known as the Value To Business (VTB) rule. Under this approach the fair value of the assets to their owner (whether BT or the theoretical new entrant) is the lower of: their replacement cost, or the higher of their economic value or their net realisable value. The economic value is likely to be the highest, depending on the expected cashflows.

To permit returns on the basis of a design that is unachievable by any operator, whether BT or a new entrant is wholly inappropriate, since the objectives are to ensure that costs reflect the impact of a competitive environment, and to give meaningful cost signals to competitors in both infrastructure and retail markets. The decision by Ofcom to change emphasis from

encouraging infrastructure investment to protecting customers should not be used as an excuse to penalise BT by forcing the asset valuation to levels below those that would pertain in a theoretical competitive environment.

So, although new technologies, working methods and even changed network topologies can be taken into account in deriving a valuation, Ofcom must recognise that some real-world facts cannot be ignored:

a) New technology will only be implemented once it is proven;

b) Even proven technology will only be rolled-out over a period of time - instantaneous replacement with new technology would be implausible, even in the most competitive markets. Over this period of time it is possible that the initial build would be superseded such that the modern equivalent asset is no longer optimal, even before its construction is finished;

c) New technology or techniques will only be implemented by a rational company when to do so gives the most efficient combination of initial capital investment, ongoing asset maintenance costs and system flexibility (e.g. for subsequently increasing capacity or extending the reach of the network), taking into account the costs of writing off, stranding or disposing of assets being replaced;

d) Existing circuit routes are tied to physical and local planning and streetworks legislation constraints that not only play a major role in the design of the access network but also impose barriers to change, even if there might be a theoretically 'better' design. Constraints that have a substantial impact on routes and costs include: existing street furniture locations and other network operators' duct, Street Works legislation[7], nature of sub-soil, exposure to ground water or flooding, existing wayleave arrangements, objections to overhead line routes on environmental or safety grounds, refusals to allow undergrounding circuits. Many of these constraints change over time - for example increasing awareness of the visual environment, legislation to minimise (and even charge for) road traffic flow disruption[8], and frequency of flooding and rising ground water levels. It is not clear how many of these constraints could be modelled in the attempt to determine the optimal network;

e) Additional circuit routes and new capacity will arise over time, in order to meet demand - this means that even though a network could theoretically be designed using cost optimisation algorithms, in practice incremental investment is unavoidable, rendering any network 'sub-optimal' compared with a desk-based solution; and

f) The costs of duct are not linear as the bulk of the cost is in the labour required for laying of duct. For example, the unit cost of 2-bore duct is currently £24.67 per metre, compared to £22.58 for 1-bore duct. This means that the cost of installing extra capacity on initial installation is modest compared to the cost of a re-dig if insufficient capacity is subsequently required, and it is therefore economically efficient to lay more duct first time.

g) There will always be 'spare' capacity, designed to meet reasonably foreseeable demand - management judgement is used to determine to what extent spare capacity is there to meet just short term or contribute to ultimate demand levels.

In any case, even if the concept of a 'fully efficient' design was an appropriate basis for valuation, which BT does not accept, it may not be the cheapest in capital expenditure terms, since it is possible to design networks in varying ways: At one extreme a 'gold-plated' high capital cost network may have near-infinite capacity, near-perfect reliability, high levels of

[7] New Roads and Street Works Act 1991
[8] Traffic Management Act 2004

'hands off' automation, low cost of extension and consequently very low operating costs and lower ongoing incremental capital costs. At the other extreme a 'bare bones' low capital cost network might have no spare capacity and be highly manual-labour intensive for maintenance and further work, resulting in very high operating costs.

This effect was recognised by the Irish regulator in its February 2004 consultation on Local Loop Unbundling Costing: it identified the fact that (more costly) pressurised cables are likely to be less faulty than non-pressurised cables; (more costly) underground wires suffer less weather damage than overhead wires, needing less maintenance; (more costly) spare capacity reduces faults arising from physical alterations needed when new connections are made. ComReg proposed that its LRIC model network should assume some degree of the higher capital cost approach.[9]

The optimally efficient network is likely to be somewhere between these two extremes, and this is largely a matter of management judgement, and various factors will be taken into account, such as any cash constraints, the nature of the regulatory environment, the state of competition and the expectation of future regulatory intervention

The US Federal Communications Commission, in its 2003 review of Unbundled Network Elements (UNE) pricing stated that "*the UNE pricing methodology, while forward-looking, must be representative of the real world and should not be based on the totally hypothetical cost of a most-efficient provider building a network from scratch.*"[10], and, most significantly, that "*an approach that reconstructs the network over time seems to be more appropriate than one that assumes the instantaneous redeployment of 100 percent new technology*".[11] The FCC also said, in the same document: *"In the real world, however, even in extremely competitive markets, firms do not instantaneously replace all of their facilities with every improvement in technology. Thus, even the most efficient carrier's network will reflect a mix of new and older technology at any given time."*[12]

If the results of the analysis by WIK or Analysys are used to justify a material reduction in the valuation of the access network, their methodologies and detailed results should be published in order for interested parties to understand and question the conclusions. In addition, since both studies will initially be based on small sample sizes, the results must then be tested with larger, statistically robust samples, taking account of a suitably representative range of exchange areas, to ensure that the conclusions are meaningful. Until the analysis satisfies at least similar statistical confidence levels to those achieved by BT (as per paragraph 5.6 of the consultation document), Ofcom can draw no meaningful conclusions.

In addition, given the importance of input data, BT must be able to validate the data used in relation to its network, and the assumptions/projections made, and it must be made clear which data is based on interpretations or assumptions made by WIK, Analysys or Ofcom.

If the local access network assets are revalued it is vital that this does not precipitate a new and intrusive approach to regulating network investment, that requires either annual re-assessment of valuation or review of all investment proposals by WIK or Ofcom. BT must continue to be allowed to manage its own business: a continuous regulation approach would

[9] "Local Loop Unbundling Costing Consultation - Direct and Indirect Operating Expenditure Econometric Modelling" (Document 04/21), Commission for Communications Regulation (known as "ComReg"), published February 27, 2004, Table 6.1, page 16
[10] "Notice of Proposed Rulemaking" (FCC 03-224), Federal Communications Commission, Released September 15, 2003, para 53
[11] *ibid*, para 68
[12] *ibid,* para *50*

be at odds with Ofcom's stated principle of light-touch regulation and least intrusive regulatory mechanisms, and is by no means certain to result in optimal investment.

9: Do you believe it would be possible to discount the new technology solution for additional functionality and, if so, how?

The overall CCA asset valuation principle is that the Net Replacement Cost should be derived based on the existing assets if these are still available and are cheaper than the new technology assets.

If it is not possible to value the access network using equipment that replicates only existing functionality and obligations, then the relevant costs should be the costs of whatever modern equipment that would have to be purchased in order to provide the current functionality. A new operator would have no choice but to buy these new assets, even if all they wanted to do was to provide the existing services, because the assets are indivisible. Hence the capital cost would have to be for the whole Modern Equivalent Asset (MEA) replacement network, even if it includes functionality not currently needed to replicate the BT network functionality.

10: What alternative architectures to the active PCP architecture studied by Ofcom do you believe would be viable options for a modern equivalent asset to BT's copper access network?

It is appropriate to consider active PCP architecture in this exercise: the purpose of the analysis should *not* be to design the optimal network architecture, either for current PSTN/bitstream obligations or for future 'next generation' network services such as fibre to the kerb or fibre to the home.

In addition, it should be borne in mind that the current network design deliberately places DSLAMs and other equipment at locations that ensure efficient fill rates and economical maintenance costs. Moving processing power to PCPs would result in higher maintenance costs and poorer fill rates. Furthermore, implementing intelligence at the PCP would have profound impacts on LLU - sub-loop unbundling would become necessary - that would alter the economics for LLU operators.

In addition adopting fibre-to-PCP could not be done without fundamental redesign of the core network, since the architecture would have to change to incorporate the new local network configuration. In summary, whilst it might be useful to consider alternative architectures if the aim was to develop best practice for future investment in access networks, it is important in relation to the current consultation to base any conclusion on what is feasible, economically justifiable and in line with wider strategic design options (e.g. BT's 21CN project).

11: What is your opinion of using an optimised approach which takes advantage of modern technology to estimate the value of BT's copper access network?

See our answers to Q8 and Q10 above.

12: How do you believe the labour rate should be set?

The labour rate for use in valuing assets should be the one that is applicable to replacement of a large scale build in the 'normal course of business' as per the Current Cost Accounting

principles. This means, for example, that premium rates payable for either low volumes or due to a shortage of appropriate labour (as is currently the case) are not included in the CCA calculation.

The unit prices used by BT to derive the valuation for duct are based on the 1994/95 contract prices indexed forward to the valuation date, because these are deemed to be representative of the 'normal course of business' prices appropriate for use in deriving the Gross Replacement Cost i.e. these rates are designed to mirror the rates that would apply in the case of a large scale build which a new entrant would need to conduct. BT's current contractual rates are much higher than the unit rates used for valuing the Access network - current rates reflect the low volume ordering profile and the reactive nature of the existing work which is subject to premium rates being charged by the contractors.

However, in modelling the costs that a new entrant would incur in building a theoretically 'fully efficient' network it is important to reflect the scarcity of labour resources into the labour rates - constructing a UK-wide replacement copper access network is far from trivial, and using the rates BT uses in its CCA valuation would not be appropriate. Rates far closer to the current contract rates would be more applicable, since these represent a true current market rate. Labour costs represent in excess of 80% of duct costs. The net carrying value of access duct is £3.68bn, so a 10% increase in the applicable labour rate would increase the access network valuation by £288m.

13: How do you believe the issue of unavailability of asset types used in the network should be accounted for in the valuation?

It would be inappropriate to abate the asset value to reflect the unavailability of asset types actually used in the access network. Although a new entrant might be able to procure cable in sizes not currently available, BT believes that it is most appropriate to reflect only those cables which are commercially available, and for which prices exist, in the valuation. It is not possible to undo these decisions, and it would not be appropriate to adjust the asset values downwards.

It is not possible to predict changes in technologies or product configurations and it is likely that any new entrant would face similar issues that they would not be able to do anything about after the event, except for new build.

Decisions about what stock items to order, hold in stock and to use represent a commercial judgement between the cost of buying and holding lots of stock types/capacities (which would be more costly per line) and the cost of having to use over-specified assets (which is also more costly, because of increased spare capacity). All network operators face the same problem - it is a real world factor that should be taken into account in the modelling of access network costs.

14: What is your opinion of using cross-sectional area to attribute the cost of shared duct?

BT supports this option: it is the most appropriate way to allocate costs on the basis of causality. Furthermore, it is practical to apply and is far more meaningful than any other option available. In addition, any material re-allocation of costs would require changes to other regulated product costs (i.e. those that use core network assets) resulting in unwelcome and destabilising price changes.

15: What is your opinion of using bandwidth to attribute the cost of shared duct?

For the reasons set out in the consultation document, bandwidth is not a suitable basis for allocating costs.

Bandwidth is, for these purposes, almost a meaningless metric in reality. Firstly it is not a static concept: potential bandwidth over both copper and fibre has multiplied over recent years, in ways that would have been impossible to predict only a few years ago (xDSL enabling up to 8Mb/s over ordinary copper pairs, DWDM increasing the capacity of fibre considerably). Secondly there is a big difference between bandwidth *capacity* and actual bandwidth used. The former is just about quantifiable (subject to technological change!) whereas the latter is only observable at any point in time.

These factors make bandwidth a poor, unusable, metric for allocating costs.

16: What is your opinion of using incremental cost as the basis to attribute the cost of shared duct?

Allocation using incremental cost is inconsistent with the new entrant approach: if an operator wanted to build either a new access or a new core network they would either have to dig new duct or rent it from someone else. Using incremental cost is tantamount to saying existing duct is cost-free.

Where relevant to do so, allocation of duct cost to both core and access is more appropriate since this recognises the economy of scope benefits in a sensible way - both access and core benefit from those assets that are used by both networks.

17: What other methods of attribution for the cost of shared duct might be appropriate?

In theory, the correct approach is the use of Ramsey pricing models. However, as Ofcom note this approach is rarely if ever used due to its data requirements, which will be allied to considerable definitional problems in this case. Consequently, an alternative allocation methodology is required, and our view of the most appropriate methodology is provided in our answer to Q14 above. Using an Equal Proportionate Mark-Up (EPMU) basis for the attribution of shared duct costs would result in a transfer of costs from Core to Access.

18: Over what timeframe do you think it is appropriate to recognise the impact of any change in valuation of the copper access network in relation to setting prices?

If there is a material change in valuation of the copper access network then price-setting mechanisms should phase this in over a suitable period of time. The time should reflect the practical (albeit challenging) ability of BT to drive out inefficiency or implement more efficient approaches. The incentives should be over a short enough period to ensure the incentives are effective, but also to identify promptly if the assessment of efficiency improvements achievable is too optimistic or flawed for some technical reason (e.g. new technology overtakes the assessment done in this review).

Any impact of a one-off holding loss should also be smoothed over a suitable period, in the interests of a reasonable and predictable glide path for prices. However, this would result in

fluctuations in reported profitability unless the holding loss was accounted for in a similarly deferred way.

Consistency with other regulatory approaches would suggest that a minimum period of four years is appropriate. Give the practical impossibility of any operator ever being able to build a fully optimised network, the target at the end of this period should not the 'fully efficient' cost level, but a level on the way to the target, taking account of what is feasible and consistent with funding requirements and the behaviour of the theoretical new entrant.

Such a period would also allow prices to be set that would give other operators sufficient certainty about their input costs and BT about its revenues.

19: Over what range of products and services do you believe it would be appropriate to recover any potential holding loss?

Any holding loss arising on revaluation ought to be recovered over all access products, averaged on a per line basis, so that all products bear an appropriate share of the impact.

20: What do you believe would be the most appropriate way to implement changes relating to pricing of specific products? What timeframe do you believe would be appropriate for such implementation?

See answer to Q3 above. Ofcom should undertake a comprehensive review encompassing all wholesale services using the access network, to ensure appropriate across-the-board cost recovery, pricing certainty for both BT and for retail and network operators and ensure that there is a real opportunity for a light-touch periodic regulatory mechanism.

Given the importance of these wholesale access services to Ofcom's strategic objectives, this holistic review, including setting suitable RPI-X price caps for all these products should be considered as soon as possible.

If it is necessary to implement changes to prices before the completion of such a comprehensive review the most appropriate way would be to determine a per line adjustment at the same rate for all lines.

Please note that the annexes are combined together in a separate document

Annex 1: Report from KPMG

BT asked KPMG to provide an independent view of Ofcom's consultation document. KPMG's report identifies dangers inherent in adopting the proposed valuation methodology, and provides insights into the impact that these decisions may have on the market. They concluded that Ofcom adopt option 1 and continue to value the network on the basis of BT's existing costs.

KPMG have concentrated their analysis on the principles that any valuation would have to adopt and how these fit in with overarching regulatory principles. The report is structured around four key arguments:

- The competitive environment in which BT operates is different to that assumed by the Ofcom consultation document;
- The methodology adopted in applying options 2 and 3 requires simplifying assumptions, that if applied, could undermine competition and investment in telecommunications sector;
- This methodology cannot practicably quantify the true costs an entrant would face in building a new network; and
- The application of a clawback is unwarranted and represents a selective approach to regulation that could undermine the relationship between all regulated companies and their regulators.

The views and conclusions contained in KPMG's report concur with those held by Sir Bryan Carsberg (see Annex 2 for a letter summarising his position) who has had full sight of, and input into, the report. Sir Bryan will be writing separately to Ofcom in due course, and is happy to discuss the conclusions reached by KPMG and himself with Ofcom.

Annex 2: Letter from Sir Bryan Carsberg

Annex 3: Expert Opinion by Eileen Marshall CBE

BT asked Dr Eileen Marshall CBE to give an independent Expert Opinion on the issues raised in Ofcom's consultation document. Dr Marshall has first hand experience of many of the issues raised by this consultation from her time at Offer, Ofgas and Ofgem, where she was Deputy Director General and later Managing Director, Competition and Trading Arrangements.

Dr Marshall suggests that successful regulation needs to be practised with due regard to real world informational limits facing both the regulator and the regulated businesses. An incentive-based regime has a key role to play in encouraging efficiency in those markets like the copper loop that are deemed to be 'non-contestable'. In the absence of regulatory incentives, the regulatory regime is effectively one of cost-plus regulation involving micro-management by the regulator, even though informational constraints mean that this may be ill-informed, and likely to deliver sub-optimal results.

Dr Marshall points out that a workable incentive system should not be entirely forward looking, as shareholders have already committed funds up to the present, for which they

ought to be recompensed. This implies that it is not the case that it is only necessary to ensure that investors have confidence that their forward-looking efficiently-incurred costs will be funded at the appropriate cost of capital. *Ex-post* action to expropriate significantly shareholders' capital values, where these were previously deemed to be efficiently-incurred investments, is likely to harm the interests of investors and consumers in the long run. Regulators ought, therefore to adhere to principles of 'no clawback' and 'no hindsight' for unanticipated gains (or losses) in an effective incentive-based regulatory regime. This implies that regulators should strictly adhere to a rule of not re-judging the efficiency of capital investment, and/or otherwise overturn past settlements.

Dr Marshall suggests that, in considering methods of determining the regulatory asset value, regulators should include consideration of the merits of valuing existing assets on the basis of capital market values, as for example used in the gas and electricity industries. This is itself not an exact science but, by striking a fair balance between the interests of shareholders and customers, may be appropriate for a one-off settlement of the type being considered by Ofcom.